THE DREW REVIEW

Drew University
May 2026 | Volume 19

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Drew University
The College of Liberal Arts
May 2026
Volume 19

Artist Statement

“Green Light II” is part of a developing series in which I take photographs on 35mm film and translate them into paintings. I explore how my film photographs—using grain, fuzziness, and even shooting on expired film—create a nostalgic environment of remembering. By translating these photographs into paintings, I investigate how the emotional environment attached to a piece can change as the medium does. Are feelings lost? Are new ones gained? How are they expressed differently? How does the historical relationship between photography and painting play a role in this contemporary translation?

“Green Light II” is an oil painting based on an original film photograph, “Green Light I.” It depicts the Curtis Island Lighthouse off the shores of Camden, Maine, in the twilight, as its green signal light switches on. I attempt to imbue the piece with the emotions I felt while capturing the moment on film: a sense of peace and freedom, and a call towards the future.

Grace Gannon
CLA 2027

Foreword

The Drew Review, Drew University's annual double-blind undergraduate research journal of the College of Liberal Arts (CLA), commemorates talented students and their impressive authorship of the previous academic year through faculty nomination and subsequent publication.

As a double-blind, peer-reviewed journal, all submissions were submitted without any identifiable information, such as the student's or professor's names. Papers are either rejected or sent back to the author with recommended edits, and this process may occur several times before publication. This year, we received a total of 18 submissions and have published only 7, thus emphasizing the efforts and ability of these authors.

Those interested in submitting their work in the future will require a faculty nomination, which must include the author's name, paper title, and a brief rationale for nomination. All images will be published in black and white, and it is the author's responsibility to ensure that the images are permissible for reproduction under copyright law.

We are very grateful for our faculty advisors Dr. Kimberly Choquette of the Chemistry Department and Dr. John Lenz of the Classics Department. Their help and support is instrumental to the success of *The Drew Review*.

Editorial Board

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The Schön Scandal and Its Impact on Scientific Practice: A Historical Study of Peer Review, Data Transparency, and Research Ethics

Eva Woolard

Abstract

The fraud committed by physicist Jan Hendrik Schön at Bell Labs in the early 2000s stands as one of the most significant cases of scientific misconduct in modern history. By fabricating and duplicating experimental data across multiple publications in prestigious journals, Schön deceived a scientific community that was eager for breakthroughs in nanotechnology and semiconductor research. This case exposed deep structural vulnerabilities in the peer review process, revealed the dangers of insufficient data transparency, and raised difficult ethical questions about individual and institutional accountability. This paper examines the Schön scandal within its historical context, tracing how the pressures of "publish or perish" culture and the competitive race to extend Moore's Law created conditions that enabled fraud to persist undetected. It further analyzes the reforms that followed, including stricter data-sharing requirements, strengthened peer review standards, and expanded ethics training, while acknowledging that challenges such as predatory journals, the replication crisis, and publication pressure remain unresolved. In all, the Schön scandal serves as a crucial case study in the ongoing tension between scientific ambition and the rigorous oversight necessary to ensure research integrity.

Introduction

In the early 2000s, Jan Hendrik Schön was considered a rising star in the field of physics for his groundbreaking work on semiconductors. As a postdoctoral researcher at Bell Labs, he published an astounding number of papers, earning widespread attention and praise from the scientific community. His rapid rise to fame and innovative discoveries led many to believe he was on track to earn the Nobel Prize in Physics. However, concerns began to mount when scientists noticed unusual patterns in Schön's raw data and published graphs. Although other researchers within his field used the same materials and followed the same methods, they were unable to reproduce his results. Adding to these rising concerns, many of Schön's published papers contained identical data, even though the work was supposedly based on different experiments. Further investigation confirmed swirling suspicions that Schön had falsified much of his data and published fabricated findings. This discovery led to a formal investigation, which ultimately concluded that he had committed serious scientific misconduct.

Schön's misconduct not only damaged his own personal reputation, but also had a lasting impact on the scientific community as a whole. Typically, scientific findings are solely evaluated through peer review and the ability to reproduce results; a path intended to legitimize findings and ensure the accuracy and reliability of scientific experiments. This system was long seen as a reliable way to keep science in check; however, the Schön scandal exposed deep-rooted flaws in this process, bringing long-ignored issues to the forefront of academic discussion. It drew serious attention to the responsibilities of peer reviewers, the need for data transparency, and the ethical problems tied to power and pressure in science, while also sparking debate over who should be responsible when fabricated research is published. Schön's actions forced the scientific community to confront these issues head-on, resulting

in significant reforms that emphasized transparency, accountability, and ethical standards, while also revealing the ongoing tension between scientific progress and thorough oversight.

This paper will examine the rise and fall of Schön and his scandal as a significant event in early 21st-century science. His case revealed deep-rooted and long-standing issues within the scientific community, including flaws in peer review, data transparency, and research ethics. By placing the scandal in historical context, my paper showcases how Schön's misconduct not only ended his own career, but also led to lasting reforms in how scientific research is reviewed, verified, and managed. The scandal stands as an important reminder of how unchecked ambition and inadequate oversight can lead to a crisis that demands systemic change.

Background and Context

Tracing the Historical Context of Scientific Climate of the Early 21st Century

Jan Hendrik Schön focused his research on condensed matter physics and nanotechnology. In particular, he focused on organic electronics, superconductivity, and nanoscale transistors.[1] Schön entered the scientific community in the late 1990s, during a period of rapid growth in nanotechnology research. According to the National Nanotechnology Initiative, "nanotechnology is the understanding and control of matter at the nanoscale, at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications."[2] This field became increasingly important because it allowed scientists to design materials at a very small scale to

[1] Dan Agin, *Junk Science: How Politicians, Corporations, and Other Hucksters Betray Us* (Thomas Dunne Books, 2006), 39.
[2] "About Nanotechnology," *National Nanotechnology Initiative*, n.d., https://www.nano.gov/about-nanotechnology.

achieve specific properties. As explained further by the National Nanotechnology Initiative:

> Many benefits of [it] depend on the fact that it is possible to tailor the structures of materials at extremely small scales to achieve specific properties... Using nanotechnology, materials can effectively be made stronger, lighter, more durable, more reactive, more sieve-like, or better electrical conductors, among many other traits.[3]

During this time, nanotechnology not only gained attention in research but also began appearing in consumer products, with many entering the market in the late 1990s and early 2000s.[4] The field grew so significantly that President Clinton launched the National Nanotechnology Initiative to coordinate federal research and support American leadership in the area.[5]

As nanotechnology advanced and gained national support, related concepts in computing and electronics also became increasingly relevant. One such concept is Moore's Law, which, though not a scientific law or proven theory, helps explain trends in transistor development. Transistors are a type of semiconductor that functions as an electronic switch or amplifier, especially in computers. The law suggests that the number of transistors on a computer chip doubles approximately every two years. As transistors become smaller, more can fit on a single chip, which increases the chip's processing power. The law has been in effect since 1965, when it was proposed by Gordon

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[3] "Applications of Nanotechnology," *National Nanotechnology Initiative*, n.d., https://www.nano.gov/about-nanotechnology/applications-nanotechnology.

[4] "Nanotechnology Timeline," *National Nanotechnology Initiative*, n.d., https://www.nano.gov/timeline.

[5] National Nanotechnology Initiative, "About Nanotechnology."

Moore, a co-founder of Intel.[6] Moore's Law has guided the development of the semiconductor industry, leading to computers that are smaller, faster, more efficient, and more affordable. However, its creator, Gordon Moore, acknowledged that the law has limits, as transistors cannot continue to shrink indefinitely due to the atomic structure of matter.[7]

By the early 2000s, these limits were already being tested. As electronic and mobile devices grew in popularity, interest in nanotechnology rapidly increased, prompting greater research, funding, and innovation in the field. Nanomaterials began to appear in consumer products and gained increased attention from both government and industry, leading to more investments in related products and research programs.[8] It is evident that nanotechnology has grown in both public awareness and in the fields of science and technology. Many physicists were eager to join this growing area of research and benefit from its potential. In particular, some aimed to extend the relevance of Moore's Law and explore new ways to apply nanotechnology in everyday life.

Exploring "Publish or Perish" Culture in the Scientific Community

As the 21st century began, the scientific community entered a period of rapid advancement, with high expectations for new discoveries and innovation. While ethical research practices are emphasized in principle, the reality is often shaped

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[6] National Nanotechnology Initiative, "About Nanotechnology."
[7] Audrey Woods, "The Death of Moore's Law: What it means and what might fill the gap going forward," *MIT CSAIL Alliances,* https://cap.csail.mit.edu/death-moores-law-what-it-means-and-what-might-fill-gap-going-forward.
[8] Samer Bayda et al, "The History of Nanoscience and Nanotechnology: From Chemical–Physical Applications to Nanomedicine," *Molecules* 25, no. 1 (2009): 112, https://www.mdpi.com/1420-3049/25/1/112.

by the pressures of academic competition. One major challenge within this environment is the widespread "publish or perish" culture, where researchers are expected to produce frequent publications to maintain their careers and reputations.[9] Universities and research institutes alike will often use the rate of publications as their main indicator of research productivity and reputation, as well as a measure of individual career advancement.[10] This immense pressure to consistently conduct experiments and produce results creates a continuous cycle of pressure and fear, which hinders the development of a healthy and productive research environment.

The "publish or perish" culture that has infected the scientific community has become even more prominent in recent years. Recent evidence shows that constant pressure to produce data and publish may be lowering research quality and contributing to a rise in retractions.[11] Retraction Watch, a major database tracking scientific retractions since 2010, has recorded nearly 50,000 retractions, with the annual rate increasing by about 23%.[12] Nearly half were due to issues with data authenticity. Plagiarism accounted for 16% of retractions, making it the second-most common reason.[13]

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[9] Molly Coddington, "Scientists Blame "Publish or Perish" Culture for Reproducibility Crisis," *Technology Network*, 22 January 2025, https://www.technologynetworks.com/biopharma/news/scientists-blame-publish-or-perish-culture-for-reproducibility-crisis-395293.

[10] Nham Tran,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science," *International Science Council*, 3 October 2024, https://council.science/blog/publish-or-perish-mentality/.

[11] International Science Council,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science."

[12] International Science Council,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science."

[13] International Science Council,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science."

Another less discussed but nonetheless growing concern is fake peer review.[14] The use of unverified reviewers to bypass the peer review process, allowing studies to be published at a faster rate, has increased exponentially over the past decade. Tied to this, there has been a rise in papers linked to companies called "paper mills" that sell fake research, an unthinkable reality in the scientific community that has transpired and increased in prominence in the 21st century.[15] In contrast, honest errors in the research process made up only about 6% of all retractions over the past decade.[16]

One reason for the rise in retracted scientific papers over the past decade is the improvement in detecting questionable data. Digital publishing tools have made it easier to identify potential fabrication, and more researchers are speaking out against unethical practices. However, the number of retractions likely reflects only a small portion of a larger problem. Another key factor is the growing influence of the aforementioned "publish or perish" culture in academia as a whole. Many researchers are expected to meet strict publication targets, and universities and research centers rely on publication output to improve their global rankings and increase funding. This system is perceived to reward the quantity of publications over their quality, which can pressure scientists to rush their work, cut corners, or in some cases, falsify data to meet expectations.

This pressure to publish at all costs not only contributes to ethical breaches but also impacts the reliability of scientific research. As a result, it is closely linked to the ongoing reproducibility and replicability crisis in science. Reproducibility

[14] International Science Council,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science."
[15] International Science Council,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science."
[16] International Science Council,"The 'publish or perish' mentality is fuelling research paper retractions – and undermining science."

refers to the ability of a different researcher to obtain the same results using the original data and methods.[17] Replicability, in contrast, involves performing a new experiment using the same procedures and achieving consistent results.[18] Although closely related, these concepts are distinct, and both play a crucial role in ensuring the reliability and validity of scientific research.

In recent years, concerns about the inability to reproduce published results have brought the issue of reproducibility to the forefront of scientific innovation. Prestigious journals such as *Science* and *Nature* have reported on a growing "reproducibility crisis," where, due to the constant pressure to publish, researchers have struggled to replicate not only the work of others, but also their own findings.[19] The drive to continuously produce research offers benefits such as career advancement, financial gain, and recognition from peers, often seen as a measure of academic ability. At the same time, institutions such as universities and research centers may overlook potential cases of fraud or data fabrication in favor of receiving prestige and funding. Overall, there is intense pressure within the scientific community to publish, which has affected countless researchers globally, including Jan Hendrik Schön, who became a notable example of this issue.[20]

The growing interest in nanotechnology in the early 2000s, combined with the race to extend Moore's Law, created a

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[17] RJ Mackenize, "Repeatability vs. Reproducibility," *Technology Networks*, 20 December 2021, https://www.technologynetworks.com/informatics/articles/repeatability-vs-reproducibility-317157.

[18] Technology Networks, "Repeatability vs. Reproducibility."

[19] Larry Hedges et al., "'An Existential Crisis' for Science," *Northwestern Institute for Policy Research*, 28 February 2024, https://www.ipr.northwestern.edu/news/2024/an-existential-crisis-for-science.html.

[20] Technology Network, "Scientists Blame "Publish or Perish" Culture for Reproducibility Crisis."

high-pressure environment in which Jan Hendrik Schön likely felt the need to publish regularly. This pressure was intensified by his position as a newly hired postdoctoral researcher at Bell Labs, which is part of Lucent Technologies, a leading company competing at the forefront of technological discovery. As a new employee at such a prestigious institution during a time of rapid scientific advancement, Schön was placed under immense expectations. The need to prove himself, secure his role, and stay ahead in publishing groundbreaking results likely contributed to the extreme measures he took to manage these demands. To understand the full scope of Schön's misconduct, it is important to examine not only the pressures he faced but also his rapid rise to fame and eventual downfall.

Nokia Bell Labs, Jan Hendrik Schön, and the Drive for Discovery

Bell Labs, now Nokia Bell Labs, is a renowned American industrial research and development (R&D) company known for groundbreaking engineering inventions and scientific discoveries. The company was officially founded in 1925 as AT&T Bell Laboratories, Inc., and is now part of the Finnish telecommunications company Nokia, with its headquarters stationed in Murray Hill, New Jersey.[21] In 1996–97, AT&T split into three companies, one of which, Lucent Technologies Inc., was a manufacturer of telephone and other communications equipment. Most of Bell Laboratories' employees became part of Lucent, though a minority remained with AT&T, which then confined itself to telephone and other services. Lucent Technologies merged with Alcatel in 2006 to form Alcatel-Lucent, which in turn was acquired by Nokia in 2016.[22]

[21] The Editors of Encyclopaedia Britannica, "Bell Laboratories | History & Facts," *Britannica*, 2025, https://www.britannica.com/money/Bell-Laboratories.
[22] Britannica, "Bell Laboratories | History & Facts."

One of Bell Labs' most important contributions to science and technology occurred in 1947, when Bell Labs researchers John Bardeen, Walter H. Brattain, and William B. Shockley successfully developed the first working transistor.[23] For their achievement, the three scientists were awarded the Nobel Prize in Physics in 1956.[24] Their work laid the foundation for continued advancements in transistor research at Bell Labs, leading to the rise of modern electronics, where transistors became essential components, particularly in computer memory chips.[25] Building on this legacy of innovation, Bell Labs continued to be a driving force in advanced research, eventually becoming the workplace of Jan Hendrik Schön during a period of rapid growth in nanotechnology and semiconductor studies.

Jan Hendrik Schön, born in 1970 in then-West Germany, worked his way up to a Ph.D. from the University of Konstanz in 1997, with his research focusing on condensed matter physics and nanotechnology.[26] He began working for Bell Labs as an intern in 1997 and as a postdoctoral researcher in 1998,[27] working closely with physicist Bertram Batlogg and chemist Christain Kloc. Here, he focused his efforts on creating different types of transistors through the use of organic materials.[28] At

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[23] Marc A. Shampo, Robert A. Kyle, and David P. Steensma, "William Shockley and the Transistor," *Mayo Clinic Proceedings* 87, no. 6 (June 2012): 43, https://doi.org/10.1016/j.mayocp.2012.01.019.
[24] Shampo, "William Shockley and the Transistor," 43.
[25] Michael Riordan, "Transistor | Definition & Uses," *Britannica*, 13 March 2025, https://www.britannica.com/technology/transistor.
[26] Agin, *Junk Science: How Politicians, Corporations, and Other Hucksters Betray Us*, 40.
[27] Kenneth Chang, "Panel Says Bell Labs Scientist Faked Discoveries in Physics," *The New York Times*, 26 September 2002, https://www.nytimes.com/2002/09/26/us/panel-says-bell-labs-scientist-faked-discoveries-in-physics.html.
[28] BBC News, "Science & Nature - Horizon - The Dark Secret of Hendrik Schön," *BBC*, 2014, https://www.bbc.co.uk/science/horizon/2004/hendrikshontrans.shtml.

Bell Labs, Jan Hendrik Schön started fabricating scientific data early in his career. He claimed to have developed groundbreaking electronic devices using organic materials, suggesting they could become superconductors or be used in lasers. Even though Schön received numerous awards and published impressive research, other scientists could not reproduce his experimental results, which ultimately exposed his scientific fraud. The start of his downfall all began with the simple issue of noise within his graphs.

The unraveling of Schön's misconduct began with a monumental discovery by Bell Labs postdoctoral researchers, Lynn Loo and Julia Hsu. While preparing a patent application and reviewing Schön's papers for their own experimental work, the two researchers noticed something alarming. There appeared to be identical figures appearing across separate papers that were meant to represent entirely different experiments.[29] Rather than a minor oversight, this was a critical red flag. Loo and Hsu's willingness to raise the issue marked a turning point in the scandal, as their findings provided the first concrete evidence of potential misconduct and began the deeper investigation that would ultimately expose the full extent of Schön's fabrications. Without their eye for detail and courage to speak up, his fraudulent research may have gone undetected far longer, causing even greater damage to the scientific community.

At the time, Schön was considered a rising star in semiconductor research, having published influential studies on field-effect transistors and superconductors in leading journals such as *Science* and *Nature*. In April 2002, concerns about his work expanded when Lydia Lee Sohn, an engineering professor at the University of California, Berkeley, received an anonymous

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[29] Institute of Physics., "Lessons From Schon – The Worst Physics Fraudster?," *ScienceDaily,* 2009, https://www.sciencedaily.com/releases/2009/05/090505111649.htm.

tip about possible fraud in two of Schön's papers. Working with physicist Paul McEuen, Sohn played a key role in initiating a formal investigation into the case.[30] The two papers in question, published in *Science* and *Nature*, described separate experiments, one on molecular transistors at room temperature, and the other on similar devices below -200 °C.[31] After reviewing the two papers, Sohn noticed that the different experiments had identical results, even using identical graphs. She pointed out, "What's really strange is that if you look at these areas, the noise, the small squiggles and bumps, should never match exactly. Noise can't be perfectly reproduced like this. That tells me something is seriously wrong with these graphs."[32]

At first glance, Sohn was under the belief that the duplicated graphs might be an honest mistake on Schön's behalf. She consulted her friend Paul McEuen, who was under the similar assumption that the identical graphs from different experiments were mathematically impossible to achieve. The pair then contacted Karl Ziemelis, an editor at *Nature*, who confronted Schön about his published data. In response, Schön alleged that the identical graphs were the result of an unintentional error. However, both Sohn and McEuen remained unconvinced by his explanation and chose to investigate the matter further.

Upon careful review of Schön's past journal publications, Sohn and McEuen discovered a disturbing pattern. Multiple experiments across different materials and voltages presented suspiciously identical results. These findings led Bell Labs to initiate a formal, independent investigation through the

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[30] BBC News, "Science & Nature - Horizon - The Dark Secret of Hendrik Schön."
[31] BBC News, "Science & Nature - Horizon - The Dark Secret of Hendrik Schön."
[32] BBC News, "Science & Nature - Horizon - The Dark Secret of Hendrik Schön."

formation of the Beasley Committee to examine the allegations. After four months of thorough probing, the investigation revealed shocking details.

Schön had deliberately fabricated data in numerous journal publications. His colleagues could not verify his significant results, and he had erased almost all of his raw data, claiming computer memory limitations. Although his co-authors were not found to have participated in any misconduct, the committee found that Schön certainly did. Bell Labs immediately terminated him, and prestigious journals began the process of retracting his publications and patent applications. The consequences of his falsifications extended beyond a mere academic scandal. Schön's fraudulent work disrupted hopes for finding an alternative to silicon chips, potentially delaying technological progress. While Schön maintains his innocence, the scientific community was left examining the systemic failures that allowed such extensive fraud to occur.[33] An examination of the failures in peer review, data transparency, and scientific ethics reveals the systemic vulnerabilities that made such severe misconduct possible and points toward the reforms needed to prevent it in the future.

Peer Review Exposed: Systemic Weaknesses and Reforms

Failures in the Peer Review Process

The failure of the peer review process in the Jan Hendrik Schön scandal highlights how an overreliance on reputation and the pressure to publish groundbreaking findings allowed fraudulent research to bypass scrutiny despite clear red flags.

To start, we must understand what peer review is. Peer review is a pre-publication process used by a majority of

[33] Robert F. Service, "Breakdown of the Year: Physics Fraud," *Science* 298, no. 5602 (December 2002): 2303, https://www.science.org/doi/10.1126/science.298.5602.2303.

scholarly journals. Before accepting an article for publication, editors send the manuscript to external experts for evaluation. These reviewers assess the quality of the research and provide feedback, allowing the author to make revisions and resubmit the work for final approval.[34]

There are three main types of peer review in academic publishing: single-blind, double-blind, and open review. In single-blind review, the reviewers know the identity of the author, but the author does not know who the reviewers are.[35] In double-blind review, both the author and the reviewers remain anonymous to each other.[36] In open review, a newer kind of review process, both parties are aware of each other's identities, and reviewer comments may be publicly available.[37] In general, peer-reviewed articles are considered the gold standard in academic research because they help ensure that studies meet high standards of accuracy, credibility, and integrity before publication. This process builds trust and reliability within the scientific community.[38]

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[34] Furman University, "Physics: Peer Review," *Sanders Science Library,* 2025, https://libguides.furman.edu/physics/peer-review.
[35] Charlesworth Author Services, "Single-Blind and Double-Blind Peer Review | CW Authors," *Charlesworth Author Services*, 22 September 2020, https://www.cwauthors.com/article/What-are-the-Differences-between-Single-Blind-and-Double-Blind-Peer-Review.
[36] Charlesworth Author Services, "Single-Blind and Double-Blind Peer Review | CW Authors."
[37] Tony Ross-Hellauer, "What Is Open Peer Review? A Systematic Review," *F1000Research* 6, no. 588 (August 2017): 3, https://pmc.ncbi.nlm.nih.gov/articles/PMC5437951/.
[38] Jacalyn Kelly, Tara Sadeghieh, and Khosrow Adeli, "Peer Review in Scientific Publications: Benefits, Critiques, & A Survival Guide," *The Electronic Journal of the International Federation of Clinical Chemistry and Laboratory Medicine* 25, no. 3 (October 2024): 229, https://pmc.ncbi.nlm.nih.gov/articles/PMC4975196/.

Jan Hendrik Schön bypassed the peer-review system by taking advantage of the scientific community's overreliance on reputation and the pressure to publish major discoveries. As a new postdoctoral researcher at the prestigious Bell Labs, Schön quickly built a strong reputation, leading editors and reviewers to place excessive trust in his work. He became known as a rising star in physics, publishing seemingly groundbreaking research in top journals that was frequently cited. His fabricated data, which appeared to show major advances in nanotechnology, particularly in transistor development, coincided with the demand for high-impact results. This made journals such as *Science* and *Nature* eager to publish his work. The push to extend Moore's Law and achieve smaller, more efficient chips led Schön's institution, co-authors, and reviewers to overlook the lack of raw data and the fact that no co-authors had seen his experiments firsthand.[39]

To maintain its competitive edge, Bell Labs was eager to promote Schön's research, pushing it forward without hesitation. This urgency, combined with a focus on groundbreaking discoveries, led to a lack of thorough scrutiny. As a result, Schön's fraudulent work was able to pass through peer review, with clear inconsistencies and red flags being overlooked due to his perceived credibility.

Advances and Limitations in Reforms to Peer Review Standards

The scientific misconduct case of Jan Hendrik Schön has several broader implications for the scientific community's practices and responsibilities. To start off, the case raises

[39] Jamie Oderdick and Ashley Wenners Herron, "Integrating Dimensions to Get More Out of Moore's Law and Advance Electronics," *Penn State Materials Research Institute*, 11 January 2024, https://www.mri.psu.edu/integrating-dimensions-get-more-out-moores-law-and-advance-electronics.

questions about the "self-correcting" processes of science.[40] The self-correcting process in science refers to the ongoing practice of reviewing, questioning, and refining research through replication, peer review, and open debate to ensure accuracy and improve scientific understanding over time. Martin Blume, a physicist, argues that the assumption that science will *always* be self-correcting is not necessarily true. Fabricated data in less prominent work, articles, or journal entries that have been cited by few in the field might remain undetected and thus uncorrected.[41] Blume also emphasizes that scientists like McEuen and Sohn, who discovered Schön's inconsistencies in his published data, play an important role in this correction process.[42] Therefore, it is crucial not to view science as a self-correcting process, but rather as an ongoing series of research and experiments where others in the field act as safeguards, scrutinizing the data produced to the best of their ability.

As a second point, the case highlights the importance of maintaining careful oversight at every stage of the scientific process.[43] This includes efforts by experts to replicate significant findings and increased awareness among managers, journal editors, reviewers, and readers who evaluate scientific publications.[44] It also highlights the need for safeguards throughout the research process, with greater responsibility placed on co-authors and institutions to observe and verify the experiments conducted within their research facilities. The Schön case revealed that the peer-review process alone failed to

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[40] Martin Blume, "Keeping Up Scientific Standards," *Nature* 459, no. 1 (3 June 2009): 645, https://doi.org/10.1038/459645a.
[41] Blume, "Keeping Up Scientific Standards," 645.
[42] Blume, "Keeping Up Scientific Standards," 645.
[43] Blume, "Keeping Up Scientific Standards," 645.
[44] Blume, "Keeping Up Scientific Standards," 645.

detect the misconduct,[45] pointing to the limitations of relying solely on this system to prevent scientific fraud.[46]

The Schön case also brings attention to the question of co-author responsibility.[47] Although the Beasley Committee cleared all of Schön's co-authors of direct scientific misconduct, it raised concerns about whether they fulfilled their "appropriate professional responsibility."[48] An editorial in *Science* pointed to a lack of consensus in the scientific community regarding whether each co-author should be accountable for the accuracy of the entire study, especially since all authors share the professional recognition.[49] This raises an important question: should responsibility be shared just as the benefits of authorship are?[50] As a result, the case has prompted deeper reflection on the role and responsibilities of co-authors in scientific collaborations.[51]

Additionally, the case highlights the institutional pressures that may unintentionally contribute to misconduct.[52] Eugenie Samuel Reich, author of *Plastic Fantastic*, a book investigating the fraud of Schön, notes that during his time at Bell Labs, internal restructuring may have added pressure on researchers to produce results. This is due to the fact that the reconfiguring of companies often brings changes in leadership, goals, and funding. Researchers may have felt the need to prove their value and secure their positions by producing impressive results quickly. Competition for limited resources and the desire

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[45] Blume, "Keeping Up Scientific Standards," 645.
[46] Donald Kennedy, "Next Steps in the Schön Affair," *Science* 298, no. 5593 (18 October 2002): 495, https://www.science.org/doi/10.1126/science.298.5593.495.
[47] Kennedy, "Next Steps in the Schön Affair,"495.
[48] Kennedy, "Next Steps in the Schön Affair,"495.
[49] Kennedy, "Next Steps in the Schön Affair,"495.
[50] Kennedy, "Next Steps in the Schön Affair,"495.
[51] Kennedy, "Next Steps in the Schön Affair,"495.
[52] Martin Blume, "Keeping Up Scientific Standards," *Nature* 459, no. 1 (3 June 2009): 646, https://doi.org/10.1038/459645a.

to maintain the lab's reputation during a period of change likely increased the urgency to publish high-impact work. While the final report did not find supervisors guilty of misconduct, it suggested they could have shown greater curiosity and oversight regarding Schön's findings.[53]

The Schön scandal highlights the challenges and limitations of peer review reforms, as even rigorous systems can fail to catch fraudulent work. In Schön's case, his perceived credibility and the pressure to publish groundbreaking discoveries led to a lack of thorough scrutiny. Peer review processes, while essential, are not foolproof and can be influenced by factors such as reputation, urgency, and the reluctance to challenge high-profile researchers, limiting their effectiveness in preventing misconduct. This indicates that peer review, even with recent improvements, must function alongside other safeguards to help ensure the quality and reliability of published scientific research.

Data Transparency: Lessons from Schön's Fraud

Data Manipulation and the Role of Transparency

Jan Hendrik Schön's scientific fraud was facilitated by his manipulation of data and the lack of transparency in his research. By fabricating and duplicating experimental results, he created the illusion of groundbreaking discoveries in condensed matter physics. According to the Beasley Committee's Report, Schön either falsified or fabricated data in 16 of the 24 cases they examined.[54] They broke the report up into three classes—substitution of data, unrealistic precision of data, and

[53] Blume, "Keeping Up Scientific Standards," 646.
[54] Robert F. Service, "Physicist Fired for Falsified Data," *Science*, 25 September 2002, https://www.science.org/content/article/physicist-fired-falsified-data.

results that contradict known physics—as ways to classify his fabricated data.[55]

The Beasley Committee found that Jan Hendrik Schön conducted nearly all aspects of the research alone, without co-authors witnessing key results. He failed to maintain proper laboratory records and deleted nearly all raw data, claiming limited computer memory.[56] No working devices remain to verify his findings, and key equipment no longer produces the same results. The investigation revealed compelling evidence of data manipulation, including the substitution of entire datasets, altered curves, and the use of mathematical functions to fabricate results. Schön admitted to these practices but claimed they were meant to better represent observed behavior. However, the recurrence of such actions, particularly in the case of superconductivity in polythiophene, demonstrated clear scientific misconduct, violating fundamental principles of research integrity.[57]

The absence of accessible raw data and the lack of witnesses to his experiments prevented proper verification, allowing Schön's deception to persist undetected for years. This case highlights the critical role of transparency in scientific research, as open access to data enables peer review, reproducibility, and accountability, ultimately safeguarding the integrity of the scientific community.

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[55] Lucent Technologies, *Report of the Investigation Committee on the Possibility of Scientific Misconduct in the Work of Hendrik Schön and Coauthors* (American Physical Society, 2002), https://media-bell-labs-com.s3.amazonaws.com/pages/20170403_1709/misconduct-revew-report-lucent.pdf.

[56] Lucent Technologies, "*Report of the Investigation Committee on the Possibility of Scientific Misconduct in the Work of Hendrik Schön and Coauthors*."

[57] Lucent Technologies, "*Report of the Investigation Committee on the Possibility of Scientific Misconduct in the Work of Hendrik Schön and Coauthors*."

The Push for Open Data and Replicability

The Schön scandal highlighted the need for greater transparency in scientific research, leading to a stronger push for open data and replicability. In response, many academic journals implemented policies requiring researchers to submit raw data alongside their publications to enable verification of results. This includes journals that Schön published in, such as *Nature*, which enforces the rule that "all published manuscripts reporting original research in Nature Portfolio journals must include a data availability statement."[58] The data availability statement gives the journal access to the data used in the published article in case editors or reviewers needed to interpret, verify, or extend data in the article.[59]

Additionally, the scandal contributed to the growth of initiatives promoting open science, such as open peer review, data repositories, and sharing platforms, which facilitate broader access to research findings. Data repositories are places where publishers can publicly post the data, code, and materials within their research articles.[60] Some of these repositories include online sites like Harvard Dataverse and Open Science Framework. Many scientific journals and publishers can mandate that authors deposit their data onto these servers as a part of the verification

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[58] *Nature*, "Reporting Standards and Availability of Data, Materials, Code and Protocols," *Nature Portfolio*, n.d., https://www.nature.com/nature-portfolio/editorial-policies/reporting-standards.

[59] Nature Portfolio, "Reporting Standards and Availability of Data, Materials, Code and Protocols."

[60] Longwood Research Data Management, "Data Repositories | Data Management," *Harvard Biomedical Data Management*, accessed April 2, 2025, https://datamanagement.hms.harvard.edu/share-publish/data-repositories.

and publication process.[61] These measures aim to prevent fraud, enhance accountability, and reinforce the integrity of scientific discovery by ensuring that findings can be independently reproduced and validated.

Ongoing Challenges in Data Transparency

Despite increased emphasis on data transparency following the Schön scandal, challenges remain. Some researchers resist open data policies due to concerns over intellectual property and the potential misuse of their work.

Researchers invest significant time and resources in developing new ideas and data. To protect their work and potentially benefit financially or secure additional funding, they often rely on patents, copyrights, or trade secrets.[62] Requiring open data sharing may lead to others using their work without proper credit or compensation, which could undermine their research efforts and hinder future innovation.[63]

Additionally, the task of verifying large datasets and repositories can be overwhelming, making careful review challenging.[64] This becomes even more difficult when there is high pressure to publish or when a publication receives little attention. These challenges reflect the ongoing difficulty of

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[61]Harvard Biomedical Data Management, "Data Repositories | Data Management."

[62] Gary L. Deel, "What Is Intellectual Property Law? And Why Does It Matter? | American Public University," *American Public University*, 13 July 2023, https://www.apu.apus.edu/area-of-study/security-and-global-studies/resources/what-is-intellectual-property-law/.

[63] Melissa Edmiston, Stephanie Coker, Stephanie Jamilla, and Thembelihle Tshabalala, "The Pros and Cons of Open Data," *MERL Center*, n.d., https://merlcenter.org/guides/pros-and-cons-of-open-data/.

[64] *Nature*, "Data Repository Guidance," *Scientific Data*, n.d., https://www.nature.com/sdata/policies/repositories.

balancing transparency with practical and ethical concerns in scientific research.

The Schön case reveals that even though the possibility of scientific misconduct cannot be eradicated,[65] increased vigilance and education on the part of all stakeholders in the scientific process (scientists, managers, journal editors, reviewers, journalists, and readers) are crucial to maximize the probability of correction.[66] The fact that Schön's misconduct was eventually uncovered demonstrates that these elements can indeed lead to correction.[67]

The ongoing accessibility of the Beasley Report, facilitated by the American Physical Society (APS), further supports transparency and learning from such incidents.[68] Some of the changes implemented in scientific journals to promote data transparency included requiring authors to provide raw data, emphasizing data transparency, and encouraging independent replication before publication. Many also strengthened policies on image manipulation and data integrity, making it harder for fraudulent research to go undetected.

Additionally, journals placed a greater emphasis on reviewer accountability, ensuring that the peer reviewers conducted a more thorough evaluation rather than relying on an author's reputation. Journals also began promoting independent replication as a critical step in validating significant findings, reinforcing the idea that groundbreaking discoveries must be reproducible before being widely accepted. These reforms helped strengthen the validity of scientific data and discoveries

[65] Blume, "Keeping Up Scientific Standards," 645.
[66] Blume, "Keeping Up Scientific Standards," 645.
[67] Blume, "Keeping Up Scientific Standards," 646.
[68] Blume, "Keeping Up Scientific Standards," 646.

by reducing the risk of fraud and increasing trust in published research.[69]

Scientific Ethics in the Spotlight

Ethical Implications, Institutional Responses, and Broader Reflections on Accountability

The Schön scandal emphasized the importance of educating researchers about ethics in science.[70] Key ethical principles include honesty in data collection, proper credit for contributions, and transparency in research methods and results. Eugenie Samuel Reich, author of *Plastic Fantastic*, further discusses the occurrence and implication of the Schön scandal, reflecting on her own experience as a student conducting experiments to stress the need for teaching data integrity early in a researcher's career.[71] In response to the scandal, organizations such as the APS and the Council of Science Editors updated their ethical guidelines and developed new educational programs.[72] A 2003 workshop also led the International Union of Pure and Applied Physics to adopt new ethical standards.[73]

The scandal revealed clear violations of core scientific values, including honesty, transparency, and accountability. Schön's fabrication and manipulation of data misled the scientific community and compromised the integrity of the research process.[74] His misconduct also exposed institutional failures at Bell Labs, where a lack of oversight and the strong

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[69] Melissa Edmiston, Stephanie Coker, Stephanie Jamilla, and Thembelihle Tshabalala, "The Pros and Cons of Open Data," *MERL Center*, n.d., https://merlcenter.org/guides/pros-and-cons-of-open-data/.
[70] Blume, "Keeping Up Scientific Standards," 645.
[71] Blume, "Keeping Up Scientific Standards," 646.
[72] Blume, "Keeping Up Scientific Standards," 646.
[73] Blume, "Keeping Up Scientific Standards," 646.
[74] Lucent Technologies, "*Report of the Investigation Committee on the Possibility of Scientific Misconduct in the Work of Hendrik Schön and Coauthors*."

desire to publish overshadowed ethical concerns.[75] Much of Schön's work bypassed his co-authors and supervisors, and key data was missing from his lab notebook.[76] Bell Labs, known for producing Nobel Prize winners, had a strong interest in Schön's success and failed to question his results. Schön continued to avoid suspicion until the evidence became impossible to ignore. This case illustrates the ethical responsibility of both individuals and institutions to uphold scientific integrity.

In response to the Schön scandal, institutions and organizations implemented new policies to detect and prevent scientific misconduct. Many journals and research institutions strengthened data verification processes and oversight measures.[77] Professional organizations, such as the APA, also took on a greater role in promoting ethics education, emphasizing the importance of research integrity.[78] These efforts aim to prevent future fraud and reinforce accountability in the scientific community.

The Schön scandal emphasized the need for ethical training, particularly for early-career researchers, to ensure they understand their responsibility in maintaining research integrity.[79] It also sparked important discussions about how to

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[75] Dan Garisto, "September 2002: Schön Scandal Report is Released," *APS News | This Month in Physics History*, 8 August 2022, https://www.aps.org/apsnews/2022/08/september-2002-schon-scandal-report.

[76] Blume, "Keeping Up Scientific Standards," 645.

[77] Chandrakant Shetty, Yashashri, and Rajmohan Seetharaman, "Strengthening Postapproval Oversight in Research Ethics Committees: Challenges and Solutions," *Perspectives in Clinical Research* 14, no. 3 (July 2023): 105, https://pmc.ncbi.nlm.nih.gov/articles/PMC10405534/.

[78] American Physical Society, "Ethics in Physics," *Advancing Physics*, n.d., https://www.aps.org/initiatives/inclusion/ethics.

[79] Francesca Greco, Silvia Ceruti, Stefano Martini, Mario Picozzi, Marco Cosentino, and Franca Marino, "Educating and Training in Research Integrity (RI): A Study on the Perceptions and Experiences of Early Career Researchers Attending an Institutional RI Course,"

balance individual accountability with the broader systemic pressures that push scientists to publish high-impact results.[80] As noted earlier, the "publish or perish" culture remains a powerful and ongoing force in the scientific community. With limited options for gaining recognition or funding, some researchers may be tempted to take unethical shortcuts in pursuit of success. However, such actions come at a high cost, not only to their careers but also to the credibility of scientific data and progress. While Schön was directly responsible for his misconduct, his case revealed deeper issues within the research system that can encourage unethical behavior. This highlights the ongoing need to promote integrity at both the individual and institutional levels.[81]

Legacy and Continuing Challenges

Unresolved Issues and Persistent Tensions of the Schön Scandal on Modern Science

The Schön scandal led to lasting reforms in peer review, data transparency, and research ethics. Journals and institutions strengthened data-sharing policies and verification processes to prevent misconduct.[82] These changes shaped scientific practices in the following decades, promoting greater accountability and

Journal of Academic Ethics 22, no. 1 (5 December 2023): 415, https://doi.org/10.1007/s10805-023-09497-1.

[80] Emilio Quaia and Federica Vernuccio, "Finding a Good Balance between Pressure to Publish and Scientific Integrity and How to Overcome Temptation of Scientific Misconduct," *Tomography* 8, no. 4 (July 2022): 1851, https://pmc.ncbi.nlm.nih.gov/articles/PMC9326544/.

[81] Lan Thi Nguyen and Kulthida Tuamsuk, "Factors Influencing Researchers' Scientific Integrity in Scholarly Publishing: A Path Analysis Approach," *Sage Journals* 0, no. 0 (May 2024), https://doi.org/10.1177/17470161241257445.

[82] Gregory Eckhartt and Graeme Ruxton, "Investigating and Preventing Scientific Misconduct Using Benford's Law," *Research Integrity and Peer Review* 0, no. 1 (April 2023): 8, https://doi.org/10.1186/s41073-022-00126-w.

ensuring that research findings are more transparent and reproducible. The scandal served as a critical lesson for the scientific community, reinforcing the importance of integrity in research.

Despite reforms following the Schön scandal, significant challenges to research integrity persist. Predatory journals, the replication crisis, and the ongoing pressure to publish remain major concerns. Predatory journals falsely present themselves as legitimate scholarly publications, often fabricating editorial boards, skipping peer review, or misrepresenting copyright practices.[83] The replication crisis refers to cases where scientific results cannot be reproduced, even by the original researchers.[84] This issue is closely linked to the "publish or perish" culture and a lack of transparency, as researchers may rush to publish without properly verifying their data or clearly documenting their methods.

Although recent policies have aimed to improve openness and accountability, debate continues over whether these changes truly address the underlying causes of misconduct. The Schön scandal remains a powerful reminder that science must continually evolve to maintain high ethical standards.

Conclusion

Ultimately, the Schön scandal exposed major flaws in scientific research, including weaknesses in peer review, data verification, and ethical oversight. In response, the scientific community introduced important reforms such as stricter review processes, data-sharing requirements, and improved ethics

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[83] Susan A. Elmore and Eleanor H. Weston, "Predatory Journals: What They Are and How to Avoid Them," *Toxicologic Pathology* 48, no. 4 (April 2020): 607–610, https://pmc.ncbi.nlm.nih.gov/articles/PMC7237319/.

[84] Technology Network, "Scientists Blame "Publish or Perish" Culture for Reproducibility Crisis."

training. While these changes have helped strengthen research integrity, challenges remain in balancing the drive for innovation with the need for careful validation. The case stands as a pivotal moment in scientific history, one that revealed the vulnerabilities of trusted systems but ultimately led to lasting improvements in how research is conducted and reviewed.

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A "Noble Lie" and Its Consequences: The Vietnam War and Project 100,000

Eva Oschmann

Abstract

From the 1950s through the early 1970s, the United States continuously escalated a war against the small nation of Vietnam, nestled in the Indochinese peninsula of Southeast Asia. For economic, political, and egotistical reasons, revolving US administrations refused to confront a dire truth: The US was losing. Even as body counts reached thousands and endless bombing campaigns did nothing to reverse the score, overconfident cabinet members, notably those of the Kennedy and Johnson administrations, constructed a well-rehearsed lie to encourage war escalation. A function of this "noble lie" was keeping both other officials and the American people ignorant and falsely optimistic about the war's success. Frontline journalists who wrote endlessly about the grim situation in Vietnam were ignored and censored by their employers and the government. What resulted was a snowball effect, with new recruitment initiatives devised to sustain an unwinnable war—especially the self-proclaimed "social welfare" program, Project 100,000. Current scholarship on Vietnam isolates these two aspects of the lie: the falsification of war efforts and Project 100,000. Examples include The Best and the Brightest by David Halberstam, focusing on the former, and Hamilton Gregory's McNamara's Folly: The Use of Low-IQ Troops in the Vietnam War, focusing on the latter. This paper uses evidence from government documents, such as the Pentagon Papers, to address these two defining aspects as one, recognizing their

cause-and-effect relationship, wherein the lie directly leads to an increased conscription of men. The goal of this paper is to shed light on the rarely researched topic of Project 100,000, the circumstances that led to its creation, and who truly is at fault.

Plato laid the foundation of Western political philosophy in the form of a Socratic dialogue. His work, *The Republic*, addressed questions of justice, democracy, ruling, and class structure. In outlining his utopian vision, Plato also introduced the concept of the "noble lie," a lie constructed to serve the greater good of the republic, disregarding any potential negative effects.[1] A "noble lie" is formulated to keep the working class ignorant, while the ruling class is aware of the grave truth. Plato's concept carried one fatal flaw: The working class can never discover the reality of the lie, for that will undermine all authority of the ruling class. For Plato's republic, the "noble lie" is the so-called "myth of the metals."[2] For the United States of America, it is the Vietnam War.

According to the United States government, the Vietnam War began as an advisory mission in a region called "South Vietnam," with the United States providing support against northern communist insurgents known as the Viet Cong. Quickly, a limited nation-building commitment developed into a full-scale military intervention, with widespread casualties and growing domestic dissent. Over time, the Vietnam War became more complex and increasingly difficult to resolve for both the John F. Kennedy and Lyndon B. Johnson administrations. Overconfident members of the Kennedy administration, and the subsequent Johnson administration, maintained contradictory assessments of the conflict. Having already dedicated time to convincing an isolationist American public of the noble cause—coming to the aid of the desperate, liberal, democratic peoples of South Vietnam—perseverance was necessary. Certain officials such as Secretary of Defense Robert McNamara and General Maxwell D. Taylor continuously encouraged the conflict despite knowing little about Vietnam as a country, not even the language or

[1] Plato et al., *The Republic* (Cambridge University Press, 2013), 108
[2] Plato et al., *The Republic*, 108

culture. Personal ambition influenced the decision-making process. Admitting the inevitable failure was an embarrassment officials and generals refused to endure. Thus began the "noble lie"—or the falsified state of the conflict in Vietnam.

The first defining section of this paper, entitled "Hubris Among the Leaders," presents the persistent efforts of American frontline journalists, who sent streams of truthful reports on the disastrous situation and their disillusionment with American efforts. If these dispatches were not outright censored or ignored, high-ranking government officials disputed them. Characterized by hubris, members of the Kennedy and Johnson administrations refused to acknowledge the loss before it grew too great. Despite distinct evidence of the defeat, especially that presented by journalist and historian David Halberstam, the lie progressed onward. Instead, falsified reports were issued to maintain the "noble lie," reinforcing the belief that America was winning. Meanwhile, the toll of the Vietnam War only grew, demanding a higher influx of troops. While privileged, affluent men were able to claim draft exceptions, the same could not be said for low-income, educationally disadvantaged men.

"Questions of Manpower," this paper's second defining section, exposes the efforts of government officials to sustain a knowingly unwinnable war. Programs like Secretary of Defense Robert McNamara's Project 100,000 were specially designed to increase conscription capabilities to meet demands. Please note the role of politician and social scientist Daniel Patrick Moynihan in the creation of Project 100,000 is not discussed in this paper. This paper instead focuses primarily on the efforts of McNamara, due to his covert involvement in both maintaining the "noble lie" and Project 100,000. Project 100,000 targeted working-class, low-aptitude men, who were statistically black, Southern, and rural Americans. Under the guise of a social welfare project, Secretary McNamara and others were able to recruit high numbers of soldiers to sustain the war effort.

McNamara insisted on the sincerity of the social justice aspects of this program, broadening the content covered under the "noble lie." Low-aptitude soldiers died in disproportionate numbers, while actively putting other GIs and the Vietnamese in danger. Project 100,000 was a deliberate manipulation of the American working class, framed as an advantageous opportunity, which had deadly consequences.

This paper argues that the United States government sustained the Vietnam War through the "noble lie," deliberately misrepresenting the war's progress and ultimately enabling the exploitation of working-class, low-aptitude men through policies like Project 100,000.

Hubris Among the Leaders

There is no room to present the query: Was the US government earnestly unaware of the losing situation in Vietnam, leading to their continuous conscription of men for the war? Top American generals and brass in Vietnam hesitated to describe the dire circumstances they faced to Washington, but frontline American journalists did not share the resistance. Journalists David Halberstam and Neil Sheehan, along with several other writers, were sent to the frontlines of Vietnam for dispatch purposes. Both Halberstam and Sheehan reported for *The New York Times,* with Halberstam joining in 1960 and Sheehan in 1964. CBS, NBC, *Time* magazine, *The Saturday Evening Post*, and *U.S. News & World Report* also had established correspondents in Asia, regularly witnessing the war.[3] This included *Time*'s chief correspondent for Southeast Asia, Charles Mohr, who resigned from the magazine after his superiors censored his reports.[4] Reporters dispatched similar descriptions

[3] Neil Sheehan, *A Bright Shining Lie: John Paul Vann and America in Vietnam* (Vintage Books, 1989), 347
[4] Sheehan, *A Bright*, 347

of the unsuccessful state of American efforts in Vietnam. Even while avoiding use of terms such as “failure” or “losing,” the writings of frontline journalists stood as evidence of the secrecy, corruption, defeats, and war crimes of the South Vietnamese regime and the US. Reports which covertly or overtly described these aspects were torn apart, with the US government and writers’ own employers refusing to believe them.[5] Halberstam notably was met with fierce backlash from the Kennedy Administration and his bosses at *The New York Times* after the publication of his 1963 article.

The Halberstam Article

Halberstam’s article was published on August 15, 1963, on the front page.[6] He arranged the facts to make a statement, knowing that he could not state outright that the Viet Cong were winning. He instead "piled fact upon fact" about South Vietnam's military situation.[7] The first sentence of his headliner, "Vietnamese Reds Gain in Key Area,” was as follows: "South Vietnam's military situation in the vital Mekong Delta has deteriorated in the last year, and informed officials are warning of ominous signs.”[8] His report followed with an update on the guerrilla formations, which had grown from 250 to "600 and even 1,000" men in just a year.[9] The Viet Cong had also captured US weapons and created standardized battalions of 400 men each, implementing better radio communications. Halberstam exposed the truth of the circumstances in Vietnam, hoping his well-cited article would "compel the administration to face the reality that it was losing.”[10] If the article was accepted when it

[5] Sheehan, *A Bright*, 347
[6] Sheehan, *A Bright*, 347
[7] Sheehan, *A Bright*, 345
[8] Sheehan, *A Bright*, 345
[9] Sheehan, *A Bright*, 345
[10] Sheehan, *A Bright*, 346

surfaced in Washington, DC, it could mean a substantial reconsideration of the continued American presence in Vietnam.

Halberstam and Sheehan both hoped and waited for the report to "detonate in Washington" with the explosion blowing away the "fantasy."[11] When it was received, President Kennedy demanded to know if there was truth in the article. Generals Joseph Stilwell and Victor Krulak wrote a lengthy response letter to Kennedy, rebutting Halberstam's article at every point.[12] At a State Department press conference the day after it was published, Secretary of State Dean Rusk denounced the article. As Sheehan wrote, "Thanks to Stilwell and Krulak and to their own hubris, Kennedy and the majority of those at the top of his administration retained confidence in the generals."[13] As a result, Halberstam's job position was threatened by his superiors. Rather than achieving the desired effect of sharing the truth, Halberstam's article only encouraged further falsification attempts. Older reporters, in terms of age and who would therefore produce narratives in agreement with the administration, were sent to Vietnam to dispute Halberstam's stories and those alike.

By the late summer of 1963, young reporters were regarded as liars, "inventing bad news" and "hysterical stories" about Vietnam.[14] Marguerite Higgins of the *New York Herald Tribune*, who was fourteen years older than Halberstam, served as one example. She reported back after only four weeks in Vietnam. She dispatched hopeful updates on America's success in Vietnam, claiming General Harkins and the Diem regime were advancing on the Viet Cong. Higgins also claimed the Buddhist crisis Halberstam cited was merely an invention of "gullible reporters" who wanted "to see us lose the war to prove they're

[11] Sheehan, *A Bright*, 346
[12] Sheehan, *A Bright*, 346
[13] Sheehan, *A Bright*, 346
[14] Sheehan, *A Bright*, 346

right."[15] Reporters tried earnestly to warn the Kennedy administration and the American public of the pressing loss that was Vietnam. Their cries fell on deaf ears. To exacerbate the situation, Sheehan recalls three weeks in August and September when the Diem regime denied him and other journalists the use of the telegraph office.[16] The only acceptable use of communication was to send propaganda to America. Any articles about the failures of American generals were picked apart for grammatical errors and run-on sentences, with no consideration for the frontline writers who typed under immense stress.[17] Despite regarding Halberstam and his reports as lies, Kennedy's public response to questions on the state of the Diem regime was inconsistent, and occasionally aligned with Halberstam's own arguments.

Kennedy's Response

On September 9, 1963, less than a month after disregarding Halberstam's article, Kennedy gave an interview for NBC on the state of Vietnam and his updated opinion on the "domino theory"—the belief that if Vietnam fell to communism, other Southeast Asian countries would follow.[18] In this public interview, Kennedy openly admitted to concerns about a spreading "deterioration" of American efforts, particularly in the Saigon area. He also admitted to "difficulties with the Buddhists" since June, which called for taking additional steps to win back support in the area. Halberstam's August article contained almost the same information Kennedy presented as fact in his NBC

[15] Sheehan, *A Bright*, 347
[16] Sheehan, *A Bright*, 347
[17] Sheehan, *A Bright*, 349
[18] "The Pentagon Papers: 'Report of the Office of the Secretary of Defense Vietnam Task Force,'" National Archives, last modified June 13, 2011, https://www.archives.gov/research/pentagon-papers

interview, down to the use of the word "deteriorate."[19] Both Halberstam and Kennedy spoke about a pressing issue with Buddhists, Kennedy referring to their presence in Saigon and Halberstam in the Mekong Delta. Saigon was the capital city located on the northern border of the Mekong Delta region. The interviewer, Chet Huntley, inquired as to whether the US would then reduce aid in South Vietnam. Kennedy responded firmly, stating that a reduction of aid would not be helpful. He insisted that he had no reason to doubt the domino theory, remarking, "No, I believe it. I believe it. I think that the struggle is close enough."[20] Even after admitting the dissipation that was Vietnam, Kennedy refused to reduce the conflict.[21] The United States needed to win in Vietnam to prove its strength and capability, avoiding global humiliation. Rather than dissolving the conflict before the cost grew too great, the administration intensified it because of its own ambition.

Only thirteen days later, on September 22, 1963, Statement 458 was issued "eyes only for Ambassador Lodge from Ball" and sent to President Kennedy.[22] In this top-secret statement, Secretary of State for Economic Affairs George Ball requested immediate guidance and further review of the Vietnam situation by President Kennedy and Secretary McNamara. This report clearly stated: "1. The United States intends to continue its efforts to assist the Vietnamese people in their struggle against the Viet Cong. 2. Recent events have put in question the possibility of success in these efforts unless there [can] be important improvements in the government of South Vietnam."[23] By late September 1963, Kennedy and his administration were

[19] "The Pentagon," National Archives
[20] "The Pentagon," National Archives
[21] David Halberstam, *The Best and the Brightest* (Fawcett Publications, 1973), 253
[22] "The Pentagon," National Archives
[23] "The Pentagon," National Archives

extremely aware of the deterioration of the South Vietnamese government. The first major notification was from Halberstam, the second from Secretary Ball. Kennedy himself, despite public criticism of Halberstam's article, paraded the same information as truth. Members of his administration, such as Secretary McNamara and General Maxwell D. Taylor, were also aware of these updates on the Vietnam situation.

Maintaining the "Noble Lie"

Given the above information, McNamara and Taylor authored an extensive, secret report issued to President Kennedy on October 2, 1963. The two deliberately expressed radically different sentiments on the status of the war in Vietnam.[24] Under heading "II. Military Situation and Trends," subheading "B. Overall Progress," the report states the GVN's (South Vietnamese government's) military had "made great progress in the last year and a half, and that this progress has continued at a fairly steady rate in the past six months even through the period of greatest political unrest in Saigon. The tactics and techniques employed by the Vietnamese under U.S. monitorship are sound and give promise of ultimate victory."[25] In the same report, under heading "F. Conclusion," it is stated, "it is the view of the vast majority of military commanders consulted that success may be achieved in the I, II, and III Corps area by the end of CY 1964."[26] The findings expressed by McNamara and Taylor in this report are almost entirely fictional. They directly dispute what was communicated publicly and privately by those on the frontlines, the President, and *themselves*.

The inconsistencies upheld regarding the situation in Vietnam were vast. Kennedy, McNamara, Taylor, and other

[24] "The Pentagon," National Archives
[25] "The Pentagon," National Archives
[26] "The Pentagon," National Archives

generals were content with reporting, publicly and privately, false information.[27] Desperate attempts by journalists to notify the American public and government were met with indifference. Following the exposure of these truth-revealing statements, President Kennedy was assassinated in November 1963. His Vice President Lyndon B. Johnson assumed power and inherited the war. Johnson also inherited Kennedy's overconfident cabinet and administration members, making no move to replace them. Cabinet members refused to acknowledge the stories told by frontline journalists, instead encouraging further American involvement. Fictional reports on the state of Vietnam were authored to encourage continuing American presence, despite the evidence of a disaster. Johnson needed a genuine path out of the Vietnam War, but also desperately needed to win to show the world the sheer power of the United States. While Johnson mulled over solutions, the Vietnam War ran through men like clockwork.

Questions of Manpower

By 1966, the Vietnam War was a growing economic and physical expenditure that the United States increasingly could not afford. The primary concern Johnson and McNamara were confronted with was a shortage of men to supply the military. President Kennedy had already established the Task Force on Manpower Conservation in 1963 because one-third of all eighteen-year-old men reporting for the draft were deemed unfit for service, nearly half of these due to aptitude ineligibility.[28] Secretary McNamara and others participated in this taskforce. The taskforce had already attempted to identify and cure these so-called "mental rejectees" by counseling on educational and

[27] Halberstam, *The Best*, 254
[28] Janice H. Laurence and Peter F. Ramsberger, *Low-aptitude Men in the Military: Who Profits, Who Pays?* (Praeger, 1991), 15

vocational needs.[29] Those with physical problems were advised to seek medical attention. However, McNamara considered it a personal duty to continue to conjure remediation attempts for this issue of manpower.

STEP

McNamara's first proposal, the Special Training Enlistment Program (STEP), was regarded as a nonmilitary function and immediately rejected. STEP was an initiative created to revitalize the aptitude-test rejects through specialized education programs, ultimately to send them into combat.[30] Due to poor education in black communities, black Americans suffered disproportionate aptitude rejection, with higher rates in southern states. It was clear that the majority of those inducted into STEP or any similar program were going to be lower-class, impoverished, black Southerners.[31] McNamara's project proposal emphasized using these marginalized men in the military, claiming it was a social welfare program at heart. For Congress, this was uncomfortable. Congressmen predicted this program would harm units and reduce combat effectiveness due to the aptitude background of these recruits, adding additional burdens to officers.

In a retrospective interview between McNamara and Thomas G. Sticht in 1985, McNamara admitted his belief that Congress refused due to this discomfort.[32] In the unedited first

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[29] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 15
[30] Office of the Secretary of Defense Historical Office, *McNamara, Clifford, and the Burdens of Vietnam 1965-1969*, by Edward J. Drea, Secretaries of Defense Historical Series vi (Washington, D.C., 2011), 266
[31] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 266
[32] Thomas G. Sticht to Robert S. McNamara, "Mental Quality and Military Service," April 26, 1985, BOX I:103, Call Number: 0560A,

draft of this interview, McNamara stated, “The majority of some of the Armed Services committees were Southerners; they did not wish the blacks to receive that special remedial training.”[33] Congress was unwilling to fund a program they believed would make the military a domestic welfare project. Senator Richard Russell of Georgia, a strong critic of American presence in Vietnam, stood as an example. He opposed STEP because “he was unwilling to see large numbers of African-Americans from the deep South inducted under the program.”[34] He viewed this approach as illogical due to its emphasis on quantity over quality. However, as manpower demands grew, Russell later recanted this in a phone call with President Johnson, insisting on drafting those “damn dumb bunnies.”[35]

After STEP’s rejection in Congress, McNamara thought of a new idea. His recognition of the considerable number of low-aptitude young men coincided with "an awakening to the fact that there were poor people in America.”[36] President Johnson, who would have rather spent his time on domestic achievements, passed a series of antipoverty bills throughout the US in 1964 as a part of his “Great Society” campaign. Johnson’s initiatives and war on poverty bills radically departed from the typical 1950s attitude towards the poor, which was to disregard them. Such bills also provided the government with exact numbers of lower-class young men in America, which McNamara used for his project. McNamara took notes from the Marine Corps, who were "proud of the fact that they were able to

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Robert S. McNamara's Papers (1934-2009), Library of Congress, Washington, D.C

[33] Sticht to McNamara, "Mental Quality."

[34] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 266

[35] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 266

[36] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 17

admit youth scoring as low as the 10th AFQT [Armed Forces Qualification Test] percentile," and implemented the Marine's technique of repetitive training until standards were met.[37] McNamara reformulated STEP with both the impoverished and those of low intelligence in mind.

Project 100,000

On October 1, 1966, McNamara turned to the young men who had failed the military's baseline mental testing. In the words of war correspondent Joseph Galloway, this typically included: illiterate, mentally deficient, "black and redneck whites" from "the mean big city ghettos and the remote Appalachian valleys."[38] These men failed basic training, couldn't read, "had to be taught to tie their boots," and were "recycled over and over until they finally reached some low standard" and were sent to war.[39] Substandard soldiers were recruited under McNamara's newest proposition to intensify the Vietnam War: Project 100,000. The US government intended to add 100,000 troops each year with revised standards, allowing the men previously described to be conscripted and serve.[40]

The Project 100,000 men were referred to as "second-class fellows" by President Johnson in a secret White House tape, and that is exactly what they were.[41] From the beginning, the burden of the Vietnam War fell on men from poor and working-class families, who made up 80 percent of combat forces. McNamara's men already belonged to this lower class, in addition to being at an educational disadvantage. The Office of the Secretary of Defense's (OSD's) Manpower department

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[37] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 18
[38] Hamilton Gregory, *McNamara's Folly: The Use of Low-IQ Troops in the Vietnam War* (Infinity Publishing, 2015), 52
[39] Gregory, *McNamara's Folly*, 52
[40] Gregory, *McNamara's Folly*, 52
[41] Gregory, *McNamara's Folly*, 52

advised McNamara to “expect proportionately many more negroes,” and he both expected and received them.[42] The program was characterized as “uplifting” black, Southern, rural communities.[43]

A Righteous Cause

McNamara proposed Project 100,000 as a social welfare initiative to assist, as he referenced, the one in every six Americans who lived below the average living standard. McNamara stated, "The poor of America have not had the opportunity to earn their fair share of this nation's abundance.”[44] Sending them to the frontlines of Vietnam was exactly the abundance he had in mind. He never announced the need for additional manpower to fight in Vietnam in his Project 100,000 announcement. Rather, he cited statistics of “tragic poverty in the United States,” arguing his new reframing of standards could “salvage” thousands of men.[45] It was a tactical and deliberate cover-up of the true motivation behind the project—a need for cannon fodder.

While McNamara maintained his righteous “noble lie” for the public and himself, others stated its true purpose outright. General J. P. Lampert, Deputy Assistant Secretary of Defense (Manpower), noted the necessity of using all available draft-age men. While discussing Project 100,000, Lampert remarked, "Unless we fully use the available 19 to 25 year old men, the Boards will progressively send for induction older married men

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[42] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 266
[43] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 266
[44] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 19
[45] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 268

and men aged 26 or older."[46] Certain men of draft age, eighteen to twenty-six, were unavailable, claiming student deferments or military reserve exemptions. To draft these typically white, affluent, college men would cause nationwide outrage, as their middle- to upper-class families strongly protested it. Their political voting power was too great. Increasing the number of poor and disadvantaged young men allowed in the service was a choice way to avoid drafting the privileged.[47] To keep a war invisible, it is necessary to draft invisible men. While this was the evident motivation behind Project 100,000, McNamara insisted on its honorable qualities. Whether or not he genuinely believed in the social welfare justification is unknown. He certainly insisted on its sincerity throughout his life.

There were those who strongly protested Project 100,000, such as several Pentagon workers under McNamara, including Leslie John Shellhase.[48] Shellhase, as well as others, recognized the outright danger of sending men of substandard intellect into combat units. It was considered a bad idea from the very beginning, and some demands were voiced to shut the entire project down. When met with indifference, Shellhase and others attempted to lobby for the use of these Project 100,000 men in service and support areas, rather than combat. As a veteran of World War II himself, Shellhase understood the danger of using "marginal manpower as cannon fodder," which would endanger themselves and their comrades.[49] In his 1985 interview, McNamara admitted his proposition was met with "immense resistance… in the services," mostly from lower-ranking and

[46] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 20
[47] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 20
[48] Gregory, *McNamara's Folly*, 55
[49] Gregory, *McNamara's Folly*, 55

noncommissioned officers.[50] Military officers were "disturbed," seeing the project as an impossible task meant to "take on a large-scale 'poverty-war' mission while also fighting a war."[51] In other areas of life, civil rights leaders heavily denounced the program from its outset. They correctly predicted that it would "place undue hardships" on black Americans, who would make up a majority of the "New Standards Men."[52] Ultimately, protest efforts of Shellhase and others failed, and McNamara recruited his men.

Consequences of the "Noble Lie"

During the first three years of Project 100,000, it accepted some 246,000 men. Ninety-two percent were accepted due to lowered mental standards.[53] Fifty-three percent, about 130,000 of the 246,000, volunteered, lowering the number of other draft calls.[54] These men were excited, ready to take advantage of this great, self-proclaimed welfare project. *McNamara, Clifford, and the Burdens of Vietnam 1965-1969: Secretaries of Defense Historical Series* by Edward J. Drea describes the statistical proportions of Project 100,000 men. More than forty percent of the men recruited were black men and sixty-five percent of them came from the Southern US.[55] In total, McNamara's Project 100,000 recruited 354,000 men. Half the

[50] Eleanor T. Morales, "Reparations for Project One Hundred Thousand," *Duke Law Journal* 74 (February 2025): 172, https://scholarship.law.duke.edu/dlj/vol74/iss5/1
[51] Morales, "Reparations for Project," 172
[52] Morales, "Reparations for Project," 172
[53] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 269
[54] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 269
[55] Office of the Secretary of Defense Historical Office, *McNamara, Clifford*, 269

men were assigned to combat units, resulting in tragic consequences.

"McNamara's Morons," as they were often referred, had difficulty absorbing training information and obeying orders.[56] There were several instances wherein low-aptitude soldiers endangered themselves and fellow GIs, such as that recounted by Vietnam veteran Chief Warrant Officer 4 (CWO4) William S. Tuttle.[57] Tuttle recalled nearly being hit by shots from low-aptitude soldiers with rifles and light anti-tank weapons. Making sure a low-aptitude soldier did not kill himself or a comrade by accident because he was startled or "because he's totally unaware of what's going on around him" was a major task of Tuttle and others.[58] A total of 5,478 of the original 354,000 men died, most in combat.[59] Mines and booby traps posed major threats to Project 100,000 soldiers, with 1,300 dead.[60] Some 20,270 were wounded, as well as permanently disabled. Estimates show about five hundred men became amputees.[61] The fatality rate of McNamara's soldiers was three times that of other GIs. Project 100,000 was not only dangerous for the low-aptitude men who belonged to it, but also to fellow soldiers. It also proved to be deadly for Vietnamese people.

My Lai Massacre

The My Lai Massacre occurred on March 16, 1968, when US Army soldiers tortured, raped, and killed hundreds of unarmed Vietnamese civilians in the village of My Lai.[62] The

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[56] Gregory, *McNamara's Folly*, 52
[57] Gregory, *McNamara's Folly*, 54
[58] Gregory, *McNamara's Folly*, 54
[59] Gregory, *McNamara's Folly*, 54
[60] Gregory, *McNamara's Folly*, 54
[61] Gregory, *McNamara's Folly*, 52
[62] Claude Cookman, "An American Atrocity: The My Lai Massacre Concretized in a Victim's Face," *Journal of American History* 94, no. 1 (2007): 156, https://doi.org/10.2307/25094784

atrocity was originally hidden by the US government. When it was finally exposed, it stood as a symbol of the brutality of the Vietnam War and fueled domestic anti-war sentiment. Second Lieutenant William Calley was the First Platoon leader of the men responsible, and ordered his men to shoot the civilians at point-blank range.[63] When some soldiers refused, he executed many of the villagers himself.[64] Calley, the only person convicted for the murder of more than one hundred civilians, was a "low-quality" officer sent to Vietnam during its final years.

Calley was conscripted just as the other low-aptitude soldiers were. He rose to the position of officer "because no one else was available," as Marine Corps Colonel Robert D. Heinl said.[65] Calley had failed out of Palm Beach Junior College with low grades, barely managing to get through officer candidate school. It was said he had not even learned to read a map or use a compass. When in the courtroom facing the consequences for his wartime atrocities, Calley's attorney cited his low intelligence as defense.[66] His attorney argued the US Army was to blame for My Lai because it never should have lowered its accepted mental standards in the first place. Calley then never would have been commissioned, and the atrocity would not have been committed. A man with Calley's intelligence never would have held an officer position or commission had the Army followed the previous mental aptitude standards. The military needed more than warm bodies for cannon fodder. It required well-trained, high-quality soldiers, especially for officer positions. All suffered the consequences of McNamara's decision to use substandard men. Despite this, using his righteous rhetoric, McNamara continued to encourage belief in the benefits of Project 100,000 among such "New Standards Men." The

[63] Cookman, "An American," 156
[64] Cookman, "An American," 156
[65] Gregory, *McNamara's Folly*, 52
[66] Gregory, *McNamara's Folly*, 52

program was propagated to sustain the administration's ambitions in Vietnam. It operated as a well-constructed "noble lie," for the "greater good," and it was convincing.

A Convincing Lie

John L. Ward and others who scored substandard on the military acceptance examinations were thrilled at the prospect of another chance.[67] Impoverished men or men from working-class families saw McNamara's proposition as another chance at escaping their low circumstances. Ward personally grew up in an impoverished black neighborhood in Glasgow, Missouri, at a time of racial segregation.[68] When Project 100,000 lowered the intellectual standards of the military, he was permitted entry to the US Marine Corps. Ward had scored in Category IV of the entrance exam, but he did not have intellectual disabilities.[69] McNamara falsely assumed many of his soldiers would be in the same predicament. Ward entered and rose to the rank of corporal in the Marines, glad to be given the opportunity to share the nation's abundance. The night of August 18, 1968, changed his gratitude. Enemy troops attacked Marine bunkers, killing 17 Marines and wounding several others. The young man from Missouri suffered severe injuries himself, resulting in the following effects: "brain damage, migraine headaches, dizziness, ocular imbalance, loss of memory, post-traumatic stress disorder, depression, amputated fingers, skull fracture and more."[70] Spending the next fifteen years trying to survive his disabilities, Ward retired from the service as a sergeant. He became a counselor and advocate for Project 100,000 veterans. His 2012 book *Moron Corps: A Vietnam Veteran's Case of Action* exposes

[67] Gregory, *McNamara's Folly*, 54
[68] Gregory, *McNamara's Folly*, 54
[69] Gregory, *McNamara's Folly*, 54
[70] Gregory, *McNamara's Folly*, 55

the “insensitive, morally unjust and inhumane” initiative that Project 100,000 truly was.[71] After dying in disproportionate numbers and being thrown “back into society without the skills promised us,” Ward notes many of the former Project 100,000 soldiers suffered from “isolation, unemployment, drug addiction, and medical neglect.”[72] The Department of Veterans Affairs did little to assist them.

Even now, very few veterans’ accounts of the Vietnam War specify if they belonged to the project or not. Alongside the account of John L. Ward is the story of Maurice Williams, a pseudonym used by the Wake Forest University of Law Veterans Legal Clinic’s legal counsel.[73] The legal counsel authored Williams’s story by combining real veterans’ experiences for confidentiality, especially to discuss the issue of Project 100,000 reparations.[74] This amalgamation of client narratives faithfully depicts the very real conditions a Project 100,000 serviceman faced.

Maurice Williams came from an impoverished farm in rural eastern North Carolina. Williams scored substandard on the Armed Forces Qualification Test (AFQT) and was originally rejected from the service at only eighteen years old. However, in 1969, after the revision of military mental standards, Williams was deployed. On the front lines, Williams was struck by shrapnel in his arm. After recovering from his injury, he began to experience symptoms of post-traumatic stress disorder. As his mental health condition worsened, he began to falter as a serviceman. He was discharged due to minor misconduct, such as “failure to wear his uniform properly, tardiness to formation, and outbursts when interacting with a superior officer.”[75] The

[71] Gregory, *McNamara's Folly*, 55
[72] Gregory, *McNamara's Folly*, 55
[73] Morales, "Reparations for Project," 1141
[74] Morales, "Reparations for Project," 1141
[75] Morales, "Reparations for Project," 1143

Army dismissed him as “unfit” and “undesirable,” which is now called an “other than honorable” discharge.[76] After returning to the US, Williams faced several serious medical conditions connected to his wartime exposure to Agent Orange, a toxic herbicide used in Vietnam. While he was nominally eligible for health care at VA for service injuries, he was turned away due to his negative discharge. Williams described his discharge as a “scarlet letter” with which he was burdened.[77] Homelessness, unemployment, and PTSD haunted his life, and he was significantly worse off than those who had avoided the draft.

Williams’s story speaks for the real experiences of Project 100,000 men. “New Standards Men” were punished harshly and disproportionately. Their court-martial rate was three percent, compared to the 1.4 percent of other soldiers.[78] They had a nonjudicial punishment—loss of pay, extra duty, restriction, reduction in rank—rate of 13.4 percent, versus the 8.2 percent of other servicemen.[79] That is a 61.4 percent higher rate of receiving nonjudicial punishment, and twice the likelihood of court-martial conviction. In total, 80,000 Project 100,000 men received less than honorable discharges (other than honorable, bad conduct, or dishonorable), and another 100,000 received general discharges.[80] This figure accounts for over half of the 354,000 men of Project 100,000. A less than honorable discharge strips one of all “veteran status” by law.[81] Recipients are barred from VA healthcare benefits for life. If Project 100,000 men did return home, they faced greater challenges than those they had originally left behind. The “welfare” program that promised “special treatment and a brighter future” in fact denied them both

[76] Morales, "Reparations for Project," 1143
[77] Morales, "Reparations for Project," 1144
[78] Morales, "Reparations for Project," 1172
[79] Morales, "Reparations for Project," 1172
[80] Morales, "Reparations for Project," 1172
[81] Morales, "Reparations for Project," 1172

these things.[82] Even as it was not known among the greater public, those who had served under Project 100,000 knew the truth of McNamara's lie.

Conclusion

The Vietnam War stands as one of the clearest examples of deliberate government exploitation of lower-class citizens in order to sustain military ambitions. Throughout the conflict, the US government and its members made decisions that disproportionately harmed marginalized communities. Driven by hubris and an unwillingness to admit defeat, the conflict escalated. Warnings from frontline journalists were ignored, and fictional reports that misrepresented the real state of the war stood in their place. Kennedy, Johnson, McNamara, and other advisors and generals refused to acknowledge the deteriorating situation, even with compelling evidence of the failure. This overconfidence ensured the continuation of American efforts, leading to demands for an increase in conscription.[83] Thousands of men suffered the deadly consequences of this arrogance.

Project 100,000 demonstrated deliberate exploitation. By lowering mental standards for induction, the military filled dangerous combat positions with so-called "second-class" soldiers, or economically and educationally disadvantaged men. It was promoted publicly as a social welfare project, while offering little real support to those it recruited. These men were sent to fight a war the government knew was unwinnable, with the belief that it would benefit them when they returned home. If these men did return home at all, they faced circumstances worse than what they left behind. Project 100,000 servicemen faced mental and physical disabilities for the remainder of their lives. Today, few veterans choose to disclose their participation in the

[82] Morales, "Reparations for Project," 1172
[83] Halberstam, *The Best*, 254

program, if they are even aware they belonged to it. Those who do indicate their participation actively speak out against it, highlighting its serious consequences.

McNamara insisted on the sincerity of Project 100,000 for the remainder of his life. He saw it as "salvaging" the poor men of America, claiming it gave them opportunities for success upon returning home. Whether he believed in the benefits of the program is unknown. Authors Janice H. Laurence and Peter F. Ramsberger of *Low-Aptitude Men in the Military: Who Profits, Who Pays?* claim it served dual purposes. Operating as both a social welfare program and a resolution to manpower demands of Vietnam, the program originated from complicated motivations.[84] Regardless of intent, for a social welfare project, it did little to assist those who participated in it. Veterans of the program faced elevated levels of unemployment, homelessness, and drug abuse at home. Due to their higher number of less than honorable discharges, many of them did not qualify for veteran benefits of any kind, including treatment through the VA.

Had the US government truly been unaware of the failing situation in Vietnam, Project 100,000 might be more understandable. In reality, members of both the Kennedy and Johnson administrations understood the men they sent were at extreme risk. Yet, manipulative programs were implemented to meet manpower demands, sacrificing marginalized lives under the guise of social progress. When the "noble lie" was finally exposed and more people discovered the war was always unwinnable, despite the false narratives being pushed, the US government's credibility never recovered. The "noble lie" of Vietnam, and the exploitation of the underprivileged, remains a reminder of the government's unchecked overconfidence. The story of the Vietnam War, and notably those conscripted through

[84] Laurence and Ramsberger, *Low-aptitude Men in the Military*, 21

Project 100,000, is a cautionary tale about the dangers and human cost of ambition, hubris, and governmental deception.

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Venezuela: A Dystopian Way of Leadership

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Abstract

This paper argues that Venezuela under Nicolás Maduro can be understood as a modern dystopian society. It explains how the country shifted from the promises of Hugo Chávez's Bolivarian Revolution to a system marked by authoritarian rule, economic collapse, and limited freedoms. There is a focus on issues like political repression, media control, and the use of scarcity to maintain power. It also looks at the impact on everyday life, including migration and the healthcare crisis that Venezuelans are facing today. Despite these conditions, forms of resistance still exist, showing that people continue to push back against the system.

I. Introduction

In literature, dystopias are societies marked by oppression, inequality, and the decay of truth. Works like George Orwell's *1984* and Aldous Huxley's *Brave New World* present worlds in which totalitarian governments maintain control through surveillance, propaganda, and psychological manipulation. While these texts are fictional, their warnings resonate powerfully in certain real-world contexts. Venezuela under Nicolás Maduro increasingly came to resemble these dynamics of a dystopian state. Once a nation with vast oil wealth and a strong democratic tradition, Venezuela has shifted into a landscape defined by political repression, institutional collapse, and humanitarian crisis. The conditions of everyday life, which are now marked by scarcity, fear, and a loss of freedom, illustrate how utopian aspirations can devolve into dystopian realities.

Hugo Chávez's "Bolivarian Revolution" began as a populist movement promising equality, sovereignty, and social justice. However, after Chávez died in 2013, Nicolás Maduro inherited a state already struggling with corruption and economic instability. At the same time, Maduro lacked Chávez's charisma and military background; his career path was rooted in communism (Graceffo 2024). Rather than addressing these issues facing the country, Maduro intensified them. His consolidation of power accelerated Venezuela's slide toward authoritarianism, transforming the country into a system that mirrors the major characteristics of dystopia. Elections are manipulated to maintain political dominance, opposition is criminalized, and the press is censored to preserve a singular narrative. Meanwhile, hyperinflation and scarcity have created a humanitarian emergency, driving millions of Venezuelans to flee the country in search of survival (Ellis 2).

In dystopian fiction, control goes far beyond political institutions; mechanisms of governmental control shape perception, behavior, and even individual thought. The Maduro

government uses mechanisms such as censorship, state propaganda, and surveillance. By limiting basic freedoms and controlling what people can believe, the government builds loyalty through fear and silence. According to political analyst R. Evan Ellis, the Venezuelan state's repression and collapse have destabilized not only its own citizens' lives but also the geopolitical balance of the Latin American region (4). This shows how Venezuela's dystopian condition cannot be explained as an isolated national crisis; its effects spill across borders and reshape the entire region. Countries like Colombia, Peru, and Brazil have struggled to receive millions of Venezuelan migrants, placing pressure on their economies, healthcare systems, and political institutions. In this way, Venezuela's internal collapse becomes a regional problem, influencing migrant policy, diplomatic relations, and even the rise of political tensions in neighboring countries.

This paper argues that Venezuela under Nicolás Maduro fulfilled the core conditions of a dystopian society through an examination of authoritarian politics, human rights abuses, economic collapse, propaganda, and psychological manipulation. While the government continues to use utopian language, promising equality, unity, and independence, the lived experience of Venezuelans reveals the opposite. Today, citizens navigate fear and scarcity under a regime that maintains its power through coercion and illusion. This remains the case despite the recent fall of Maduro on January 3, 2026.

II. Historical Background: From Revolution to Repression

To understand Venezuela's descent into dystopia under Nicolás Maduro, it is necessary to trace the nation's political evolution from the revolutionary idealism of Hugo Chávez to the authoritarianism of his successor. The transformation did not occur overnight; rather, it emerged gradually from the internal contradictions of the Bolivarian Revolution. When Chávez first

came to power in 1999, he presented himself as a reformer who would overturn decades of corruption and inequality. His movement, named after independence hero Simón Bolívar, sought to redistribute wealth, nationalize key industries, and empower the poor. Initially, these policies achieved some success: poverty rates declined, literacy improved, and Venezuela became a symbol of socialist resurgence in Latin America. However, the early utopian promise of chavismo contained within it the seeds of dystopia. The movement's dependence on charismatic leadership, its centralization of power, and its intolerance for dissent created a fragile democracy susceptible to authoritarian control.

During the first decade of Chávez's rule, the Venezuelan government increasingly concentrated authority in the executive branch. The 1999 Constitution expanded presidential powers, and Chávez used his influence over the judiciary and legislature to weaken institutional checks. According to R. Evan Ellis, this marked the beginning of "a creeping authoritarianism disguised as participatory democracy." Through popular vote, Chávez gained the ability to rule by decree, bypassing traditional democratic processes. At the same time, he cultivated a personality that portrayed him as the embodiment of the people's will.

The Bolivarian Revolution also relied on Venezuela's vast oil wealth to sustain its utopian ambitions. Oil revenues funded extensive social programs, including subsidized food and housing, while also enabling the government to expand its control over the economy. Yet this dependence on a single resource created structural vulnerability. When global oil prices collapsed in 2014, Venezuela's economy imploded, revealing the fragility of its redistributive model. As Ellis notes, "the state's collapse was not simply economic but institutional, the erosion of its ability to govern, maintain order, and provide services" (9). Instead of fixing the problems, Maduro's government tightened

its grip on power and blamed other countries, especially the United States, for Venezuela's suffering. This scapegoating strategy diverted attention from internal mismanagement as he shifted the focus elsewhere.

Following Chávez's death in 2013, Nicolás Maduro, a former bus driver and foreign minister, assumed the presidency amid growing economic turmoil. Maduro lacked Chávez's charisma and popular legitimacy, relying instead on coercive mechanisms to maintain authority. His government quickly moved to eliminate opposition voices, stack the judiciary, and silence independent media. In 2015, when the opposition coalition won a majority in the National Assembly, Maduro's allies in the Supreme Court declared that body "in contempt," effectively nullifying its legislative power (Baltazar 58). This judicial coup marked a decisive break from democratic governance. In 2017, the regime created a parallel institution, the National Constituent Assembly, composed entirely of pro-government representatives, further cementing one-party rule.

This is important because the Venezuelan state became increasingly militarized. High-ranking officers were appointed to positions in key ministries and state-owned enterprises, transforming the military into a pillar of regime stability. As Andre Baltazar observes, "the militarization of civilian institutions has entrenched a command structure that prioritizes loyalty over legality" (59). The regime also empowered paramilitary groups known as *colectivos*, which operate with impunity to intimidate protesters and suppress dissent. This use of both formal and informal violence parallels dystopian depictions of regimes that employ omnipresent surveillance and fear to maintain obedience. Ordinary Venezuelans learned that resistance, whether through protest, journalism, or even social media criticism, could result in imprisonment or disappearance.

Economically, Maduro's presidency deepened the collapse that began under Chávez. Hyperinflation rendered wages worthless, while shortages of food, medicine, and electricity became part of daily life. Instead of addressing structural inefficiencies, the government introduced the Local Committees for Supply and Production (CLAP), a system designed to distribute subsidized food. In practice, CLAP became a political tool used to reward loyalty and punish dissent. Families associated with the opposition often found themselves excluded from food distributions, reinforcing dependence on the state for survival. As *The Collapse of Venezuela and Its Impact on the Region* explains, "the regime's survival strategy transformed material deprivation into a mechanism of political control" (Ellis 11). This system exemplifies how dystopian states weaponize scarcity to secure compliance.

By the late 2010s, Venezuela's political order had fully devolved into authoritarianism. The 2018 and 2024 presidential elections were marked by irregularities, disqualified opposition candidates, and allegations of fraud. International observers, including the Organization of American States, refused to recognize their legitimacy. The government responded to protests with mass arrests, censorship, and torture. In this environment, people stopped getting involved, and hope for change slowly faded. In other words, the transition from revolution to repression was complete.

The historical trajectory of Venezuela demonstrates how utopian ideals can mutate into dystopian realities. Chávez's promise of social equality required an expanding concentration of power, which eradicated the institutions necessary for democracy. When external pressures, such as declining oil revenues, challenged the system, the government responded not with reform but with repression. Under Maduro, the revolutionary project lost its ideological coherence, becoming a regime sustained by coercion, propaganda, and scarcity. As

political scientist Javier Corrales argues, "Venezuela is no longer a flawed democracy, but a full autocracy sustained by fear and fatigue" (61). His point captures how daily exhaustion keeps citizens from organizing or demanding change. The Bolivarian Revolution sought to liberate the poor and challenge imperialism, yet it ended by producing a system where citizens endure daily humiliation, repression, and deprivation. Maduro's rise and grip on power show how Venezuela shifted from a populist democracy into a full-blown dystopian country. Political authoritarianism in Venezuela is not merely a byproduct of crisis; it is the principal mechanism by which the state maintains control over its population.

III. Erosion of Democratic Institutions

The first pillar of Venezuelan authoritarianism lies in the destruction of checks and balances. Following the opposition's 2015 victory in the National Assembly, the Maduro regime moved swiftly to neutralize legislative oversight. The Supreme Tribunal of Justice (TSJ), packed with loyalists, declared the Assembly in contempt for swearing in three disputed members, effectively invalidating all its actions (Baltazar 58). This ruling marked the end of legislative independence and allowed the executive branch to govern unilaterally through decree. In 2017, the establishment of the National Constituent Assembly, a parallel institution composed exclusively of pro-Maduro delegates, further entrenched autocratic control. According to R. Evan Ellis, this move "destroyed even the pretense of pluralism and transformed the Bolivarian state into a single-party regime in all but name." The destruction of institutional checks and balances is a hallmark of dystopian governance. In literature and in real life, authoritarian states maintain control not only by using force but by hollowing out the institutions meant to limit their power. Venezuela's situation reflects this pattern clearly. With the legislature sidelined, the judiciary compromised, and

the electoral system manipulated, the Maduro government has constructed a political environment where dissent is nearly impossible to express through official or popular channels. What remains is a system that resembles democracy on paper but functions as authoritarianism in practice.

Judicial complicity remains central to this authoritarian framework. The TSJ not only upholds executive decrees but also criminalizes opposition activities. Opposition leaders have been banned from running for office or stripped of their political rights under vague charges of "treason" or "corruption." The result is a regime where legality is performative, serving to justify repression while maintaining the illusion of constitutional order.

IV. Electoral Manipulation and the Mirage of Democracy

Despite its autocratic nature, the Venezuelan regime continues to stage elections, using them as tools of legitimation both domestically and internationally. The government's electoral strategy operates through a combination of coercion, fraud, and control of electoral institutions. The National Electoral Council (CNE), dominated by pro-government members, routinely disqualifies opposition parties and candidates on technical grounds. For example, during the 2018 presidential election, the two major opposition coalitions were banned from participation, effectively guaranteeing Maduro's victory. International observers, including representatives of the European Union, denounced the election as neither free nor fair (Baltazar 60). Beyond institutional bias, the regime manipulates voters through economic coercion, as noted above. Access to food subsidies via the CLAP program and social benefits like housing is often contingent upon demonstrating loyalty to the ruling party. As Ellis notes, "the Maduro government has converted the act of voting into an act of dependence; the state watches, rewards, and punishes accordingly" (12). Citizens are

not merely subjects of surveillance but captives within a system that determines their survival based on political allegiance.

The regime also exploits technological means to enforce conformity. The *Carnet de la Patria* ("Fatherland Card"), a national identification system introduced in 2017, functions as both a welfare registry and a surveillance tool. Linked to social programs, it allows the government to monitor citizens' participation in political events, voting behavior, and even social media activity. The Card is "intended to address the country's limitations on access to cash, hyperinflation, and the serious lack of food and medicine. But it can also be seen as part of a wide-ranging state effort to control information, whether private or public" (Vidal 2018). In this sense, Maduro is controlling the basic needs of Venezuelans and using these essential resources to his advantage.

V. Repression and the Culture of Fear

Authoritarian control in Venezuela extends far beyond institutions and elections; it is sustained through a pervasive culture of fear. Security forces, particularly the Bolivarian National Guard (GNB) and the Special Action Forces (FAES), play a critical role in repressing dissent. Reports from the United Nations and Human Rights Watch have documented extrajudicial killings, arbitrary detentions, and torture of protesters and opposition members. In 2019 alone, the FAES was accused of executing over 5,000 people in supposed "anti-crime operations" (*PMC* 2019). These are not random acts of violence; they are deliberate methods of social intimidation to deter any form of dissent.

The regime's control of information further amplifies this fear. Independent media outlets face censorship, closure, or state takeover. Journalists who report on corruption or human rights violations are harassed or imprisoned. The internet, once a space for dissent, is now heavily monitored and subject to

periodic blackouts. According to a 2021 article in *The Journal of Democracy*, "the Maduro government has perfected a dual strategy of silencing and flooding—silencing independent voices while flooding digital spaces with propaganda and misinformation" (Corrales 23). Living under constant surveillance and state intimidation creates a psychological environment where people fear speaking out, even in private. By combining state violence with strict information control, the Maduro government has created conditions where opposition feels dangerous and, at times, impossible. This mirrors the logic of dystopian systems, which often rely not only on physical force but also on psychological domination.

VI. Institutionalized Corruption and Clientelism

Corruption in Venezuela is not just a byproduct of government failure; it is what helps the regime stay in power. The regime maintains loyalty among elites through the distribution of lucrative contracts, positions, and access to foreign currency. The military, in particular, benefits from control over sectors such as mining, food distribution, and petroleum. This shows how, by rewarding military leaders with power and resources, the government makes sure the armed forces have a stake in keeping the regime alive. Ellis describes this system as "a political economy of complicity—where corruption is both the glue and the currency of authoritarian stability" (13). At the societal level, clientelism transforms citizens into dependents. At the community level, it shapes everyday life. Basic goods, such as food, medicine, and fuel, are distributed through political networks rather than fair, open systems. Access to CLAP food boxes, subsidized housing, or local resources often depends on demonstrating loyalty to the ruling party. For Venezuelans, survival becomes tied to political obedience. This creates a situation where ordinary citizens are not just coping with scarcity; they are navigating a system that

intentionally uses scarcity as leverage. By monopolizing both violence and resources, the regime eliminates any chance of opposition. This shows that the dystopian character of Venezuela under the Maduro presidency was not confined to authoritarian politics; it extended deeply into the social and humanitarian dimensions of daily life. The collapse of essential services such as food, healthcare, housing, and education produced a landscape of desperation that mirrors the bleakest visions of social decay in dystopian literature. Under Nicolás Maduro's leadership, these conditions were not accidental but structural, resulting from deliberate policies of control and neglect that weaponized scarcity as a form of governance.

VII. Economic Breakdown and the Weaponization of Scarcity

Venezuela's economic collapse stands among the most severe in modern history. Once Latin America's wealthiest nation, it has experienced hyperinflation exceeding one million percent in 2018, eroding the value of currency to the point of absurdity (Baltazar 59). Basic items such as rice, flour, and medicine became extremely difficult to find, turning everyday life into a constant struggle. What had once been routine activities, such as shopping for groceries, getting medical care, or paying bills, became unpredictable and impossible.

The Maduro government's economic mismanagement, rooted in corruption, centralization, and dependence on oil revenues, exacerbated the collapse. Yet beyond incompetence, scarcity has become a tool of control. Through the Local Committees for Supply and Production (CLAP), the regime distributes subsidized food packages to loyal citizens while withholding them from dissenters. This practice aligns with what political scientist Javier Corrales calls the "political economy of hunger," wherein food becomes a mechanism of loyalty and subjugation (*Journal of Democracy*). By monopolizing access to

sustenance, the regime transforms everyday survival into a test of political obedience, echoing dystopian societies in which scarcity enforces compliance and breaks collective resistance.

The collapse of public services has only made life harder for Venezuelans. Constant blackouts, water shortages, and fuel crises make day-to-day life unpredictable. Hospitals often go without running water, schools open and close without warning, and transportation is scarce. In other words, citizens live in a constant state of uncertainty. When individuals do not know whether they will have electricity, safe water, or fuel from one day to the next, it becomes difficult to plan for the future or participate in civic life.

VIII. The Health Crisis and the Collapse of the Biomedical State

The health system in Venezuela exemplifies the moral dimensions of dystopia: a state that claims to protect its citizens while allowing them to die as a result of what can be considered preventable causes of death. According to a 2019 study, Venezuela's health infrastructure had "deteriorated beyond repair," with hospitals facing chronic shortages of antibiotics, surgical supplies, and even electricity (Doocy 4). The reemergence of eradicated diseases like measles and malaria marks the regression of an entire nation's public health standards. Medical professionals have fled, leaving hospitals staffed by undertrained personnel with little equipment. This exodus has produced what the *PMC* 2019 study calls "a medical vacuum," wherein care is rationed based on access to political networks rather than medical need. The result is a perverse inversion of health that becomes a privilege for those aligned with the ruling elite. The government's response has only made the crisis worse. For years, officials denied the severity of the health emergency and refused international humanitarian aid. They also stopped publishing official health statistics, making it

difficult for researchers, doctors, or even citizens to understand the true extent of the crisis. This intentional withholding of information reflects a broader pattern of erasing or distorting reality to maintain political power. In a dystopian society, controlling information is as important as controlling resources, and Venezuela's health crisis shows how both strategies work together.

IX. Migration and Displacement

No single indicator better captures the scale of Venezuela's dystopia than the mass migration of its people. More than seven million Venezuelans, nearly a quarter of the population, have fled the country since 2015, making it the largest displacement crisis in the Western Hemisphere (Ellis 14). These migrants cross borders on foot, facing hunger and violence in search of survival, to escape the strict regime at home. Entire families are divided, leaving behind elderly relatives and children in the care of neighbors or underfunded institutions.

The migration crisis has transformed the Venezuelan identity itself. Once proud of its relative prosperity and hospitality, Venezuela now symbolizes flight, exile, and loss. In *The Collapse of Venezuela and Its Impact on the Region*, Ellis notes that "Venezuela's humanitarian implosion exports instability, transforming the country's suffering into a regional contagion" (15). This regional destabilization, manifested in refugee camps, strained health systems, and border conflicts, extends the dystopian condition beyond Venezuela's borders, turning the entire region into a landscape of displacement and insecurity.

X. Psychological Trauma and the Normalization of Despair

Beyond material scarcity, Venezuela's dystopia manifests as psychological despair. Chronic scarcity, repression, and uncertainty have created widespread anxiety, depression, and

hopelessness. The article written by Doocy emphasizes that "mental health in Venezuela has deteriorated to crisis levels, with suicide rates increasing by over 70% since 2015." The government's refusal to acknowledge this mental health crisis only intensifies it. Officials have denied statistics, restricted access to information, and undermined the work of psychologists and social workers who try to address the growing emotional burden.

In dystopian societies, individuals often begin to understand the logic of their oppressors and come to view suffering as normal or inevitable. In Venezuela, this normalization is visible in daily conversations, where citizens refer to "resolviendo" ("finding a way") as shorthand for surviving chaos. The culture of resilience, while admirable, masks a deeper exhaustion: a population forced to adapt endlessly to deprivation. "Venezuela has entered a moral decline, where survival replaces citizenship and endurance replaces freedom" (Corrales 24). Shared trauma affects how people think and act politically, making it harder to organize or fight back. The psychological dimension of Venezuela's dystopia reveals that authoritarian control is maintained not only through force or scarcity, but through the gradual erosion of hope. When despair becomes commonplace, the boundaries of what seems possible or acceptable begin to shrink. In this way, the emotional suffering of Venezuelans is not just a consequence of the crisis—it is part of the regime's overall structure of control.

XI. Media, Propaganda, and the Control of Truth

If political repression and humanitarian collapse reveal the material dimensions of Venezuela's dystopia, the control of information helps reveal its psychological core. Under Nicolás Maduro, Venezuela's information landscape became a closed system of propaganda and censorship, where the state determines not only what citizens can know but what they are allowed to

believe. Venezuela once had one of Latin America's most vibrant and pluralistic media environments. Today, it ranks among the most repressive. Independent outlets have been shut down, nationalized, or coerced into compliance through economic pressure and legal intimidation. The state controls major television networks and dominates radio frequencies, using them as tools to amplify official narratives. According to Andre Baltazar, between 2013 and 2023, over 200 media outlets were closed or had their licenses revoked for "administrative irregularities," or in short, disagreeing with the government (61). The Venezuelan government routinely suppresses reports of inflation, crime, and humanitarian collapse, ensuring that the "official story" contradicts lived reality. Journalists who attempt to publish unauthorized information face harassment, imprisonment, or exile. By controlling both traditional and digital media, the Venezuelan state has built a powerful tool of psychological domination. The government does not simply restrict information; it shapes the conditions under which truth can be known. This is a defining feature of dystopian societies, where controlling what people believe becomes just as important as controlling what they do. In Venezuela, the collapse of media freedom has blurred the line between reality and propaganda, allowing the regime to maintain power not only through force but through the systematic manipulation of truth itself.

XII. Propaganda and the Cult of the Leader

The Maduro regime mastered the use of propaganda not merely as persuasion but as a factual reality. Drawing on Hugo Chávez's legacy of charismatic populism, Maduro's government cultivated a cult of leadership. Portraits of Chávez adorned classrooms, hospitals, and even ballot boxes, symbolizing the eternal presence of the "Comandante." Maduro frequently referenced Chávez's image during national broadcasts, presenting himself as his appointed heir. This symbolic

continuity sustained the illusion of revolutionary legitimacy even as living conditions deteriorated.

Propaganda in Venezuela operates through emotional saturation rather than logical argument. State television broadcasts patriotic songs, military parades, and humanitarian spectacles, portraying the government as both savior and victim. The United States and any other country that opposes Maduro are cast as villains conspiring to destroy the revolution, thereby externalizing blame for the damage on the inside. As Ellis notes in *The Collapse of Venezuela*, the regime "relies on a narrative of besiegement to justify authoritarian measures," framing repression of the population as national defense (17). The cult of leadership played a major role in this process. Chávez's image was presented almost as a sacred symbol of national identity, and Maduro positioned himself as the guardian of that legacy. This allowed the government to claim continuity even as conditions worsened. In many ways, these tactics resemble those found in dystopian literature, where leaders present themselves as caring defenders while quietly gaining more and more control.

XIII. Digital Surveillance and the New Panopticon

In addition to controlling traditional media, the Venezuelan government has expanded its reach into the digital world, creating a modern surveillance system in which people regulate their own behavior because they believe they are being watched. In Venezuela, this form of control does not always rely on advanced technology; instead, it combines selective monitoring, data collection, and the strategic threat of surveillance to keep citizens cautious about what they say and do online.

Internet activity is closely monitored, especially during moments of political unrest. Websites associated with opposition voices, international news, or human rights organizations are frequently blocked or slowed. Activists have reported that their

social media accounts were flagged or shadow-banned after they posted criticism of the government. These tactics create a chilling effect, prompting citizens to self-censor out of fear of attracting unwanted attention. Even when people do not know exactly how much the state is watching, the uncertainty alone is enough to silence many forms of expression.

The regime also relies on digital manipulation to maintain control. Thousands of pro-government accounts flood social media platforms with propaganda, conspiracy theories, and coordinated hashtags designed to drown out independent reporting. This tactic overwhelms users with conflicting information, making it difficult to identify credible sources. As Corrales notes, the goal of this digital strategy is not to convince citizens of a single narrative but to "create confusion, a sense that no version of events can be trusted" (Journal of Democracy 2021, 25). When truth becomes blurred, organized resistance becomes harder to sustain.

This environment fosters a constant sense of vulnerability. Citizens never know whether a tweet, a private message, or a shared post might be monitored or misinterpreted. Many Venezuelans avoid political conversations on messaging apps or refrain from posting altogether. The psychological impact mirrors that of classic dystopian surveillance systems: people censor themselves long before the state intervenes.

Through these practices, the Maduro government has built a digital ecosystem that discourages dissent and keeps citizens uncertain about the boundaries of acceptable speech. Surveillance does not need to be perfect to be effective; it only needs to be believable. In Venezuela, the fear of being watched is often enough to control behavior.

XIV. The Construction of an Alternative Reality

Perhaps the most chilling element of Venezuela's media dystopia is its ability to fabricate an alternative reality, a virtual

world where the regime's narratives replace empirical experience. In official broadcasts, Maduro celebrated "economic recovery" while citizens begged for bread; state media reported "medical sovereignty" while hospitals lacked electricity. The gap between what the government says and what people experience is so wide that reality becomes confusing. By monopolizing communication, the regime ensures that suffering remains private and unarticulated. There are no public forums for collective recognition, no common language for dissent. An example comes from an opposition leader named Maria Corina Machado, who has been forced into hiding by the government. She was interviewed by a Spanish newspaper, in which she stated, "We have become a clandestine organization because they are persecuting and hunting us. Second, we have managed to get the entire world to recognize Edmundo González's victory as president-elect. No one doubts it. But we have also succeeded in getting Maduro to see what he is: a human rights violator who has committed crimes against humanity and who, according to the Inter-American Commission on Human Rights, engages in practices classified as state terrorism" (Manetto 2025). Even within the bleakness of Venezuela's current condition, traces of resistance and resilience persist, quiet acts of defiance that challenge the dystopian order. Dystopias, whether literary or real, are never as powerful as they seem; their strength lies in convincing people that resistance is impossible. In Venezuela, citizens, such as Maria Corina Machado, have developed creative strategies to reclaim agency: underground journalism, grassroots networks, artistic expression, and diaspora activism. These movements keep alive the collective memory of democracy and the utopian ideal of a free, just society. This shows how Venezuela's dystopian reality is shaped by the ongoing struggle between state repression and citizens' efforts to resist it.

XV. The Persistence of Independent Media and Digital Dissent

Despite state censorship and surveillance, independent journalism in Venezuela has not vanished; it has adapted. Journalists risk imprisonment and exile, yet their reporting continues to document corruption, human rights abuses, and the humanitarian crisis. Venezuelan journalists function as custodians of truth in a world that seeks to erase it. By continuing to provide access to verified information, they challenge the regime's monopoly over reality. Their work transforms communication itself into an act of rebellion. Social media, though heavily monitored, also serves as a site of micro-resistance. Encrypted platforms like Signal and Telegram allow citizens to organize protests, share updates on shortages, and coordinate humanitarian aid. As noted in *The Journal of Democracy*, "digital dissent in Venezuela is less about visibility than connectivity; it sustains the social networks that authoritarianism seeks to destroy" (Corrales 27). In this sense, the internet becomes both battleground and sanctuary, a fragile space where truth and solidarity coexist beneath the surface of control.

XVI. Grassroots Activism and Community Survival

In the absence of functioning state institutions, local communities have assumed the responsibilities of governance. Grassroots organizations coordinate food distribution, medical aid, and education through informal networks. Churches, NGOs, and neighborhood committees act as parallel states, providing essential services and moral support. The CLAP food program, originally designed to enforce political loyalty, has paradoxically inspired counter-models of mutual aid. Citizens form *ollas comunitarias* (community cooking pots), pooling resources to ensure that no one starves. In barrios and rural towns alike, volunteers deliver medicine smuggled from abroad, teachers

hold informal classes, and doctors offer free care. These small acts of kindness show that people still hold on to their humanity, even in a cruel system. As the 2019 *PMC* article observed, "local solidarity networks represent a reassertion of civil agency against the state's monopolization of survival" (PMC 2019). They demonstrate that even within an authoritarian system, society retains the capacity for moral choice, a crucial reminder that dystopia is never complete while empathy endures. Artistic expression has emerged as another form of resistance, transforming grief and rage into collective memory. Venezuelan artists, writers, and musicians document the lived experience of dystopia through visual metaphors and performance. Murals in Caracas depict emaciated children beside slogans like *"Tenemos hambre y esperanza"* ("We have hunger and hope"), merging despair with defiance. Theater groups perform satirical plays mocking the regime's corruption, while filmmakers produce documentaries exposing the humanitarian crisis to international audiences. These works perform the same function as dystopian literature itself: they imagine alternative realities, reclaiming narrative power from the state. Artists who don't live in Venezuela play a crucial role in sustaining this cultural resistance. From Miami to Bogotá to Madrid, Venezuelan musicians, filmmakers, and writers transform exile into testimony. A perfect example of this is a free speech group based in Venezuela called "Espacio Público," whose main mission is to investigate, promote, and defend freedom of expression. This organization "registered 98 cases of abuses of freedom of expression preceding the July 28 presidential election [...] most cases were related to restrictions on journalistic coverage of the election, threats from high-ranking Maduro representatives and arbitrary arrests in retaliation for expressing opinions critical of Maduro" (US Department of State). Their work maintains a bridge between those who fled and those who remain, ensuring

that the narrative of Venezuela's collapse remains visible to the world.

XVII. Conclusion: The Anatomy of a Living Dystopia

Venezuela under Nicolás Maduro illustrates how a modern society can slide into dystopia through the erosion of institutions, the manipulation of resources, and the control of information. What began as a political project framed around equality and sovereignty transformed into a system that relies on fear, scarcity, and the suppression of truth. The collapse of democratic checks, ongoing humanitarian crises, and the government's control over food, media, and public services all contributed to an environment where daily life is defined by instability and repression.

Yet even in these conditions, which continue after Maduro's downfall, Venezuelans continue to resist. Journalists, community leaders, artists, and members of the diaspora work to preserve truth, support one another, and keep the country's struggles visible to the world. Their efforts show that dystopia is never absolute; it depends on convincing people that resistance is impossible. The persistence of these acts, large and small, demonstrates that Venezuelans have not surrendered their agency.

To call Venezuela a dystopia is not to deny hope. Instead, it highlights both the severity of the country's crisis and the resilience of its people. As long as truth is defended, communities support one another, and citizens, at home and abroad, continue to speak out, the possibility of a different future remains alive.

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Mapping Health in Ethnic Enclaves: Spatial Patterns Across Latino and Asian Communities in NYC

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Abstract

Where a person lives is strongly correlated with the overall health and well-being of the individual. We analyzed literature in the field and used publicly available datasets to create maps to study the relationship between ethnic enclaves and health outcomes. The field has many observational studies on whether living in an ethnic enclave affects an individual's health, but our study seeks to use spatial analysis to clarify the relationship and which mechanisms are the most effective. We focus on creating an enclave spatial definition for analysis and paying attention to the heterogeneity across ethnic groups. Our findings suggest no completely simple one-to-one relationship between ethnic density and health, but results suggest that many contributing factors and conditions may lead to either protective or harmful effects of place on health. Chronic disease patterns differed between Asian and Latino enclaves: hypertension was disproportionately higher in Latino enclaves, while Asian enclaves displayed relatively even rates across obesity, heart disease, and diabetes. Concerning mental health, we found a lower level of reports of “frequent mental distress” in Latino/Asian enclaves compared to predominantly White neighborhoods. We also found that behavioral risks are higher in specified enclaves compared to White neighborhoods/

neighborhoods with a more standard distribution of ethnic identities in a neighborhood.

Introduction

An ethnic enclave is "a geographical location in which a particular group is clustered and socially and economically distinct from the majority group" (Lim et al. 2017). Ethnic enclaves, for many foreign-born residents, are a home away from home; ethnic enclaves offer immigrant groups a sense of cultural continuity (Ethnic Enclaves | Research Starters | EBSCO Research n.d.). What is most interesting is the social and economic deviation of that specific geographic place from the surrounding majority group. A study done on data from the 2003 New Immigrant Survey (NIS) shows that, for some immigrant groups, working within an ethnic enclave is associated with lower earnings compared to immigrants who work outside the enclave (Xie and Gough 2011). Place is a big factor in determining health outcomes; patients from the most socioeconomically disadvantaged neighborhoods have nearly 30% higher odds of being readmitted to the hospital within 30 days than those from the most advantaged neighborhoods (Kind et al. 2014). In the Commonwealth's *Mirror Mirror 2024: A Portrait of the Failing U.S. Health System: Comparing Performance in 10 Nations*, the U.S. ranks last in comparison to the other 9 countries in terms of health system performance (Blumenthal et al. 2024). The U.S. spends more on health care than comparable countries, but that doesn't mean everyone in the U.S. has bad health. In Utah, Mormons had 35% less mortality from cardiovascular disease than expected from U.S. rates (LYON et al. 1978). The cultural practices of a minority group can affect health outcomes for that specific group. This brings to light the importance of studying ethnic enclaves and health. If they are truly healthier places to live due to the way cultural beliefs play a role in health outcomes, then they hold insights into how we can fight the health issues that permeate the American health system today. Maybe changing American culture can improve health outcomes.

With all this information and different opinions on how living in an ethnic enclave truly affects an individual, it is important to think about how an ethnic enclave is defined in spatial terms. In some of the literature, people living in an ethnic enclave were identified by means of self-identification (they just said they lived in an ethnic enclave), which can be very problematic when looking for causation. A study on ethnic enclaves and their associations with self-reported health outcomes among Asian and Latino adults in NYC defined ethnic enclaves as "a geographical area where a particular ethnic group is spatially clustered and socially and economically distinct from the majority group." If these differences aren't addressed, it could lead to inaccurate results when studying enclaves. This paper will first go into an in-depth literature review about what we found from other studies to guide our research question. We will discuss the methods for finding data sources as well as cleaning our datasets to prepare for geographic visualization purposes. We will then discuss what we observed over the period of time for our research. Our results then lead to a discussion on how our findings led us to even more complex questions and a conclusion.

Literature Review

Neighborhood Effects on Health and the Social Determinants of Health

This section covers a robust review of the literature on the topic of health and place. The articles discussed in this section describe the basis of knowledge on health and its place in the field. Scholarly articles that discussed enclaves were analyzed to determine if our spatial analysis is worth pursuing. The two core questions that this literature review will examine are: how do neighborhoods/places affect health, and how do ethnic enclaves influence health outcomes and behaviors? First, we review foundational research on neighborhood effects on

health, followed by studies that examine ethnic enclaves, health behaviors in enclaves that are cultural, and gaps in methods of study that motivate our research.

Some of the biggest factors affecting health are the social determinants of health. The social determinants of health are the nonmedical factors that play a role in the health outcomes of an individual. Neighborhood socioeconomic conditions and segregation are robust predictors of health outcomes. In a study on neighborhood and individual-level socioeconomic status (SES) on 4,405 people living in the San Francisco Bay Area, it was found that both neighborhood and individual SES influence breast cancer survival (Shariff-Marco et al. 2014). The unique nature of ethnic enclaves being almost "separated from the surrounding society" brings segregation into the conversation. When segregation is paired with different levels of SES, the interactions become complex and hard to measure. A study on SES and ethnic enclaves' impact on cervical cancer found a higher incidence of cervical cancer in high-enclave and low-socioeconomic-status neighborhoods. While these studies show that place matters, they do not completely address what aspects of place are important to health. Which matters more, the physical environment or how the cultural environment influences health behaviors?

Built Environment, Food Environment, and Health Behaviors

The primary concepts of health categorize good health and a clean environment together. The question is, does the cleanliness of our environment matter more than our health behavior, which we are more likely to engage in because of our environment? Good neighborhoods are generally marked by the amenities they provide, such as built environment, access to good schooling, access to medical facilities, walkability, parks, etc. Specific features such as food environment and walkability have the power to mediate place effects on health. A study on

whether immigrant enclaves are healthy places to live found that food environment and walkability can predict behaviors. Immigrants have been shown to generally exhibit healthier diets than their native-born counterparts, at least when they first arrive. When local businesses cater to the dietary demands of recent immigrants, which are generally healthier, the food environment created promotes healthy diets of the residents (Osypuk et al. 2009). These mechanisms that are place-level suggest possible pathways in which ethnic enclaves influence health by either promoting health or leading to worse health outcomes, depending on the situation.

Defining and Measuring Ethnic Enclaves

These results on food environments are evident, but how researchers choose to define ethnic enclaves changes the results that they are able to measure. Just like in all good studies, the sample we use for the study is very important. If the sample you study is not representative of the population, then the results from the study cannot be generalized beyond your sample. This becomes all the more important when trying to figure out if all ethnic enclaves are healthy places to live or if just some are. A study done on Asian American adults in New York City found that when defining ethnic enclaves in different ways, it led to different results while studying self-reported health scores (Lim et al. 2017b). When the enclave was defined based on relative segregation (which areas have a high concentration of Asians), generally, there were insignificant effects on chronic health outcomes after adjustment. When only using absolute concentration/cultural-linguistic measures, there were negative crude differences. These differences told the story of SES and language differences of the residents rather than a cohesive health story for how living in that neighborhood affected the health of those living there. The researchers in this study chose to combine the two methods and found little independent effect

on chronic health conditions after adjusting for individual-level factors. To best examine the effects of living in an ethnic enclave, we cannot just focus on the number of people of a specific ethnicity living in a certain place; we must factor in other factors, such as the language of the residents of that area. Because how an ethnic enclave is defined in a study varies, caution must be taken when comparing studies.

Variation in Health Outcomes Across Ethnic Enclaves

Ethnic enclaves are not all made the same; the health outcomes of living in an ethnic enclave are not merely varied in health effects but also between ethnic groups, local context, and resources. Asian American enclaves across five large U.S. states tended to show lower markers of disadvantage and greater geographic primary care accessibility compared to non-enclave areas. The authors of that study did another recent study on Latino enclaves across the same five states and found that Latino enclaves were characterized by greater structural disadvantage and had worse healthcare accessibility. With either one of these enclaves, the local socioeconomic conditions and infrastructure matter in determining how living there affects health. The most obvious difference between the two groups of enclaves studied is that one group of enclaves was of Asian Americans and the other was of Latino Americans. The demographic composition of an enclave is a difference that is best understood when looking at immigration history. For example, Chinese enclaves in NYC vary in when and how the enclave was formed. Older enclaves like Manhattan's Chinatown have longer histories of poverty and older infrastructure, whereas newer Chinese enclaves have immigrant populations with higher incomes and better access to healthcare (Zhang et al. 2022). The health outcomes of any place also rely very heavily on the local policy in the area and what it does or does not do to help the residents. The “enclave” is not a single kind of place like a “school”; it is, in fact, shaped by the

demographic composition of the people living there, immigration history, and the contexts of local policy.

Social Cohesion and Co-Ethnic Density as Protective Factors

A main pathway that can link enclaves to better health is social cohesion and the presence of culturally tailored resources. Co-ethnic density refers to a place where a large portion of residents belong to the same ethnic group. Various studies have shown that when a place has higher co-ethnic density, it is associated with lower depressive symptoms, better self-rated health, and less stress exposure for immigrants (Chang 2017; Osypuk et al. 2009; Sheehan et al. 2022; Walton 2012). Enclaves can be a host of language-concordant providers, community organizations, and even food options that are healthier due to their cultural significance. The home away from home is comforting to recent immigrants and those who have been around for a while. Though higher co-ethnic density can be enough to improve health for residents living in ethnic enclaves, sometimes it is not. As discussed earlier, enclaves in marginalized areas have reduced access to quality healthcare. Language barriers and issues with accessing health clinics further undermine health (Guan et al. 2025).

Cultural Health Practices and Health Care Utilization

The overall American health atmosphere is centered on self-medication. When we fall sick, we aren't necessarily looking to immediately go to a doctor, and we don't necessarily run to natural remedies, but we get over-the-counter medications. Cultural practices within enclaves suggest the opposite; they include the use of traditional, alternative, and complementary medicine (TCAM) (Agu et al. 2019). TCAMs shape the health behaviors and service utilization of ethnic minority groups. Studies found that the main reasons why ethnic minorities use TCAMs are cultural beliefs, dissatisfaction with conventional

care, and barriers to access (Agu et al. 2019; Fang and Schinke 2007). Residents usually, instead of first seeking over-the-counter medication, seek home remedies or herbalists for ailments that are minor ailments, usually only turning to medical care for serious conditions. This hierarchy of medical intervention plays a big role in timing and type of care received (Rao 2006). This hierarchy makes a big statement about how cultural beliefs directly affect health outcomes and must be taken into consideration when determining the health implications of living in an ethnic enclave.

Methodical Limitations in Enclave Research

It is noted many times that whether living in an enclave appears to be protective or harmful is usually reflective of how it is measured, whether by the concentration of people of that ethnicity living there, cultural-linguistic indices, how many people of that ethnicity live there numerically, or any combination of these measures (Lim et al. 2017b). Endogeneity and even how people decide which neighborhood they want to live in can distort associations. Most of the literature does not use experimental studies, limiting the causal inference. The best studies for this question are longitudinal, spatially explicit, and include multiple indicators. Addressing these points requires improved enclave definitions and careful control for individual-level factors.

Research Gap

Given the complexities of enclaves, our study adopts a multi-indicator approach, especially examining Chinese American enclaves; we combine demographic concentration and neighborhood SES. We map several health indicators to capture both protective and harmful health effects. We emphasize spatial comparisons across enclaves to illuminate how enclave characteristics vary by context. Our definition of enclave is more

intrusive for community-level application, as it combines the percentage of residents belonging to the ethnic group, the percentage foreign-born, and the percentage with limited English proficiency. To translate these insights into measurable constructs, the following methods section will present the datasets we used, our measure of an enclave, and implement our spatial analysis.

Methods

This study focuses on New York City (NYC); we used information on the five boroughs from local planners and U.S. Census data. We analyzed neighborhoods at the NYC Neighborhood Tabulation Area (NTA) level. We found 197 residential NTAs after removing nonresidential NTAs. NTAs are geographic units created by the NYC Department of City Planning that aggregate multiple census tracts to approximate neighborhood-level boundaries. Census tracts are geographic areas defined by the U.S. Census Bureau that typically contain between 2,500 and 8,000 residents. They are commonly used for reporting demographic and socioeconomic data. We reference 2,327 census tracts in NYC and block groups from the dataset. The borough-level and district composition data are used for descriptive context and mapping.

Having shapefiles that corresponded to the health data we examined was essential for using mapping software to visualize the data. We combine health and demographic datasets from multiple public sources. Health measures we used were obtained from the CDC PLACES (PLACE) dataset at the census-tract level. Sociodemographic and ethnicity variables came from the NYC American Community Survey. The spatial boundaries and the tract-to-NTA relationship tables came from NYC Planning.

The primary health measures we looked at for tract-to-NTA aggregation were taken from the PLACE dataset.

Health measures (where possible: all adult measures using population of 18 plus) included: OBESITY, STROKE, DIABETES, BPMED (taking medicine to control high blood pressure among adults with high blood pressure), COPD (chronic obstructive pulmonary disease among adults), CHD (coronary heart disease among adults), CSMOKING (current cigarette smoking), LPA (lack of physical activity; no leisure-time physical activity among adults), CHECKUP (annual checkup), ACCESS2 (current lack of health insurance among adults aged 18–64 years), GHLTH (fair or poor self-rated health status among adults), CANCER, DEPRESSION, and MHLTH (frequent mental distress). The variables that were used as counts were from the NYC ACS: Pop18plus (total population), ethnic composition/percent (Hispanic subgroups; Asian subgroups; NH categories), ethnic density, percent foreign-born, percent English fluent (or limited English proficiency), median household income, educational attainment, and other SES indicators. We also created an NTA-level measure of ethnic enclaves. All of the rates were reported as per 100, in consistency with PLACE conventions.

After consolidating the PLACE (~70,000 rows) dataset to a one-row-one-tract version, mainly switching the rows and columns, we ended up with 2,221 rows. We used the NYC Planning Department-provided "tract-NTA-relate" sheet to match tracts with NYC neighborhood codes. Datasets were joined on GEOID (tract-level 11-digit GEOID), and a column named NTACode was made to be appended for each tract.

The final step of our analysis was to explore the data by creating different visualizations using Tableau, pairing different socioeconomic conditions and health factors to help us answer different questions in our dataset.

Results

In this results section of our research, we visualize data patterns and organize ethnicity & health relations in the following sections to help explain the relevance of each graph to the bigger analysis.

1. Visualization of ethnic subgroups.
2. Definition of “ethnic enclaves”: as there is no consensus among existing literature on the definition of an "ethnic enclave,” our project computes it by filtering three statistical components(variables)—Latino/Asian density (percentage) residing in a given neighborhood (our dataset has included all residential Neighborhood Tabulation Areas of the NYC, i.e. 197 NTAs in total), foreign-born percentage, and limited English fluency. **A neighborhood (NTA) is classified as an “ethnic enclave” if it scores in the 4th quartile of all three of the aforementioned variables.**
3. Data patterns in the sub-categories of health metrics: Chronic diseases (such as diabetes, heart disease, high blood pressure, and/or obesity), mental health (such as depression and frequent mental distress), and behavioral risk factors of health (such as smoking and physical inactivity). These visualized relationships between ethnicity and selected health metrics in the preliminary analysis do not demonstrate any statistically significant correlations.

The results and interpretations of our visualizations are as follows:

Ethnic Sub-Groups

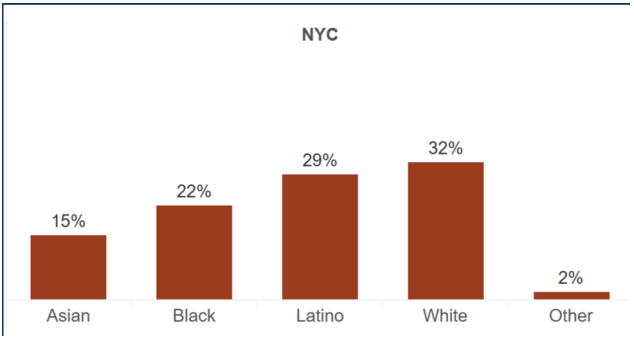
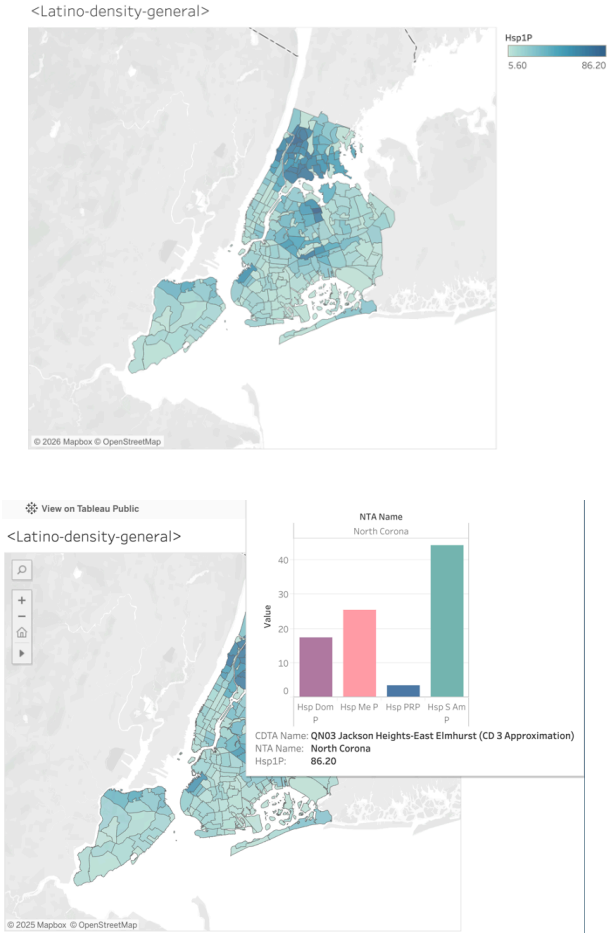


Figure 1. NYC Population by race/ethnicity (Source: NYC DOHMH population estimates, 2000-2021)

Using data from community health profiles, we found NYC's population by race/ethnicity is 15% of Asians, 22% Black, 29% Latino, 32% White, and 2% other. Given the diversity of the ethnic background of people living in New York, we found that groups like these can be limiting. For example, the Latino percentage in this graph includes both Latinos and Hispanics, who are made up of a host of people from different countries that identify with different cultures. We found that to be able to explore the more detailed nuances of place, ethnicity, and health, we needed to consider the breakdown of different ethnic identities and the population densities of those specific groups to determine which ethnic community exerts the most influence on local health outcomes.

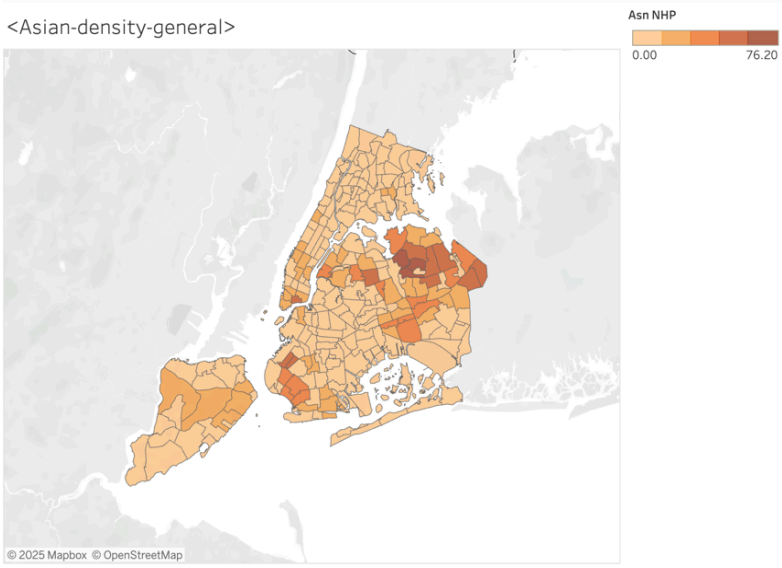
We found that in Latino neighborhoods in the Bronx, there is a higher population density of Dominicans (Hsp Dom) and Puerto Ricans (Hsp PR). Latino neighborhoods in Queens

have a higher population density of Mexicans (Hsp Me) and South Americans (Hsp S Am).



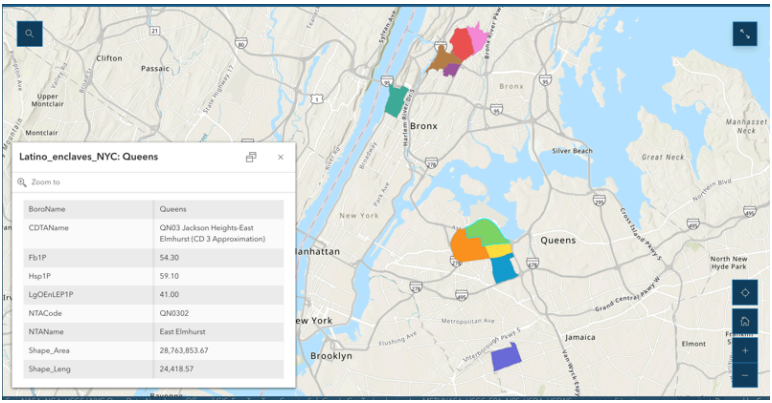
Map 1. Percent (%) of Latino/Hispanic Residents by Neighborhoods (NTAs) (Collapsed view and view hovering over Jackson Heights Neighborhood). Hsp1P (Percentage of the population identifying as Hispanic in each Neighborhood Tabulation Area).

We found that Queens in particular has many Asian neighborhoods, East Asian residents (Asn East) concentrated in Central-North and northeast, while South Asians (Asn South) tend to cluster in Central-South and East. Outside Queens, East Asians densely dwell in western Brooklyn (official Kings County) and the lower eastern side of Manhattan.

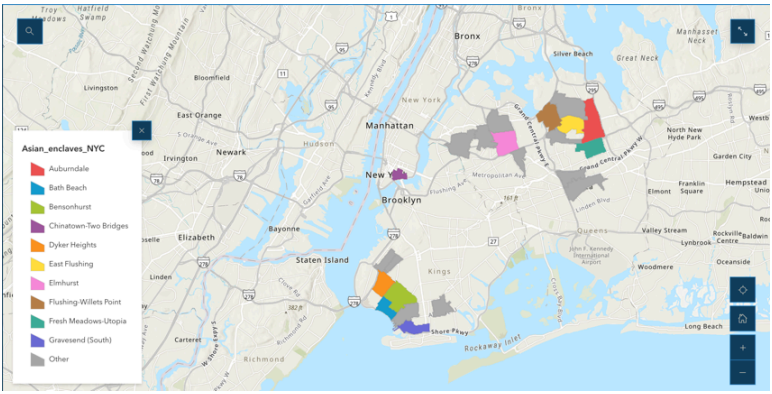


Map 2. Percent (%) of Asian Residents by NTAs

Our definition of an ethnic enclave is expanded and well-rounded; it is made of three primary variables: Latino/Asian residential density, foreign-born percentage, and limited English fluency. An NTA is classified as an enclave if it scores in the 4th quartile of all three variables. This computation renders 10 Latino enclaves and 23 Asian enclaves, as shown in Maps 3 and 4.

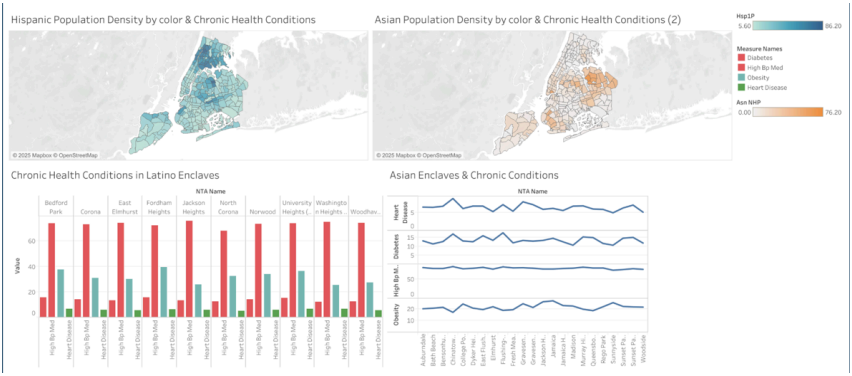


Map 3. Ten (10) Latino enclaves in NYC



Map 4. Twenty-three (23) Asian enclaves of NYC

Chronic Diseases

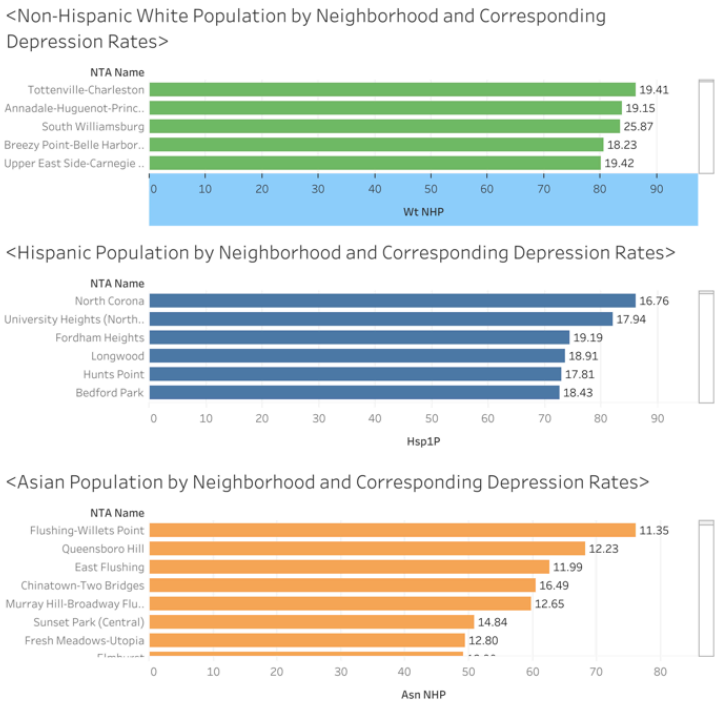


Dashboard 1. Chronic health conditions in ethnic enclaves

The maps that display Hispanic and Asian population densities in Dashboard 1 below do not show a direct correlation with the prevalence of chronic health conditions, as shown in the corresponding bar charts seen when you hover over each neighborhood. It was found that for Latino enclaves, high blood pressure rates are higher than rates of obesity, heart disease, and diabetes. On the other hand, for Asian Enclaves, the rates of the specified chronic conditions are more uniform.

Mental Health

Between non-Hispanic White and Latino neighborhoods, there was no obvious association with those living in ethnic enclaves reporting higher levels of depression. In contrast, those who live in Asian enclaves reported lower levels of depression than the other groups.



Dashboard 2(1). Mental health: Percent of depression by ethnic density

The higher levels of reporting “frequent mental distress” are observed in neighborhoods populated by non-Hispanic White people rather than Latino/Asian enclaves (such as South Williamsburg, a hub for the Hasidic community, which serves as an enclave of itself).

<Hispanic Populations in NYC and Frequency of Distress per Neighborhood>

NTA Name	Hsp1P	Freq M..
North Corona	86.20	18.58
University Heights (North..	82.00	18.72
Fordham Heights	74.40	20.98
Longwood	73.60	20.31
Hunts Point	73.00	19.22
Bedford Park	72.60	19.20
West Farms	71.70	21.54
Melrose	71.50	21.05
Washington Heights (Sou..	71.40	17.20
Kingsbridge Heights-Van ..	70.30	16.78
Kingsbridge-Marble Hill	70.10	17.83
Cypress Hills	69.80	16.86
Inwood	69.70	16.21
Corona	69.70	17.88
University Heights (South..	69.00	20.58
Mott Haven-Port Morris	68.50	21.77
Mount Eden-Claremont (..	67.80	20.15
Soundview-Clason Point	65.80	17.79
Mount Hope	64.40	20.57
Belmont	64.40	22.90
Soundview-Bruckner-Bro..	64.20	19.38
Washington Heights (Nor..	64.10	15.90
Norwood	62.90	18.09
Tremont	61.40	21.12
Highbridge	61.40	19.52
Crotona Park East	61.40	20.47
Woodhaven	59.70	15.77
East Elmhurst	59.10	16.49
Westchester Square	58.10	17.69
Sunset Park (West)	57.90	15.89

<Asian Populations in NYC and Frequency of Distress per Neighborhood>

NTA Name	Asn NHP	Freq M..
Flushing-Willets Point	76.20	13.30
Queensboro Hill	68.30	13.92
East Flushing	62.60	13.43
Chinatown-Two Bridges	60.50	15.50
Murray Hill-Broadway Flu..	59.80	13.18
Sunset Park (Central)	50.90	16.24
Sunset Park (East)-Borou..	49.00	16.44
Elmhurst	49.10	14.03
Fresh Meadows-Utopia	49.40	12.40
Glen Oaks-Floral Park-Ne..	49.00	11.77
Dyker Heights	44.90	14.57
Bayside	47.10	12.10
Bellerose	46.00	12.91
Auburndale	45.90	12.89
Bensonhurst	41.70	15.10
Gravesend (West)	41.80	14.75
Douglaston-Little Neck	43.90	11.09
Woodside	40.70	13.63
South Richmond Hill	36.60	17.39
Oakland Gardens-Hollis Hi..	42.10	11.18
Jamaica Hills-Briarwood	38.40	13.82
South Ozone Park	32.90	17.75
Jamaica	33.90	16.71
Ozone Park (North)	33.20	16.41
Rego Park	35.30	13.00
Bath Beach	33.20	14.21
College Point	31.90	14.94
Long Island City-Hunters ..	32.10	12.61
Sunnyside	28.60	15.34
Jamaica Estates-Holliswo..	30.20	13.48

<Non-Hispanic White Populations in NYC and Frequency of Distress per Neighborhood>

NTA Name	Wt NHP	Freq M..
South Williamsburg	83.60	24.77
Tottenville-Charleston	86.40	15.03
Borough Park	80.00	21.04
Annadale-Huguenot-Princ..	83.80	15.11
Breezy Point-Belle Harbor..	80.70	14.56
Great Kills-Eltingville	77.60	15.03
Upper East Side-Carnegie ..	80.10	10.98
Mapleton-Midwood (West)	73.00	16.81
West Village	76.20	12.96
Arden Heights-Rossville	73.90	15.12
Stuyvesant Town-Peter C..	73.70	12.97
Oakwood-Richmondtown	70.40	15.07
Upper East Side-Yorkville	72.00	13.34
East Midtown-Turtle Bay	73.00	11.87
Greenwich Village	71.00	13.64
Brighton Beach	70.10	14.51
Brooklyn Heights	72.10	12.46
Greenpoint	69.50	14.52
Upper West Side (Central)	71.60	12.05
Upper East Side-Lenox Hil..	70.70	12.89
Windsor Terrace-South Sl..	69.50	12.73
Gramercy	67.10	14.66
Todt Hill-Emerson Hill-Lig..	67.60	14.09
Midwood	65.20	15.80
Gravesend (East)-Homecr..	65.20	15.64
Park Slope	67.80	12.35
Westerleigh-Castleton Co..	64.30	14.63
Howard Beach-Lindenwood	63.00	15.29
Marine Park-Mill Basin-Be..	62.90	14.27

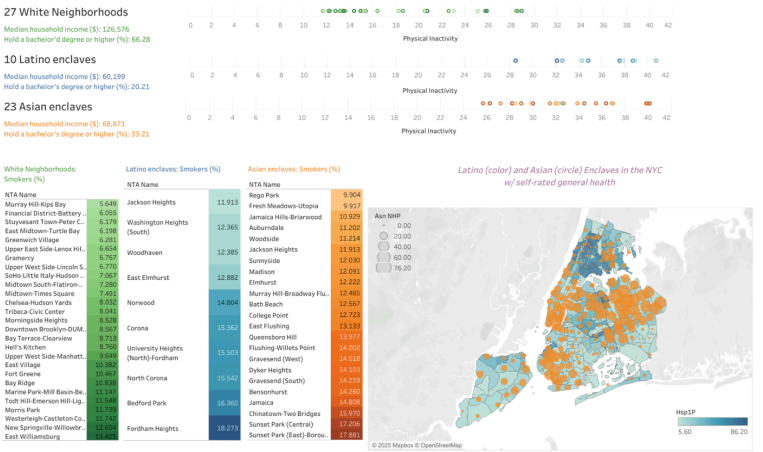
Dashboard 2(2). Mental health: Frequency of mental distress reported

Behavioral Risk Factors of Health

Dashboard 3 focuses on the 10 Latino enclaves and 23 Asian enclaves filtered by the definitional criteria of this project, and compares enclave residents' behavioral risk factors of health with those of non-enclave, white neighborhood residents. Dashboard 3 also presents basic economic (median household income) and educational (bachelor's and above) profiles of these NTAs. Overall, behavioral data patterns reveal that ethnic enclaves have a higher percentage range of smoking resistance (11.9% - 18.3% for Latino and 9.9%-17.9% for Asian enclaves, respectively) than white neighborhoods (5.6%-13.4%). Rates of

physical inactivity are also obviously higher among both ethnic enclaves (ranging from 25.7%-40.8%) than among white neighborhoods (11.7%-28.9%).

(*White neighborhoods are roughly selected with NTAs score in the 3rd & 4th quartiles of white residential density, English fluency, and 1st & 2nd quartiles of foreign born percentage.)



Dashboard 3. Behavioral risk factors of health by ethnic enclaves

Discussion

Ethnic enclaves are mainly patterned by space, cohesive ethnic make-up, and limited English fluency. The health effects of living in an ethnic enclave are neither protective nor harmful. Being mindful of the specificity of an ethnic group using tract-level demographic information, we found clear spatial clustering of Latino and Asian subgroups. Using our expanded and well-rounded ethnic enclave definition, we identified ten Latino enclaves and twenty-three Asian enclaves. Health can be

impacted by many variables, the hardest to impact being socioeconomic factors, so when implying causality, care must be taken. Based on the spatial analysis we did, no simple cause-and-effect relationship between ethnic density and health was found. This is expected, as understanding and comparing health outcomes of populations is nuanced. Despite that, we found behavioral risks to be higher in enclaves than in White neighborhoods.

The demographic data aggregated and displayed as subgroups reinforces points made in the literature, revealing that ethnic enclaves such as the ten Latino enclaves and twenty-three Asian enclaves are not just spaces that have been claimed by specific enclaves. Dominican & Puerto Rican dominance in Bronx Latino neighborhoods, Mexican & South American concentration in Queens, and East vs. South Asian spatial clustering within Queens and Brooklyn reflect the impact of histories of migration, labor market conditions, housing access, and other socioeconomic factors. Different subgroups are characterized by different health risk profiles, so subgroup geographic density must be considered when analyzing different health outcomes.

Identifying enclaves by filtering by ethnic density percentage, foreign-born percentage, and limited English proficiency underlines that it isn't just about who lives there, but the enclaves we have identified are structurally immigrant. Flushing, Queens, was developed in the early 20th century when the construction of bridges and public transportation began; that is when immigrants, mostly Asian, settled in Flushing. Flushing, Queens, boasts a host of immigrant resource groups and also citywide initiatives that offer everything from English classes to legal aid to support family and cultural programs within Flushing. The presence of these resources does make an impact, but it cannot be seen in the spatial analysis we have provided,

and must be supported with data comparing places that have these initiatives.

Our data does not show an association with the prevalence of chronic health conditions and living in an ethnic enclave. This suggests that population density alone may not explain health outcomes in ethnic enclaves. To better understand these patterns, it is important to examine additional social determinants of health, such as dietary habits, healthcare access, socioeconomic status and environmental factors, which may more directly influence chronic disease prevalence in these communities. The fact that higher levels of reporting "frequent mental distress" are observed in neighborhoods populated by non-Hispanic White populations rather than Latino/Asian enclaves could suggest misrepresentation, as mental health is still often stigmatized in immigrant communities, leading to fewer reports. We would need to compare data on the presence and impact of culturally tailored resources within the enclaves we have defined better to interpret our findings on behavioral risk in these communities.

Limitations and Future Work

Social cohesion and the presence of culturally tailored resources have been found to make enclaves healthier places to live, but since our analysis is based on population data and self-reported survey on data that we found to observe any association, it is very important to know our study does not prove a causal relationship. Our study lacks a control group, and even though this study is the first one to be done on health outcomes post COVID-19, studying the effect of living in an enclave vs. not living in one during COVID would be a great focal event to focus on. NYC is a hub of health research with many amazing datasets that include even more specific factors, one of such in the NYC Community Health Survey. The NYC Community Health Survey data is private and must be requested,

and so Drew University has taken the initiative to request this data, and we plan on producing an updated study including the insights from our analysis of that data spatially.

Lack of statistical model testing in our study makes us unable to consider proven correlation; moving forward, we would like to identify outstanding health metrics, explore associations or correlations, navigate ethnic subgroups and health conditions, and extrapolate potential explanations. Case examples of ethnic enclave community resources in their impacts can give us insight into whether community-wide use of alternative medicine promotes health better than Western medical habits.

Conclusion

We observed hints of both harmful and protective effects on health related to living in an ethnic enclave. More research and creation of better control groups can significantly help to prove protective or harmful effects on local health outcomes. There is so much left to uncover. The variables that we tend to focus on are learned on the side of health metrics and different diseases, but we believe diving into data that contains variables on different social determinants of health would yield much more interesting findings.

The reaches of this topic are almost limitless and are of great importance in our current political climate. We will continue to work on this project and explore how it can inform public health initiatives and better tell the story of diversity in New York, and in the future, hopefully, the whole U.S., through data.

Notes

This paper is a first-stage research report of a collaborative DHSI project conducted with Prof. Phoebe Mengxiao Tang and Drew student Julia Kolenda.

Keywords: Ethnic enclave, New York City, Health outcomes, Spatial analysis, Descriptive observational study

Data: NYC ACS, CDC PLACES, NYC OpenData

Software: R, Tableau, ArcGIS StoryMaps

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Artists and Anatomists: An Exploratory Study of Early Modern Netherlands & Spain

Aodhan Maloney

Abstract

This research examines the intertwined development of art and anatomical science in Early Modern Europe, focusing on the contrasting contexts of the Netherlands and Spain. Arguing that artistic and scientific collaboration was central to transforming conceptions of human corporeality and knowledge, this study traces how Renaissance humanism fostered a new intellectual environment in which visual and empirical inquiry flourished. Through detailed case studies, it demonstrates how the Netherlands' atmosphere of religious tolerance and governmental support enabled close partnerships between artists and anatomists, resulting in both scientific innovation and new artistic genres. In contrast, Spain's more conservative, Church-influenced climate imposed significant constraints, leading to adaptations in both scientific practice and artistic representation. This paper also explores how these dynamics extended beyond anatomy to other scientific domains, like botanical illustration and specimen collecting. By analyzing these cross-disciplinary relationships, this research reveals how cultural, religious, and institutional factors shaped the formation and legacy of art-science collaboration, offering new insights into the origins of modern visual and scientific methodologies.

Introduction

Early Modern Europe (1500s through 1700s) was a period of cultural and scientific activity and a decisive epoch in which art and science jointly shaped European perceptions of knowledge and the human body. In this paper, I argue that art and anatomical science functioned as conjoined practices that fundamentally transformed conceptions of human corporeality and knowledge during this era. This transformation stemmed from the emergence of Renaissance humanist philosophies, departing from previously dominant theological norms, and established a framework where scientific prospects and aesthetic representation mutually reinforced each other. The collaborations between artists and anatomists were essential rather than incidental, driving innovations that redefined both visual culture and scientific methodology. To support this argument, I will first outline the intellectual foundations of Renaissance humanism. Next, the technical and visual exchanges between artists and anatomists in the distinct contexts of Spain and the Netherlands will be analyzed, highlighting how regional differences shaped their interactions. Finally, I will consider how these historical relationships inform larger patterns of interdisciplinary exchange and discuss the ways these legacies persist in contemporary standards and practices. By clarifying the mechanisms of collaboration between artistic and scientific domains, this research contributes to a deeper understanding of how early modern conceptions of human corporeality and epistemology were collectively forged.

The Impact of Humanism

It is crucial to start with an understanding of the major catalyst that was humanism for the blossoming artistic and medicinal practices seen in Early Modern European. Humanism is a philosophical movement that primarily emerged during the Renaissance era, focusing on the agency and dignity of human

beings.[1] Unlike a medieval worldview framed through a strict theological lens, humanism promoted critical inquiry and individual reasoning. This ideal supports humans having the free will to create individualized purpose, ultimately resulting in citizens who are fully capable of contributing meaningful input to society. This emphasis on personal potential fostered an optimistic outlook on human nature and a person's capacity for self-improvement. Additionally, humanism encouraged the pursuit of secular subjects, helping to lay the foundation for modern human-centered thought and a thorough scientific scope.[2] Prior to this type of intellectual framework, the conservative hold of the clergy sustained fear of offending a higher power and limited scientific investigations. This shift of attention, which humanism brought to empirical observations, sparked the increase in dissections by physicians and interest in observable phenomena by artists.

The Netherlands & The Freedom of Practices

It is the philosophical framework of humanism that the Netherlands embraced and fostered scientific discovery and pursuit. During Early Modern Europe, the Dutch government strongly encouraged scientific achievements and pursuits. Both artists and medical practitioners entered mutual interactions numerous times for professional and personal reasons alike. Many physicians were avid collectors or patrons of the fine arts.[3] Professionally, art served as a beneficial aid to medical practices. Many anatomists were in educational settings that employed the use of visual aids in their teachings, that artists could masterfully produce. For example, students of medicine could utilize the detailed illustrations and engravings of human anatomy as

[1] Copson, "What is Humanism?" 6.
[2] Ibid, 7-8.
[3] Travers, "Boundaries of the Body: The Art of Anatomy in the Seventeenth-Century Netherlands," 6.

preparatory knowledge for their studies. Similarly, this allowed for artists to have experience with anatomical specimens they could use for their own works and repertoire of skills.[4] Physicians would also, when able, produce flayed plaster casts to supplement the work of their commissioned artists.[5] Since it was predominantly physicians themselves and noble or wealthy individuals who attended public dissections, having a replica would still serve as an opportunity for an artist who was not there to experience the intricacies and inner workings of the human body.

Some Dutch anatomists became well known for their educational intersections of art and anatomical work, such as Govard Bidloo (1649-1713). A member of the Amsterdam Guild of Surgeons, Bidloo was known for his anatomical atlas, *Ontleding des Menschelijken Lichaams* ('Dissection of the Human Body').[6] This piece was created in collaboration with Gerard de Lairesse, a Liege painter who studied under the famous Dutch painter Rembrandt. It is possible that this joint effort resulted from a mutual interest in theatre, leading to the actual commission from Bidloo for de Lairesse to illustrate his atlas.[7] Several images within this atlas focused on the internal structures of the hand and arm, drawings created from winter dissections on city hospital patients or criminals, the commonly available subjects for these studies. Multiple illustrations would be made to allow for varying angles, full depictions of all the internal structures, or even to show comparatively a progression within the dissections (Fig. 1).[8]

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[4] Ibid, 7.
[5] Ibid, 11.
[6] Ijpma, "Illustrations of the Anatomy of the Hand," 94.
[7] Ibid, 95. It was common for interest in the anatomical sciences to be perpetuated in a theatricized manner, which would explain this collaboration for this reason.
[8] Ibid, 97.

This collaboration between Bidloo and de Lairesse indicates an advancement of artistry and the dissemination of anatomical knowledge that followed for Early Modern Netherlands. Anatomical atlases functioned as both scientific and visually aesthetic tools. Clarity and compositional skills possessed by artists were incredibly useful tools in such an application. De Lairesse's use of perspective and anatomical proportion allowed a very scientific and practical subject matter to hold longevity in printed form and serve as a visual record. This partnership also reflects a broader intellectual environment in which art and science were mutually reinforcing disciplines. By integrating artistic techniques with empirical observation, Bidloo helped produce works that were scientifically informative and visually compelling. This contributed to the wider circulation of anatomical knowledge among surgeons, students, and learned audiences in the Dutch Republic.

The Netherlands prospered under a supportive government after the mid-sixteenth century, ultimately allowing the surgeons' guild to carry out public dissections.[9] The religious tolerance the Netherlands held since the Middle Ages, coupled with the wealth present in this society following the Eighty-Year War, resulted in great enthusiasm for scientific discovery.[10] With Leiden University gaining traction and being granted an anatomical theater, societal attitudes towards the anatomical practices were quite positive. These dissections resulted in increased popularity of anatomy as a field of study and the "theatricized" nature of the spectacles.[11] Dissections were treated

[9] Travers, "Boundaries of the Body: The Art of Anatomy in the Seventeenth-Century Netherlands," 12.
[10] Hansen, "Galleries of life and death: The anatomy lesson in Dutch art, 1603-1773," 47.
[11] Ibid, iv.

both as educational and social opportunities, allowing for further promotion or displays by surgeons' guilds.[12]

The manner of dissections taking place in anatomical theaters and their promotion influenced the way the public viewed and interacted with them. The theaters themselves were lavishly decorated with multiple rows of seats, and typically, the ceilings would bear the guilds' coats of arms.[13] While not necessarily the focal point of the decor, this style served as a way to show off the wealth of the guild to a wealthy society and garner support from this culture. The anatomists added to the theatricality of the setting by the dramatic way they would present themselves, a source of both education and entertainment with human remains as a tool.[14] The entire "performance" of a dissection in the seventeenth-century Netherlands can be strongly equated to a theatrical performance or show.[15] Part of this was the encouragement of the general population to buy tickets to see "secrets of Nature revealed by God."[16] Dissections appealed to the populace for both theological and entertainment reasons, acting inherently as spectacles of mass fascination.

Many examples exist today of the group portraits these guilds would commission, commemorating a dissection and showcasing the members and their skills. One such example, painted in 1619 by Thomas Keyser, is "The Osteology Lesson of Dr. Sebastian Egberts" (Fig. 2). The main physician performing the dissection would be depicted wearing a tall, black hat, as seen in the image, although somewhat difficult to discern from

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[12] Askoy et al., "Invisible Witnesses: The Cadaver in 17th Century Paintings," 1.
[13] Hansen, "Galleries of life and death: The anatomy lesson in Dutch art, 1603-1773," 54.
[14] Ibid, 55.
[15] Ibid, 55.
[16] Hansen, "Resurrecting Death: Anatomical Art in the Cabinet of Dr. Frederik Ruysch," 666.

the dark background. He can also be identified as the figure actively reaching into the abdomen of the dissected cadaver. Notably, this image is one of several determined to be one of the earliest Western artistic depictions of a dissection.[17] The seventeenth century allowed scientific discoveries to flourish, with the Dutch at the forefront. Such a painting representing the practicing physicians of this country, especially one featuring the remains so prominently at the forefront, is an ideal depiction of the symbolic merging of aesthetics and education that was created. Additionally, some of the guild members are depicted making clear eye contact with the viewer, claiming the scientific authority they held at the time and that they are remembered for as they became part of history.[18] The figure of Dr. Egberts goes against this, appearing to be rather engulfed in the anatomy lesson he is providing. His lack of interaction with the viewer and the focus on his craft serve to establish his power and leadership in this scene.

While Keyser's work came before the development of a more formally established genre of guild portraiture, it still displays many of the key aspects that were iconic to these paintings. Rembrandt's "Anatomy Lesson of Dr. Nicolaas Tulp, 1632," is what truly solidified anatomical dissections and practices as their own genre in the visual arts (Fig 3).[19] These depictions are theatrical by nature, particularly in the use of chiaroscuro to dramatically add emotion and intimacy to the dissections depicted.[20] Chiaroscuro refers to a strong contrast in shades of light, a common point of interest in art analysis. Additionally, following a common cultural practice of the time,

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[17] Askoy et al., "Invisible Witnesses: The Cadaver in 17th Century Paintings," 1, 3.
[18] Ibid, 3.
[19] Hansen, "Resurrecting Death: Anatomical Art in the Cabinet of Dr. Frederik Ruysch," 665.
[20] Ibid, 666.

Dr. Egberts is viewed as dissecting a set of remains that was once a living criminal.[21] The skeleton is even suggested to be left over from a previous dissection four years prior, ultimately allowing for a display of educational and professional growth visible in the dissector.[22]

Together, these works demonstrate how anatomical imagery in the Dutch Republic evolved into a distinct, visual tradition. Paintings of anatomy lessons documented medical procedures and framed dissections as civic events. This emphasized the authority of physicians and the collective identity of the guilds that sponsored them. Through compositional choices such as dramatic lighting and the prominent placement of the dissected body, artists transformed moments of anatomical study into constructed narratives of expertise and public learning. These images helped legitimize the practice of dissection within society while simultaneously elevating it within the artistic canon. The genre reflects a broader cultural moment in which art served as a common medium for communicating and reinforcing the expanding role of scientific knowledge in early modern Dutch society.

While the visual, primarily painted or engraved, arts of anatomical practices were very prominent, the tactile and three-dimensional artistic aspect also exerted strong influences in shaping scientific practices. Dr. Frederik Ruysch (1638-1731) was a prominent Dutch physician, working in multiple disciplines such as medicine, botany, and obstetrics. However, he has remained famous for much of his dioramic work. He created "assemblages," or combinations of human remains and other naturalistic specimens, to create fanciful creations. These works combined the aesthetic and scientific values of the time, as well as displaying Ruysch's flexible power in his job. An illustrated

[21] Ibid, 667.
[22] Ibid, 668.

collection of Ruysch's art was compiled into his work, *Opera Omnia*. This featured a cover depicting one of his lavishly and artistically decorated natural history exhibits in his museum.[23] Within this compilation are many illustrations or engravings of his works, highlighting the variety of mediums he used or had access to, truly showcasing the revolutionary edge of Dutch scientific pursuits (Fig. 4). He was also noteworthy for devising a "bloodless" dissection method that not only allowed for public dissections outside of the winter, but permanently altered the way educational demonstrations could happen.[24]

Ruysch's work illustrates how anatomical study extended beyond illustration into reshaping how scientific knowledge was experienced by both medical professionals and the public. By arranging preserved human remains into elaborate displays with the aesthetic or compositional choices he made, he blended the curiosity of natural history with the aesthetic sensibilities of Baroque art. These dioramic compositions functioned simultaneously as scientific demonstrations and as spectacles of craftsmanship, reinforcing the authority of the anatomist while also making complex anatomical ideas more accessible to viewers. In this way, Ruysch's assemblages highlight the increasingly interdisciplinary nature of early modern science, where artistic creativity, technical innovation, and empirical investigation worked together to expand both the methods and audiences of anatomical education.

Within Ruysch's duties and activities as an anatomist, it is important to recognize that he also took on a dual role as an artist. This was not unique to him as a practicing physician, though he serves as a prominent example. Texts referencing his work will use "anatomical art" to describe his assemblages and

[23] Ibid, 670.
[24] Ibid, 669.

dioramas.[25] He sought to both educate and amaze his audiences, achieving both by having entertaining and anatomically accurate displays. The use of human infant remains to create some of these artworks is possibly a point of contention in light of ideas of art by modern standards. However, when considering both the wonder Ruysch was able to garner with audiences and his evident success as a practitioner, the artistic and scientific jobs he undertook are mutually functional and important to acknowledge. It could even be argued that his anatomical practices of reusing human remains in lessons and his "bloodless" dissections are themselves an art form, in seemingly stopping the process the body follows after death.[26] Anatomical practice largely coincided culturally with aesthetic beauty. By having a corpse remain in pristine condition during a longer preservation, Ruysch's technique was revolutionary.

Spain & Working within Limitations

Departing from the open and inviting environment for scientific research in Dutch society at this time, early modern Spain held much more reserved and complex attitudes towards the study of anatomy. There was a much more cautious approach to anatomical dissection, a stance largely influenced by the strong influence the Catholic Church held within the country. While the Church did not forbid dissections outright, it closely monitored academic practices to ensure there was no conflict with Christian theological principles.[27] This oversight contributed to a cultural environment in which anatomical inquiry was possible but often heavily constrained by moral or ideological concerns. Nevertheless, Spanish universities

[25] Hansen, "Resurrecting Death: Anatomical Art in the Cabinet of Dr. Frederik Ruysch," 671.
[26] Ibid, 678.
[27] Skaarup, "Anatomy and Anatomists in Early Modern Spain," 1.

maintained medical facilities where anatomy was taught.[28] As a result, early modern Spain fostered a form of anatomical scholarship that balanced intellectual curiosity with deep-seated religious and cultural sensibilities. This balance distinguished Spain's scientific landscape from neighboring, more liberal countries, such as the Netherlands.

This era saw valuable additions to anatomical knowledge within the Iberian Peninsula despite conservative governmental regulations. Scholars frequently turned to classical and medieval authorities to guide medical understanding, reinforcing a tradition that values textual continuity over experimental or hands-on experience.[29] Anatomical illustrations tended to circulate through imported books rather than locally generated works, further reflecting Spain's conservative academic climate.[30] However, this does not mean Spanish scholars lacked engagement with contemporary scientific discourse. They were often involved in the translation and adaptation of foreign texts. Additionally, the presence of royal medical practitioners and court-sponsored physicians suggests some awareness of anatomical advances in higher circles of society.[31] Practicing physicians and surgeons continued to work with practical anatomical knowledge drawn from experience rather than formal dissection.[32] Such varied pathways of knowledge speak to Spain's anatomical culture being in motion, albeit cautiously.

Spain's harsher stance towards anatomical dissection and study played a significant role in shaping artistic practice and visual culture. Spanish artists generally had less direct access to

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[28] Martínez-Vidal et al., "Anatomical Theatres and the Teaching of Anatomy in Early Modern Spain," 261.
[29] Skaarup, "Anatomy and Anatomists in Early Modern Spain," 3.
[30] Ibid, 4.
[31] Ibid, 6.
[32] Fernández, *Anxieties of Interiority and Dissection in Early Modern Spain*, 5.

public dissections or anatomical theaters than their Dutch counterparts, where such opportunities profoundly influenced the development of naturalistic representation.[33] As a result, Spanish painters frequently relied on foreign prints, treatises, and workshop traditions to inform their understanding of the human form.[34] This reliance did not diminish the abilities of Spanish artists, instead leading to stylistic tendencies favoring spiritual intensity and dramatic chiaroscuro instead of strict anatomical precision. Simultaneously, the Counter-Reformation's emphasis on doctrinal clarity and devotional imagery encouraged artists to depict the body aligned with theological truths, sometimes costing anatomical accuracy. This was a pivotal part of how visual language was shaped during this time.

The Church held a strong presence in both artistic and scientific spheres, but the boundaries between the two were not entirely rigid. Some painters and sculptors sought greater anatomical knowledge through informal networks and collaborations with medical practitioners.[35] Court artists especially had access to collections with anatomical drawings, enabling deeper engagement with contemporary European developments. Additionally, the presence of foreign artists working in Spanish territories expanded possibilities and artistic vocabulary. Spanish artists rarely pursued anatomical dissection with the same fervor as their Dutch colleagues, but nevertheless remained attuned to broader European artistic currents and selectively incorporated them into their own works.

As in the Netherlands, when Spanish anatomists sought to have artistic visuals for their work, a visible collaboration of the arts and sciences emerged. Juan Valverde de Amusco was a

[33] Martínez-Vidal et al., "Anatomical Theatres and the Teaching of Anatomy in Early Modern Spain," 260.
[34] Ibid, 265.
[35] Fernández, *Anxieties of Interiority and Dissection in Early Modern Spain,* 23.

Spanish, specifically Castillian, anatomist working in the 16th century. In 1556, Valverde published a writing on pulmonary circulation he conducted in collaboration with fellow anatomists entitled *Historia de la composicion del cuerpo humano* (History of the composition of the human body), also simply referred to as "Historia."[36] Gaspar Becerra, a Spanish artist of multiple mediums, worked with Valverde to illustrate the frontispiece of this work (Fig. 5).

The conjoining of Valverde and Becerra in "Historia" demonstrates how Spanish anatomists and artists could merge scientific precision with visual sophistication to create works that were both instructive and aesthetically compelling. In *Historia*, the frontispiece exemplifies this interplay. Becerra translates Valverde's textual observations into figures that convey anatomical structure and bodily proportions with remarkable clarity. Throughout the book, anatomical plates balance detailed realism with compositional harmony, showing careful attention to spatial arrangement and perspective.[37] These illustrations reveal a dialogue between artist and anatomist, where artistic effort and scientific achievement enhance one another.

This collaboration stands out for the fact that both professionals involved were Spanish in nationality, yet took some level of influence from Italian practice. Valverde's time in Padua exposed him to advanced methods of anatomical observation, which informed the accuracy and clarity of his descriptions. Becerra worked alongside multiple individuals adjacent to the famous Italian artist Michelangelo.[38] His association with artists in Michelangelo's circle influenced his approach to the dynamic positioning of figures. The frontispiece, with its structured composition, exemplifies the integration of

[36] Jansen, "Framing a Shifting Paradigm," 7.
[37] Ibid, 15.
[38] Ibid, 14.

Italian techniques into a distinctly Spanish context. By selectively adopting these foreign principles, Valverde and Becerra produced illustrations that reflect both empirical rigor and visual refinement. Ultimately, they demonstrated Spain's engagement with broader European intellectual currents while asserting its own cultural identity.

In Spain, instead of a preponderance of anatomical illustrations, there were notably more illustrations of the anatomical theaters themselves. One such example is the engraving by Matías de Irala, from Martín Martínez's *Anatomía completa del hombre* (Fig. 6).[39] This engraving serves as both a visual representation of the theater itself and the anatomical practices of the time, as a human body is clearly being dissected at the bottom with an audience in awe behind. The animated audience is captivated by the dissector, who provides an educational lesson.[40] At the bottom is the Latin inscription: "Naturae ingenium dissecta, cadavera pandunt: Plus quam vita loquax, mors tacituma docet." This translates to: "The character's nature is dissected, his corpses spread: More than a talkative life, death teaches him silence." By combining this phrase with the depicted lesson in the theater, Martínez has assembled a visual representation of the cultural value placed on the theaters and what occurred inside.

Illustrations of anatomical theaters in the Early Modern Era tend to emphasize the performative and communal aspects of anatomical study. These images highlight the environment in which anatomical knowledge was produced and shared, drawing attention to the relationship between the anatomist and the observing audience. The tiered seating, attentive spectators, and central positioning of the dissected body transform the space into

[39] Martínez-Vidal et al., "Anatomical Theatres and the Teaching of Anatomy in Early Modern Spain," 263.
[40] Ibid, 262.

a hybrid site of science and spectacle. This reinforces the educational mission of these demonstrations while also acknowledging their theatrical nature. By visually documenting these spaces, engravings like Irala's preserved the cultural significance of anatomical theaters as places where curiosity and public engagement converged, further illustrating how anatomical knowledge in this period was shaped not only by scientific inquiry but also by the social and visual contexts in which it was presented.

Art Outside of Anatomy

Thus far, the focus of this research has been entirely on the medical sciences and the human-centric aspect of artistic pursuits in Early Modern Europe. An important distinction can be made between the art in connection to medical science and art connected to a broader "science." A newer connotation has been placed on the words "art" and "science" themselves as society has progressed, leading to shifting interpretations of contemporary and past uses of these terms. In the Early Modern period, "art" referred to visual or mechanical creation via the human hand and body.[41] "Science" in the older, original context, related to theoretical knowledge and theories, typically ones that could be proved or tangible in some manner. In the Netherlands, there was a clear pursuit of artistically documenting the human body, almost to a point of dramatized or theatricized celebration. Dutch society, as well as more conservative countries like Spain, also saw artistic documentation of other forms of nature. While depictions of humanity and questions of individualism could be controversial in theologically charged societies, realistic or naturalistic drawings of plants, minerals, or animals were often utilized for studious, scientific purposes. This relationship also

[41] Smith, *Art, Science, and Visual Culture in Early Modern Europe*, 84. Art could sometimes also be referred to as "ars."

did not cease as medicinal and anatomical practice increased. It was also relatively common for people to dabble in multiple professions or hobbies, resulting in varying degrees of intersectionality and professional levels of art and science.

Within the religious stipulations placed particularly on Spanish artists, visual depictions of scientific practice still resulted in new forms. The natural world was still a subject of immense interest, perhaps because its existence was conceived as the creation of the Christian god, but fascinating for people to study nonetheless. This curiosity culminated in assemblages or collections of specimens and oddities, displayed to show off Spain's conquest and power near the end of the Early Modern period for viewers beholding such a diverse collection.[42] Artisans are directly credited with both enhancing the desire for such collections and enriching the studies of naturalistic subject matter for which the assemblages acted as physical representations.[43] Spain's enlightenment can be seen clearly through the exploratory nature their empire took on at this time, leading to a rich intersection of artistic depictions and scientific pursuit. By having a vast and varied assemblage of specimens, it shows the wealth and reach of the empire that obtained such objects and materials. Additionally, while not focusing on human dignity, the notions that humanism emphasizes, of logical reasoning and the importance of education, become visible in Spain through this type of work. Science uses logic and reasoning to reach conclusions from the outside world, which the Spanish empire used in its conquests.

In Spain's efforts to expand its empire, organic specimens were collected for the sake of vast displays and

[42] De Vos, *Natural History and the Pursuit of Empire in Eighteenth-Century Spain,* 210.
[43] Ibid, 211.

academic or utilitarian study.[44] Specimens themselves or artistic depictions were collected or created to contribute to the amassing of wealth that Spain held. The popularity of these drawings or engravings grew to the point of warranting expedition-based publications, scientifically based texts, and images to better display the findings to the Spanish people. The goal of these types of "plates," as the engravings were referred to, was to both provide scientific knowledge and to exist as naturalistic, pictorial representation of the plants of other countries being referenced. Most plates were colored with watercolor and ink to add color for realism, though more sketch-like engravings were also found in these publications. One example of the sketched style is Francisco Hernández's *Granadillæ Flos et Fructus* (Fig. 7). Commissioned by King Philip II, Hernández's expedition to Mexico resulted in representations of plants with medicinal and scientific significance. His engravings, such as this one, allowed European scientists and physicians to study, classify, and apply these plants in medicine. Botanical plates became a parallel visual tradition to anatomical illustration, employing similar techniques of observation and realism while focusing on subjects that were culturally more acceptable.

Expanding Past Early Modern Europe

The relationship between the two diverse fields at hand is of interest both within and beyond the Early Modern European era. Over time, this interdisciplinary relationship has transformed from a shared pursuit of representational accuracy to a complex dialogue concerning perception and technology. By the nineteenth and twentieth centuries, advances in photography and medical imaging reduced scientists' reliance on artists for strictly

[44] Ibid, 216. Animals were collected more commonly for display, and plants or minerals were often collected to be used for practical purposes.

documentary anatomical representation. In the Netherlands, modern institutions such as Leiden University Medical Center incorporate medical visualization and digital modeling.[45] This demonstrates how artistic methodologies remain central to communicating complex biomedical information. In Spain, research centers like the Centro Nacional de Investigaciones Cardiovasculares have advanced imaging technologies at their disposal whose visual outputs often resemble abstract photography or paintings, revealing the aesthetic dimensions of scientific data.[46] The intersection of art and science remains relevant today, not primarily as a means of anatomical correction, but as a methodology for public engagement and interdisciplinary innovation.

Current scientific and artistic trends continue to reflect their specific regional and cultural environments, seen in more globalized forms. In the Netherlands, longstanding traditions of empirical observation and civic humanism rooted in the Dutch Golden Age continue to influence both biomedical research and contemporary art practices. Spanish contexts shaped by distinct historical trajectories, such as Catholic visual culture and later modernization processes, often frame the body within spiritual or political narratives. Contemporary Spanish artists engaging with biotechnology frequently explore questions of identity and collective memory, contrasting Dutch practitioners' emphasis on technological mediation and institutional critique.

Conclusion

Overall, the contrasting dynamics between artists and anatomists in early modern Netherlands and Spain highlight how cultural and religious environments played such a crucial role in

[45] Leiden University Medical Center, "Imaging & OMICS."
[46] Centro Nacional de Investigaciones Cardiovasculares (CNIC), "eClinicalMedicine: Imaging the Adolescent Heart."

the development of the exploration of human anatomy and the visual record. In the Netherlands, a more permissive atmosphere toward empirical investigation encouraged artists to engage directly with anatomical study. This resulted in artworks that reflected contemporary scientific curiosity. In Spain, however, tighter ecclesiastical control and fewer opportunities for dissection limited such collaboration. This kept artistic representations closer to sanctioned ideals than to observed anatomy. The longevity of this relationship can also be seen across time frames, revealing shifting practices but a clear connection to the original relationships that led to modern trends. Even when considering more than solely anatomical sciences, art has always been employed as a useful tool for visualization and capturing the natural world, which was heavily sought after in the Early Modern period. Taken together, these differences illustrate how regional conditions influenced not only artistic practice but also the expanded development of interdisciplinary pursuits in early modern Europe.

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Figure 2: Thomas de Keyser and Nicolaes Eliasz. Pickenoy, *The Osteology Lesson of Dr. Sebastiaen Egbertsz*, oil on canvas, 1619, public domain, https://commons.wikimedia.org/wiki/File:The_Osteology_Lesson_of_Dr._Sebastiaen_Egbertsz_by_Nicolaes_Eliaszoon_Pickenoy_and_Thomas_de_Keyser.jpg

Figure 3: van Rijn, Rembrandt. *The Anatomy Lesson of Dr. Nicolaes Tulp*. 1632. Oil on canvas. Public domain. Wikimedia Commons. https://commons.wikimedia.org/wiki/File:Rembrandt_van_Rijn_-_The_Anatomy_Lesson_of_Dr_Nicolaes_Tulp_-_146_-_Mauritshuis.jpg.

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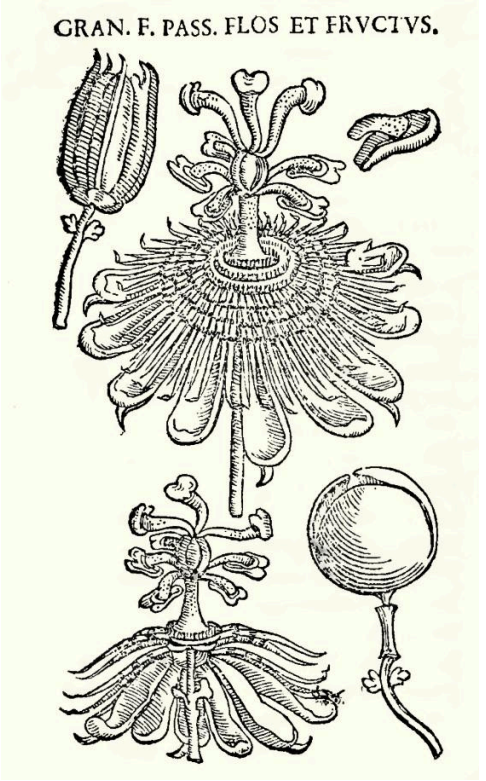

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Antidepressant Prescription Rates in the U.S.: The Gender Gap

Sydney Nguyen

Abstract

Male depression patients are prescribed antidepressants at drastically lower rates than their female counterparts for reasons that have not yet been holistically examined in the literature. The rates are not sufficiently explained by neurobiological differences, indicating possible psychosocial factors that are contributing to the gender gap. This paper reviews the literature for those psychosocial factors that could be inducing the gender gap and includes interviews of mental health professionals for their insight. Research suggests that men are underdiagnosed and undertreated for depression. This issue is likely exacerbated by gender stereotypes about mental health and differences in how men and women present with depressive symptoms. This suggests that depression in men is often overlooked and when it is detected, it is challenging to effectively treat it. Future research should consider more inclusive approaches to treating and diagnosing depression that acknowledge the nuances of how depression symptoms present differently in male patients.

Introduction

Depression affected an estimated 18.4% of U.S. adults in 2020 (Lee et al., 2023). It is a major risk factor for suicide, claiming the lives of nearly 50,000 people in 2022 and making it one of the leading causes of death in the United States (Centers for Disease Control [CDC], 2022). It is characterized by a persistent low mood, which may be accompanied by feelings of worthlessness, loss of interest in personal hobbies, or suicidal ideation, occuring over a time period of at least 2 weeks (American Psychiatric Association [APA], 2013). Depression may be caused by a combination of factors including a genetic predisposition to depression, chemical imbalances in the brain, as well as the social and physical environment. Gender differences in depression diagnosis and treatment have been consistently observed for decades with women being much more pronounced in both metrics than men (Johnson, 2025). One of the methods of treating depression is prescribing antidepressants, which addresses the neurotransmitter imbalances that cause depression and depressive symptoms by regulating the amount of neurotransmitters in the brain. Women are generally prescribed antidepressants more often than men (Thunander et al., 2017; Chua et al., 2024). The gender gap in antidepressant prescription rates has also steadily increased over approximately the past decade, with a significant increase immediately following the COVID-19 pandemic (Chua et al., 2024). It is generally believed that neurobiological differences between men and women as well as social factors underlie this disparity (Klose & Jacobi, 2004; Sramek et al., 2016); however, there is a lack of literature that systematically addresses the numerous factors that underlie this gender gap. The purpose of this paper is to explore the multitude of ideas that surround the question of why women are prescribed antidepressants more often than men and discern the most plausible explanations for the gender gap.

Methods

Literature research was performed primarily utilizing the databases JSTOR and PubMed. Examples of sources gathered and included were meta-analyses, systematic reviews, clinical trials, and drug labels. Papers that did not address the age group of interest, did not use distinct male and female cohorts, sampled populations from countries dissimilar to the United States, were temporally obsolete, or otherwise examined irrelevant extraneous variables (such as cancer) were excluded from my research. Two interviews were also conducted with relevant experts in the field: Natasha Lizanets (Family Nurse Practitioner) and Sergei Anderson (Licensed Social Worker). Their comments were included in this paper and edited for clarity and understanding.

Results

Neurobiological differences

Neurobiological differences may account for the disparity seen in antidepressant dispensing rates between men and women. Perhaps, antidepressants are more effective in women than men, which may lead to more frequent antidepressant prescriptions for women. However, according to the clinical trial data reported on the drug labels for Paroxetine and Sertraline—two common antidepressants that were also included in the paper by Chua and colleagues—they determined that there were no efficacy differences on the basis of sex (Almatica Pharma LLC, 2023; Mylan Pharmaceuticals Inc, 2024). A meta-analysis examining multiple clinical trials from the literature demonstrates that there is conflicting evidence of whether antidepressants are more effective in females than males (Sramek et al., 2016). In general, there is strong disagreement on whether there are irrefutable neurobiological differences between men and women that may address the higher antidepressant dispensing rates seen for women. Differences in methodology may account for some of the contradictions seen in the literature.

The parameters for which the studies defined statistical significance also varied greatly, presenting another potential source of variability in results (Sramek et al., 2016).

Possible overdiagnosis/overtreatment of women

Women are twice as likely to be diagnosed with depression than men, but could this be a misdiagnosis (Floyd, 1997)? Symptoms of depression have a large amount of overlap with other disorders like bipolar disorder, which presents a risk for misdiagnosis and inappropriate treatment (Studd, 2015). Assuming that being a woman is a risk factor for developing depression also inherently leads to the feminization of depression as a disorder (Norman, 2004) and could be another potential source for the overdiagnosis/misdiagnosis of depression in women. The literature has also demonstrated that women utilize health care services more often than men and are more forthcoming with mental health issues and more likely to seek treatment for mental health than men (Knox et al., 2022; Parent et al., 2018; Yousaf et al., 2015). Anderson (2024) validates this point in his interview, remarking that "women will come to therapy more readily and [are more] open to it than men…Sometimes men need a session or two to even say, 'I've never done this before.'" Women also manifest depression somatically more often than men (Silverstein et al., 2013), which may reflect as a more severe presentation of depression in the clinic. Ultimately, this would warrant antidepressants and result in a better likelihood of a depression diagnosis because the disorder becomes more apparent when they are physically in pain, losing or gaining weight, etc. This could also account for the higher percentage of women than men suffering from severe depression (Silverstein et al., 2013).

According to data taken from the National Health Interview Survey, depressive symptoms increased in both genders after the COVID-19 pandemic (Terlizzi & Zablotsky,

2024), but only women saw an increase in antidepressant treatment that was significantly different from men (Chua et al., 2024). This implies the undertreatment of men rather than the overtreatment of women, and the increase in antidepressant treatment after the pandemic reflects the increase in depression in women.

Possible underdiagnosis/undertreatment of men

Men are significantly more likely to commit suicide than women (Rockett et al., 2017; Swetlitz, 2021). Men also make visits to the clinic less frequently than women (NHIS, 2014), which probably results in less screening of depression for men. In an anecdotal comment, Lizanets (2024) observes more women coming into the office than men: "What I see in my office [is] younger women tend to come to [the] doctor's for a visit if we're talking about annual visits…"

There are numerous angles of concern that propose reasoning behind men's apparent reluctance to seek help for mental health struggles compared to women. Several papers propose that men are more hesitant to talk about their emotions because of the gender stereotype that men are "not supposed to" talk about their feelings (Yousaf et al., 2015). Embarrassment is a recurring theme in relation to men's hesitance to seek help (Chatmon, 2020; McKenzie et al., 2022; Oliffe et al., 2020; Yousaf et al., 2015). Anderson (2024) comments that mental health stigma overall affects both men and women, but men may process the stigma differently and "feel" it to a slightly greater extent than women. While both men and women could feel embarrassed to ask for help, men might feel it more so due to these gender stereotypes.

As previously established, men and women manifest depression differently. Men have been found to "externalize" their depression (Kuehner, 2017; Seidler et al., 2021), which often means that they express their symptoms by acting out with

aggression, hostility, irritability, substance abuse, and behaviors considered antisocial (Werner-Seidler et al., 2022). This is in accordance with other research which confirms that depressed men tend to exhibit substance misuse, impulsivity, and agitation (Johnson, 2025; Kuehner, 2017; Oliffe et al., 2019).

Men and women suffer similar rates of mental health disorders overall, but men have higher rates of antisocial behaviors and substance use disorders (SUD) and women have higher rates of affective disorders (e.g. depression and anxiety) as well as eating disorders (Johnson, 2025; Kuehner, 2017). Men and women may also score similarly on clinical assessments and diagnostic measures of depression, or present with similar symptoms, but women are still diagnosed with depression more frequently (Johnson, 2025).

60% of men who have completed suicide had mental health treatment prior to their death (Oliffe et al., 2020). They are also more likely to terminate therapy and medication earlier than women (Seidler et al., 2021). Men are less likely to seek mental health treatment overall (Knox et al., 2022; Parent et al., 2018; Yousaf et al., 2015), but a study that interviewed 16 male participants about their experiences with mental health care services expressed a preference for action-based interventions like cognitive behavioral therapy (CBT) over other types of talk therapy (Emslie et al., 2007 as cited in Seidler et al., 2016). Anderson (2024) proposed a possible explanation for this preference, speculating that "CBT is a little more driven, like point A to point B…[it's] a little more straightforward than 'Where are we going?' with talk therapy. Maybe it's more comfortable (for men) knowing that we're going to use this [and they'd] rather do that than roam around in [their] head[s]." Men also feel the need to conceal their mental illness (Oliffe et al., 2020).

Discussion

Neurobiological differences

There is a lack of compelling evidence to support the notion that there are significant neurobiological differences between men and women that cause antidepressants to be prescribed to women at higher rates than men. This is at variance with the previous conclusion made in this paper that men and women behave and present depressive symptoms differently, which would insinuate neurobiological differences that account for these behavioral differences. However, it is important to remember that human behavior is extraordinarily complex and is not only influenced by genetics or biology. Multiple independent, well-controlled clinical studies have already proven that antidepressants are beneficial in both men and women (Almatica Pharma LLC, 2023; Mylan Pharmaceuticals Inc, 2024; Sramek et al., 2016). A study performed by Oliffe and colleagues (2020) gathered the personal thoughts of bereaved loved ones of men who committed suicide, offering invaluable insight into the sociocultural barriers that prevent men from seeking help for mental health disturbances. Some of the barriers that were shared by multiple participants about their lost loved ones included feeling the need to hide mental illness and feeling as though their mental illness could not be treated (Oliffe et al., 2020). The next most prevalent barrier was feeling as though the system did not provide enough effectual help (Oliffe et al., 2020), which corroborates other research that has been explored in this paper. It has been demonstrated independently by numerous sources that men often perceive and experience inhibition in the process of seeking help for depression. Perhaps, sociocultural barriers and the stigmatization of men's mental health are the main drivers of the gender inequality in antidepressant dispensing rates—not neurobiological differences. Overall, the evidence surrounding the notion that neurobiological differences account for the gender gap in antidepressant prescription rates are

conflicting and unclear. It is difficult to draw any meaningful conclusions from this information.

Possible overdiagnosis/overtreatment of women

While there is some evidence to suggest that women are overdiagnosed or misdiagnosed with depression, the rates of depression diagnosis and treatment for women generally seem to reflect reality. Because women make clinical visits more often than men, they are likely being screened for depression more frequently and changes in typical mood/behavior are easier to detect in a population who routinely sees their provider, resulting in a higher diagnosis rate of depression for women. Women also manifest depression somatically more often than men, which will make their depression more evident to clinicians. However, this does not mean that men suffer from depression any less than women, as men are far more likely to commit suicide (Oliffe et al., 2016; Rockett, 2017; Swetlitz, 2021). Although Floyd's paper was published in 1997, his observation that as much as 50% of women are misdiagnosed with depression may still somewhat hold some truth if it is to be believed that women tend to express depression somatically (e.g. physical pain and fatigue). Somatic depression shares a lot of common symptoms with physical illnesses, which make it difficult to differentiate because physical symptoms of depression are not unique and can apply to a broad range of physical illnesses. For example, disturbances in sleep and changes in appetite are both symptoms of somatic depression—but they are also symptoms of hypothyroidism, a disorder that affects eight times as many women as men (Floyd, 1997). However, it is still plausible that women are actually underdiagnosed with depression (Floyd, 1997; Lizanets, 2025) since clinicians may mistakenly reason that depressive symptoms in women are accounted for by the emotional distress that comes from suffering a physical ailment (Floyd, 1997) and mental health stigma could prevent women

from coming forward about their emotions (Lizanets, 2025). Women's willingness to be open about their depressive symptoms combined with a preexisting clinical inclination to miscategorize their feelings of sadness could both contribute to the higher rates of depression in women and in turn, higher rates of antidepressant treatment in women.

Possible underdiagnosis/undertreatment of men

As was previously established in the introduction, depression is a major risk factor for suicide. While women are significantly more likely to be diagnosed with depression, men are significantly more likely to commit suicide (Oliffe et al., 2016; Rockett, 2017; Swetlitz, 2021). Men may be committing suicide before they are able to receive a depression diagnosis, which reflects their apprehension to communicate depressive symptoms with their providers. Male apprehension to help-seeking may stem from the sociocultural barriers they experience such as shame and embarrassment (Chatmon, 2020; McKenzie et al., 2022; Yousaf et al., 2015). Being entrapped and unable to find help or comfortably express their emotions often ends in suicide as a last resort both to cope with depressive symptoms by using death as a way to terminate emotional distress and to signal a "cry for help." This theme resonated with many of the participants of the study performed by Oliffe and colleagues (2020), where the deaths of their loved ones came as a shock and they were only aware of their suffering after the fact. Perhaps, unable to manage depression on their own, they saw suicide as their only means of escape and to communicate to their loved ones of their suffering.

These conclusions are made under the assumption that the suicide rates reflect reality, but there is a possibility that women are attempting suicide at the same rates as men but their preferred method of suicide is often "passive" as defined as being less overt in execution and an increased likelihood of

misclassification as an accidental death. Some examples of "passive" suicide methods that women prefer are death by drug intoxication and drowning (Rockett, 2017). A paper by Rockett (2017) extrapolates the accidental drowning rates of Japanese women to relabel them as intentional and finds that the rates for suicide between males and females is actually quite similar. Rockett (2017) also notes that suicide trends are similar in the U.S. as well. In fact, poisoning is one of the top methods of suicide for women in the U.S., only second to firearm, whereas men seemingly only prefer death by firearm (CDC, 2022). The overt and often lethal methods of suicide that men prefer is also in relation to the point of suicide as a means of signaling a cry for help—in many ways, it reflects at volume how mental health services have failed in recognizing depression in men and providing them with effectual help. If the rates of suicide for men and women are actually similar, then it suggests that women's deaths and suffering in relation to depression are being misclassified and overlooked. In either case, it is evident that a relationship between gender and suicide exists and is extremely complex. It draws attention to the fact that there is a need for improved outreach to and more careful identification of depression in vulnerable groups of men and women to prevent potentially fatal mental health emergencies.

The differences in the specific incidence rates of several mental health disturbances illustrate both how men and women express/cope with depression differently (because depression typically underlies antisocial behaviors and SUD) and presents a possibility that men are being treated for disorders other than depression. Occurrence of depression in men may be higher in reality than what current rates reflect, but it is being overshadowed by other disorders and demonstrates a lack of recognition of depression in men. It is important to address instances of depression that could underlie SUD and antisocial behaviors because these actions could be self-soothing measures

taken by men who otherwise feel trapped by their situation. In fact, men who felt like their mental illness was not taken seriously by providers turned to SUD behaviors in order to self-medicate (Oliffe et al., 2020).

The feminization of depression and the parameters for which the clinical world defines depression effectively excludes men. For example, "externalizing" depressive symptoms like anger are typically associated with men (Rice et al., 2022), but the criteria for major depressive disorder does not include external symptoms and an irritable mood is only valid for children and adolescents (APA, 2013). In fact, many of the symptoms of depression appear to be intensification of stereotypical "female" characteristics (such as helplessness and hopelessness), which undermines the depression that men experience (Norman, 2004). There are seemingly no gender considerations for major depressive disorder, possibly reflecting the underdiagnosis of men with depression (Rice et al., 2022). Perhaps it is not that women are inherently more depressed than men, or that men are inherently less depressed than women, but the social context in which men and women are embedded makes it seem that way. In fact, these gender trends are only observed in cultures where women are often powerless and victimized because of their low social status (Norman, 2004). There are multiple layers that constitute men's underdiagnosis for depression, and perhaps these layers more broadly reveal the intersection of society, science, and mental health.

Men are also less likely to seek mental health treatment. The sociocultural barriers that exist may make help-seeking less appealing to men. With the burden of these barriers, stigma, and gender stereotypes, men may see suicide as their only escape from their emotional distress. This topic was somewhat touched upon by Oliffe and colleagues (2020), wherein the majority of participants disclosed that the deaths of their loved ones came as

a surprise—many of them did not know they were suffering from emotional distress.

Not only have we demonstrated the need for male-centric symptomatology, but we have also identified a need for male-centric therapies for depression and that treating depression overall needs an individual-tailored approach. Better outreach is needed for depressed men in order to educate them about the supportive resources that exist and how to utilize them, so they would not be forced to self-medicate. Better education is also needed for clinicians to reduce gender biases in depression diagnoses.

Limitations

Due to the novelty of social media, systematic and well-controlled studies of its effects on depressive symptoms in U.S. adults correlated with social connection during the COVID-19 pandemic has not yet come forth in the literature so it was not explored in this paper. Social media use is still rising and evolving as of the writing of this paper. I acknowledge that it is likely a contributing factor to the current trend of rising depression diagnosis and treatment rates in the United States; however, its true impact on mental health is unclear at the time of writing. Further research is warranted in this area.

This paper only accounts for the most recent years succeeding the COVID-19 pandemic, so the long-term effects of the COVID-19 pandemic on mental health in U.S. adults has not yet been thoroughly explored and was not discussed in this paper as research is still ongoing and being published.

This paper also only looks at a very constricted lens of depression: there are far more inequalities related to depression than the antidepressant rates between men and women. Those inequalities, much like the gender gap, are under-studied and need attention as well. My paper demonstrates the nuanced relationship between gender and mental health that reaches

beyond the dimensions of biology, but there is likely a nuanced relationship between societal factors and mental health that also exists and requires further investigation.

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Political Economy in 19th Century Germany: Its History and Lasting Relevance

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Abstract

This paper surveys the development of economic thought in Germany during the 19th century. The bulk of contemporary mainstream economic thought is derived from the British tradition known for its reliance on abstract mathematical models and advocacy for laissez-faire policy. The German tradition, on the other hand, provided an alternative method of analysis that often reached very different conclusions on questions like free trade and the role of government. This was largely informed by the tradition's origins in early modern public administration and by its adherents' preoccupation with solving Germany's issue of late industrial development vis-à-vis the British. Friedrich List, writing in the mid-19th century, made a highly original case for infant industry protection reinforced by historical precedent. Following his example came the German Historical School. This school of thought dominated economics departments in Germany until the Second World War. Its members were early architects of the welfare state and its most famous member Gustval Schmoller engaged in a highly publicized debate with Carl Menger while the latter's Marginal Revolution was rapidly reshaping the field of economics. While the school has largely gone extinct, I argue that the German tradition has had a lasting impact intellectually as well as in the policy sphere and remains particularly relevant as the Trump administration's tariff regime has reignited debates over free trade.

Introduction

British classical political economy—exemplified by the likes of Adam Smith and David Ricardo—was not always the exclusive school of thought underlying university curricula. Up until World War II and the rise of Nazism, an alternative tradition of economic analysis dominated German academia and even exerted influence abroad. Given the prestige of the German university system in the 19th century, many foreign students completed their postgraduate studies in Germany. W.E.B. Du Bois, for example, attended seminars conducted by economist Gustav Schmoller while completing his Ph.D. in Berlin. This German tradition evolved within a distinct social and political context. While British political economy developed within the heart of the Industrial Revolution, German political economy originated in an industrial latecomer nation aiming to catch up with its neighbors. As such, its many iterations—from cameralism to the work of Friedrich List and the German Historical School—possessed characteristics that set it apart from its British counterpart. This consisted of recognition of the state as an economic facilitator, an increased emphasis on social welfare and human needs, concern for morality and ethics, a non-mechanistic understanding of the world, a more holistic and interdisciplinary approach, and a strong tendency towards historicism (Reinert & Rössner 2016, 66-69). Unlike the Austrian or Marxist traditions, which still claim strict adherents today, these schools of thought are now felt primarily through their enduring legacy in the social sciences and public policy.

There have been many historical moments when policymakers sought alternatives to laissez-faire economics that the classical and neoclassical schools championed. Crises like the Great Depression necessitated increased government involvement in economic affairs. The New Deal in the United States was largely an answer to this. Later on in Europe, robust welfare states were constructed across the continent following

the physical and economic devastation brought about by the Second World War at the same time as a pan-European customs union was formed (later leading to the formation of the European Union). The influence of 19th-century German economics can be identified in all of these developments. Similarly, debates surrounding free trade and the correct role of the state in ensuring public welfare that continue to attract attention would have been all too familiar to the likes of Friedrich List and Gustav Schmoller.

This paper is divided into three parts followed by a conclusion. The first section provides a brief history of cameralism—the school of public administration in early modern Germany that laid the foundation for much of subsequent German economic thought. The second section covers the work of the proto-development economist and prolific critic of free trade Friedrich List. The third section outlines the German Historical School and its various members, which dominated university economics departments in Germany until the Second World War. The conclusion addresses the legacy of German economic thought and how its ideas can provide new insight into contemporary developments in the global economy.

Pre-History: The Rise and Fall of Cameralism

Prior to the modern era, economics was not an established field of study nor was the economy treated as a unique sphere of human existence. In the German states of the Holy Roman Empire, as with the rest of Europe at the time, texts that discussed the economy were not common. Those that existed served to establish what was considered ethically permissible economic behavior on the basis of a synthesis of Aristotelian and Christian teachings (Backhouse 2020, 43-44). One text of particular note is Leonhard Fronsperger's *On the Praise of Self-interest* (Klump, Rainer, and Pilz 2021, 2, 15).

Despite writing in the 1560s and grounding his arguments in Christian and more specifically Lutheran ethics, Fronsperger's foreshadowed the work of Bernard Mandeville in his *Fable of the Bees* (1714) as well as in Adam Smith's *Wealth of Nations* (1776). Through the institution of the market, self-interest can be instrumentalized to satisfy every person's material desires.

Since the Late Middle Ages, a genre of manuals for estate management had been in circulation (Reinert & Rössner 2016, 63; Tribe 1988, 22-23). It was heavily influenced by similar writings on estate management by Aristotle and Xenophon. The goal of estate management was not accumulation of wealth or capital, which would derisively be referred to as *chremastike*.

However, the 30 Years War proved to be a watershed moment in the history of German economic thought (Reinert & Rössner 2016, 63). By the end of the war in 1648, Germany was devastated, with some states in northern Germany witnessing a reduction in population of up to 70%. It is not a coincidence that during the second half of the 17th century when the country was still trying to recover, a series of new estate management manuals were published. Addressed to the rulers of the Protestant states of the Holy Roman Empire, these included Ludwig von Seckendorff 's *Teutscher Fuirsten-Stat* (1656), Johann Becher's *Politische Discurs* (1668), and Wilhelm von Schroder's *Fiirstliche Schatzund Rentkammer* (1686). These texts were used as university textbooks for the bulk of the 18th century and formed the basis for the cameralist administrative sciences (Tribe 1984, 263).

In 1727, the first university chairs in cameralism were established in Frankfurt and Halle by Friedrich Wilhelm I of Prussia as part of wider military and bureaucratic reform (Tribe 1984, 263). The aim of the cameralist sciences was to improve the land while increasing its revenue so as to leave a large surplus and optimize the "happiness" of the prince's subjects

(Tribe 1984, 264, 266)

Economics as an academic discipline did not emerge in Britain until the 19th century (Reinert & Rössner 2016, 74). Before that, most early figures of British economic thought worked in the private sector with the sole possible exception of Adam Smith (Reinert & Rössner 2016, 66). Consequently, while British economic thought was more concerned with markets, cameralism focused more on the role of the state and pursued a more holistic, interdisciplinary approach to economics (Reinert & Rössner 2016, 66-67).

This approach lasted until the early 19th century. The defeat of Austria and Prussia in 1805 and 1806 spelled the collapse of the Holy Roman Empire. Across Germany, bureaucracy was restructured, the peasantry were fully emancipated, and the transition to modern capitalism began. Concurrently, cameralism gradually declined in relevance while Anglo-Saxon "political economy" began to rise to prominence (Tribe 1988, 11-12). Cameralism, with its close association with state bureaucracy tasked with ensuring the welfare of its subjects, provided the backdrop on which a particularly German strain of political economy would take shape.

Friedrich List: Economic Nationalism vs Free-Trade Imperialism

Throughout the early to mid-19th century, classical British political economy began to dominate economic discourse across Europe and the United States. Adam Smith and David Ricardo's laissez-faire doctrine of comparative advantage, free trade, and limited state involvement was increasingly adopted by policymakers internationally (Ince 2016, 4). British politicians, especially after abolishing the Corn Laws and any protections for its agricultural sector in 1846, championed free trade globally using soft as well as hard power. In 1839, Britain launched the

Opium Wars aiming to force Qing-dynasty China to allow its markets to be flooded with British opium. That same year in Prussia, economic emissary and lobbyist John Bowring, later known for his slogan "Jesus Christ is free trade and free trade is Jesus Christ," was welcomed with open arms (Ince 2016, 5; Marx 1848).

Great Britain was the leading industrial powerhouse and the most advanced capitalist economy in the world. By pursuing free trade, the British could penetrate foreign markets in which to sell their manufactured goods as well as access cheap raw materials that were previously produced domestically. This self-serving policy doctrine, following the publication of John Gallagher and Ronald Robinson's influential 1953 paper, is now commonly dubbed "the imperialism of free trade" (Ince 2016, 2). By taking advantage of increased division of labor, economies of scale, and technological superiority going back to the late 18th century, Britain could pursue its comparative advantage in high value-added industry. Late developers like continental Europe and the United States could pursue their comparative advantage in agriculture. The former exported cheap manufactured goods that easily outcompeted the latter's nascent domestic industry and thus locked them into a relationship of dependency. This made some question whether free trade was conducive to development in more primitive economies.

Friedrich List (1789-1846) was one such skeptic whose methodology and analysis helped set the precedent for the German Historical School, as well as much of 20th-century development economics. Contemporary Cambridge development economist and critic of free trade, Ha-Joon Chang, even titled his 2002 book, *Kicking Away the Ladder,* after an expression used by List (Chang 2002). List was an economics journalist with a short-lived career as a professor at the University of Tübingen and as a politician in Württemberg (Levi-Faur 1997, 156). Ideologically, he aligned himself with political liberalism and

pan-German nationalism (Levi-Faur 1997, 155). Preventing Germans from becoming "hewers of wood and drawers of water for the Britons" was top priority for List (Ince 2016, 7). List attributed his stances on free trade to witnessing the collapse of the Continental System following the Napoleonic Wars and the flooding of European markets with British goods (Ince 2016, 21).

His political views led to his dismissal from his university position and exile. While in exile, List visited many countries with emerging industry including the United States in 1825 (Levi-Faur 1997, 156). At the time, the United States was primarily an agrarian country not unlike Germany. In 1776, Adam Smith remarked that any attempt to build up industry in the United States by halting the import of European manufactured goods would "retard instead of accelerating the further increase in the value of their annual produce, and would obstruct instead of promoting the progress of their country towards real wealth and greatness" (Chang 2002, 5). However, as List observed, this theory was proven wrong by empirical evidence. Since 1818, the United States had been pursuing a policy of high tariffs against British goods in order to nurture its infant industry with success (Knell 2019, 184-185).

Friedrich List is now regarded as a proponent of neomercantilism. Like other "neomercantilists" of his time, his ideas actually intersected with Adam Smith's in that they both endorsed free trade at the national level (Golub 147). In List's case, this translated to support for the Prussian–organized pan-German customs union known as the *Zollverein*. He even proposed expanding it to include every territory from the mouth of the Rhine to the frontier of Poland so as to form a more formidable trade bloc (Henderson 1981, 492). This proposal would not be recognized until the formation of the European Economic Community and later, the EU.

List accepted Smith's doctrine that economic growth is

driven by capital accumulation leading to increased division of labor, and increased division of labor, in turn, enables further accumulation of capital. However, from here their views diverged. Challenging Adam Smith's theories was no easy task. List lamented that "those who venture to oppose [Smith's view], or even to question its infallibility, expose themselves to be called idiots" (Knell 2019, 180). However, List did exactly that in 1827 with the publication of his book, *Outlines of American Political Economy* (Levi-Faur 1997, 157). In the book, List introduces his concept of "productive powers," a central concept which he expanded upon in his books *The Natural System of Political Economy* (1838) and his magnum opus *The National System of Political Economy* (1841).

According to List, Adam Smith failed to recognize the distinction between different types of capital that could be accumulated on a national scale. List's concept of productive powers, on the other hand, distinguishes between three types of capital (Levi-Faur 1997, 157-158). The first is natural capital, which includes land and natural resources. The second is material capital, which includes tools and machinery. According to List, both of these forms of capital are less important than mental capital. Mental capital includes skills, training and education as well as enterprise, military power, and government infrastructure.

Accumulating mental capital is the key to development according to List. To illustrate this theory, List constructs an analogy (Levi-Faur 1997, 158). There are two families, each with five sons and a plot of land. One household saves its money and puts its sons to work on the farm. The second household invests in mental capital. Money that could otherwise be saved is invested in education for the five sons. Three sons learn trades and each earns more money than their father. The other two sons receive formal training in husbandry and inherit large portions of the father's land on which they can produce higher yields using

their skills. Meanwhile, the five sons of the first household each inherit smaller portions of their father's land with no training in husbandry. This analogy demonstrates how investing in mental capital enables greater wealth accumulation across sectors.

List's concept of mental capital was a precursor to the theory of human capital put forth by Gary Becker of the Chicago School (Levi-Faur 1997, 159-60). However, Becker's theory is limited to individuals increasing their capital, and neglects the role of the state. List's concept, characteristic of much of German political economy, is tied to the development of entire nations where the state is assigned the role of increasing mental capital through investment in public infrastructure and education. Drawing from historical examples, List observed that by investing in education, the British state played a leading role in elevating the country to a higher stage of development compared to its initially richer and more industrious neighbors:

> Before the time of Edward III, the English were the greatest bullies and good-for-nothing characters in Europe; certainly it never occurred to them to compare themselves with the Italians and Belgians or with the Germans in respect to mechanical talent or industrial skill; but since then, their Government has taken their education in hand, and thus they have by degrees made such progress that they can dispute the palm of industrial skill with their instructors. (Levi-Faur 1997, 167)

List's theory of productive powers additionally served as a rebuttal to Ricardo's position that free trade will always be beneficial when all parties pursue their comparative advantage (Levi-Faur 1997, 166). A country like Germany or the United States (at the time) exporting agricultural goods and importing high value-added manufactured goods from Britain robs itself of the opportunity to accumulate mental capital. Manufacturing is extremely mental-capital-intensive and requires a high degree of

specialized, professional expertise. Investment in (mental) capital thus drives division of labor, which in turns drives further capital accumulation as per Adam Smith's theory. The state is not an exogenous factor in List's model of economic development. In contrast to the British laissez-faire approach, the state in an industrial latecomer country is tasked with investing in mental capital while protecting existing industry from foreign competition.

List's advocacy for state intervention and his methodology of drawing conclusions from historical examples place him in alignment with the longstanding German tradition of cameralism and the subsequent German Historical School (Chang 2002, 5-6). List has found his place in the history of economic thought as the founder of infant industry theory (Levi-Faur 1997, 154; Ince 2016, 4; Chang 2002, 3). In the post-WWII era, when all countries of the Global South have gained independence, the question of development through free trade or import-substitution has regained relevance. The Washington Consensus, as championed by the United States during the Reagan administration, arguably echoes Britain's free trade imperialism, albeit in a much more limited form (Arrighi 2010, 72). As such, Friedrich List's legacy has been secured.

The German Historical School

The economics of Friedrich List set an important precedent in line with many intellectual trends of 19th-century Germany. Many of these tenets were a reaction to British thought of the Enlightenment (Schinzinger 1968, 1; Michaelides & Milios 2005, 1). The liberal "cosmopolitanism" of the British was contrasted with the romantic nationalism of the Germans. A preference for deductive reasoning was contrasted with a preference for inductive reasoning. While academic political economy in Britain grew out of philosophy and natural science

departments, German political economy grew out of law and history departments. British political economy conceived of the economy as an isolated entity driven purely by the behavior of rational, self-interested individuals and was concerned with discovering abstract natural laws. German political economy, on the other hand, saw economic behavior as determined by many non-economic and non-rational factors that depended on cultural and institutional context. As such, the very concept of natural law in economics was seen as questionable, and economic development was a unique and historically contingent process for every country. This was the basis for the German Historical School (GHS), which dominated German universities for generations until WW2.

Joseph Schumpeter, himself heavily influenced by the GHS, summarized six core tenets of the school. These consisted of "the unity of social life, a concern for development, the organic nature of society, and historical relativity and universality" (Shionoya 2005, 4).

The GHS is commonly subdivided into three generations (Schinzinger 1968, 1-2). The first is the "Older" school from the 1840s to the 1870s. The second is the "Younger" school from the 1870s to the 1890s. Finally, there is the "Youngest" school which existed during the early 20th century. The "older" school is said to have begun in 1843 with the publication of Wilhelm Roscher's *Grundriss zu Vorlesungen über die Staatswirtschaft nach geschichtlicher Methode* (Schinzinger 1968, 2). In it, Roscher confronts ideas of classical political economy. By surveying historical examples of economic development in various countries, Roscher emphasizes the role of non-economic factors in charting that development.

Building on Roscher's scholarship, Bruno Hildebrand wrote his unfinished *Die Nationalökonomie der Gegenwart und Zukunft* (1848). Hildebrand sought to discover the underlying principles of economic development through empirically

oriented statistical analysis. He founded the scholarly journal, *Jahrbücher für Nationalökonomie und Statistik.*

With the goal of establishing a new historical method, Karl Knies published *Die politische Ökonomie vom Standpunkt der geschichtlichen Methode* (1853). Here he posits that it is only possible to extract useful "analogies" from historical data, not from laws.

It can be difficult to determine which economists belong to the Younger school as virtually all late 19th-century German economists were trained in the GHS and thus, exhibit its influence in one way or another (Schinzinger 1968, 2-3). However, if one thing is clear, it is that Gustav Schmoller was its leader. Following the economic crisis of 1873, known as the Gründerkrise, economists were increasingly concerned with proposing policy that could ensure social welfare. To that end, Schmoller founded the forum known as "Verein für Socialpolitik". Its members were derisively called "Kathedersozialisten" or "chair socialists" due to their academic background and perceived socialist leanings. However, no one from the forum actually advocated abolishing capitalism; instead they proposed innovative reformist measures such as introducing public insurance for the elderly, injured, and unemployed.

Gustav Schmoller was famously at the center of an important debate with the founder of the Austrian school of economics Carl Menger, now dubbed the *Methodenstreit*. The *Methodenstreit* was an episode in a much broader debate between empiricism and rationalism. It reflected the rise of the Marginal Revolution, which Menger helped usher in, and which would come to shape much of subsequent mainstream economic thought. Menger, seeking to distance himself from the GHS, lamented the lack of rational deductive reasoning in German economics, which emphasized empirical inductive analysis (Louzek 2011, 443). Menger, in his *Untersuchungen über die Methoden der Sozialwissenschaften und der Politischen*

Ökonomie, constructs an analogy involving the natural sciences. Using the logic of the GHS, an empiricist scholar who values physiology would reject all of chemistry and physics on the basis that those fields are based on abstractions as opposed to physiology, which is strictly empirical (Louzek 2011, 446). According to Menger, there are two methods of theoretical research (Louzek 2011, 445-446). One is *realistic-empirical* and the other is *exact*. In the former, as economist Marek Louzek notes, "a scientist tries to grasp the full empirical reality, the entire phenomena in their entire complexity and then sorts the sum of the real phenomena into certain phenomenal forms and subsequently presents patterns or coexistences of these phenomena and phenomenal forms as he experienced them in practice." In the latter, however, "A scientist focuses on a certain specific aspect of phenomena or phenomenal forms, while assuming that all the other aspects and circumstances are constant. Thus, he/she examines the general relations of the subsequence and coexistence of phenomena (or certain aspects of phenomena), while assuming that the other components of the empirical reality are constant" (Louzek 2011, 446).

Menger illustrates this distinction using the example of the Law of Demand (Louzek 2011, 446-447). An exact formulation of the law holds that if the need for a commodity increases then, ceteris paribus, its market price will increase. Conversely, a realistic-empirical formulation of the law holds that if the need for a commodity increases, then its market price will also increase. While both methods have their place in scientific inquiry, only the former, which constructs an ideal type by isolating it from exogenous, real-world factors, can be used to discover natural laws.

That same year, in a scathing review of Menger's book published in *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirt,* Schmoller rejects Menger's dichotomy between the realistic-empirical and exact methods (Louzek 2011, 448).

Rebranding them as the empirical-inductive and the rational-deductive methods, Schmoller posits that all human recognition is an alternation between the empirical and the rational. He remarks that:

> ...those who want laws must abstract. We answer that in the end, all our thinking and cognition is based on abstraction. However, the point is to abstract in the correct manner so that our abstractions result in scientific truths and not schematic phantoms or visionary escapades as is, regrettably, often the case. (Louzek 2011, 450)

The group called the Youngest GHS was led by Werner Sombart and Max Weber (Michaelides & Milios 2005, 8). Both are remembered for their studies on the origins of capitalism. In 1902, Sombart published his controversial book *Modern Capitalism* (Milios 2022, 84). The book explains how society has evolved in evolutionary stages since antiquity from agrarian culture, to artisan organization, to the present capitalist social configuration that is "fulfilled by the basic idea that the purpose of the economy is the earning of money" (Milios 2022, 85). Before the advent of capitalism, there existed a certain entrepreneurial "spirit" of capitalism. This spirit was embodied by small and medium-scale artisans and merchants. However, they had little money or property that could be transformed into capital and accumulated. Meanwhile, all of the "money possessors" were landed aristocrats who possessed no such capitalist spirit. It was the merging of these two economic subjects that marked the emergence of capitalism. Small-scale artisans/craftsmen were transformed into the first capitalists and wage laborers when some of them acquired property and money through donation, lending, inheritance, marriage, or by simply buying land with savings, the value of which increased with the expansion of European cities in the Late Middle Ages. Sombart's analysis is innovative in the way it avoids economism and

emphasizes cultural and ideological factors in the history of capitalism.

Gustav Schmoller and Jacob Strieder rejected Sombart's work as unhistorical (Milios 2022, 86). They claimed that this capital accumulation began with overseas trade and not with artisans and merchants securing the landed property of the nobility. The positions expressed in this debate, particularly regarding the role of international commerce and the division of artisans into the bourgeoisie and proletariat, served as precedent for later mid- and late 20th-century Marxist debates regarding the transition from feudalism to capitalism (Milios 2022, 88-89).

Max Weber's widely read book *The Protestant Ethic and the Spirit of Capitalism* posits a heavily modified version of Sombart's thesis. To Weber, the spirit of capitalism described by Sombart did not arise until the Protestant Reformation in the 16th century.

Sombart, however, maintained that this spirit predates the Protestant Reformation as evidenced by the active commercial societies of Northern Italy and the Low Countries since the 13th century (Milios 2022, 91). The Reformation was, if anything, an effect rather than a cause of the rise of capitalism. Additionally, as far as the theological basis for the spirit of capitalism is concerned, Sombart claimed in his 1911 book *The Jews and Modern Capitalism* that this spirit was already observable in Judaism (Milios 2022, 90).

The GHS never became part of a standard curriculum outside of Germany. It only did so in the unique context of 19th-century Germany trying to emerge as a nation-state and catch up to Britain as an industrial power (Schinzinger 1968, 3). Nonetheless, its influence can be felt across the social sciences today. Joseph Schumpeter identified the GHS as being foundational to the field of economic sociology (Shionoya 2005, 6). Alfred Marshall remarked that the GHS had "done more than almost anything else to broaden our ideas, increase our

knowledge of ourselves, and to help us to understand the central plan, as it were, of the Divine government of the world" (Chang 2002, 6). In the decades following the Civil War in the United States, many American students left the country to study in Germany where post-graduate education was much more sophisticated and well established (Bateman 2001, 108). Many of the founders of the American Economic Association (AEA) were trained in Germany and held positions that differed from their older American colleagues who subscribed to a more laissez-faire philosophy (Bateman 2001, 109-110). The first meeting of the AEA took place in 1885 at the second annual meeting of the American Historical Association, much in line with the GHS' emphasis on historical inquiry. For the first few years of its existence, one of its core tenets was that the state should play an interventionist role in economic affairs in order to ensure public welfare. The GHS is also widely cited as an influence on American Institutionalism; however, this is disputed.

German-trained economists of the AEA and their students exerted heavy influence on Progressive-era as well as New Deal policies. Richard T. Ely, who received his PhD at the University of Heidelberg, helped found the AEA with the intention to emulate the Verein für Socialpolitik (Miller 2021, 55-56). He was an early architect of the welfare state in the United States. He championed a "social" conception of the state aligned with GHS as well as Aristotelian teachings (Miller 2021, 60). In the past, the Framers of the Constitution had championed a social compact theory of the state, which prioritized the individual over society and was based on principles such as consent of the governed. Ely rejected the notion that society was simply "a mere aggregation of individuals" and was more akin to "a living, growing organism, the laws of which are different from the laws of individual action" (Ely 1895, 3). The best interests of society as a whole could not be secured through the pursuit of

individual self-interest. Therefore, the state had a social and ethical role that should override any individual's desires. In his book, *Socialism and Social Reform,* Ely defined this ethic as "socialism in a broad but not altogether vague sense" in contrast to the scientific socialism of Marx & Engels' scientific socialism (Ely 1895, 3, 8). Writing in a "spirit of conservatism," his proposals for social reform aimed to "improve and elevate all classes" rather than the abolition of class distinctions (Ely 1895, viii, 7).

One of Ely's students at the University of Wisconsin was John Commons, who has been referred to as "the intellectual origin of the New Deal, of labor legislation, of social security, of the whole movement in this country towards a welfare state" (Miller 2021, 58-59). Some of Commons' own students at the University of Wisconsin included Arthur Altmeyer and Edwin Witte, who are widely considered the architects of social security. In Europe, the welfare state has had an even greater policy impact. The so-called "social market economy," which combines capitalist development with a robust social safety net, is essentially a realization of much of the GHS's ideas (Drechsler 2016, 109). In that arena, the impact of the GHS' intellectual contributions cannot be overlooked.

Conclusion

The mid-20th century marked the end of the German tradition of economic thought that stretched back to the Early Modern Period. Waves of Nazi persecutions of academics, many of them Jewish, effectively ended the German Historical School as a coherent intellectual force (Tribe 1988, 1). Following post-war reconstruction, economic education in Germany generally followed the Anglo-American tradition (Tribe 1988, 2). Students of the German Historical School have disappeared even from the most heterodox of economics departments.

That said, the intellectual legacy of German economics remains significant. Development economics owes an enormous debt to Friedrich List. Modern sociology (especially economic sociology) carries the influence of the German Historical School in its DNA via the work of Max Weber and to a lesser extent W.E.B. Du Bois. In the policy sphere, German economics has provided the basis for the welfare state in both the United States and Europe as well as powerful arguments for protectionism over free trade. Today there has been a rise in austerity and a general rollback of the welfare state across the Western world while the Trump administration's tariff regime has reversed the United States' longstanding support for free trade. This, of course, has not been without a great deal of controversy and public discussion. By tracing the intellectual genealogy of these policy debates back to German political economy, one can hopefully take a more informed position.

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