

Penn State Public Policy Journal

Spring 2023 | Volume 1



**No Bears in the Caviar: Evaluating the U.S.'s
Sanctions Response to Russia's Invasion of Ukraine**
by Kenneth Gatten III

**Associations Between Neighborhood Characteristics
and Children's Use of Preventive Health Services** by
Vedika Nair

**Shots Fired: A Spatiotemporal Analysis of Gun
Violence in the City of Philadelphia, 2015-2019**
by Jeremy Hoffman

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About

The *Penn State Public Policy Journal* is a student-led publication that was founded in 2022 by several Master of Public Policy (MPP) students at the Penn State School of Public Policy. The Journal is currently published by the Penn State Public Policy Association (PSPPA), a registered student organization based at the Penn State University Park campus.

Mission

Our mission at the *Penn State Public Policy Journal* is to offer Penn State students the opportunity to publish original public policy analysis and research, and to share recommended policy approaches with a wider audience. By doing so, we hope to encourage students think critically and creatively about some of the biggest challenges facing society, and in turn produce and share high-quality, nuanced research.

Focus & Scope

The *Penn State Public Policy Journal* publishes submissions on a wide range of issues. As a generalist publication intended for a wide audience, we welcome submissions from public policy scholars, political scientists, economists, legal scholars, sociologists, public health researchers, and others, as long as the work exhibits intellectual rigor, scholarly depth, accessible writing, and relevance to the public policy sphere.

Support

The *Penn State Public Policy Journal* is generously sponsored by Penn State School of Public Policy and is funded by the Student Initiated Fee. We would also like to thank the faculty, staff, and students of the School of Public Policy for their continued support, without which this edition would not have been possible.

Disclaimer

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To reach the Editorial Team or one of our contributing authors, please send us an email at pennstatepublicpolicy@gmail.com. You can also find us online at www.psppa.org and follow us via Facebook, Instagram, Twitter, and LinkedIn @psupubpolicy.

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Letter from the Editors

Dear Reader,

We are pleased to present the first edition of the *Penn State Public Policy Journal (PSPPJ)*. *PSPPJ* was established as a platform for students from diverse disciplines to investigate a wide array of policy issues. We would like to thank all the writers who submitted their work for consideration and made the establishment of this journal possible.

This edition would not have been possible without the contributions of our associate editors who, despite their busy schedules and deadlines, devoted their time and expertise to ensuring the quality of the articles in this journal. Their hard work and dedication have been instrumental in shaping this publication. We also give special thanks to our faculty advisors – Lilliard Richardson, Temirlan Moldogaziev, and Janice Houston – for their guidance and valuable support. Their expertise has helped us create a publication that engages with policy issues in a thoughtful and rigorous manner. Finally, we would also like to thank Alison Jaenicke and Mia DiFelice for sharing their insights regarding the establishment of student-led publications at Penn State University and the University of Pittsburgh, respectively.

Policy does not exist in a vacuum. It exists in the context of social, economic, and political systems and is influenced by a wide range of factors. As such, it is important to approach policy analysis and discussion with a holistic and interdisciplinary perspective. The articles in this journal aim to contribute to the ongoing dialogue about the policy issues that shape our world. We hope that you enjoy and benefit from the insights and perspectives shared in this edition.

Sincerely,

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An Evaluation of the Brazilian Labor Reform of 2017

Ludmila Bandeira

MPP '23, Penn State School of Public Policy

ABSTRACT

In 2017, the Brazilian Labor Reform revised more than 100 articles of the country's historic Consolidation of Labor Laws (Consolidação das Leis Trabalhistas, [CLT]), which reformed various rules on vacations, working hours, and union dues, among others. This paper uses the multiple streams theory of the policymaking process as a lens to analyze how the reform made it to the policy agenda and reflects on its key impacts five years after being implemented. It also features original keyword analysis of Brazilian newspapers during the period from 2004 to 2017 to investigate the role of public opinion in the agenda setting process. A brief overview of the economic variables cited as justification for the reform indicate that the reform was not sufficient to remedy the high unemployment and economic stagnation it was meant to address. Furthermore, the law might have contributed to deterioration in other social indicators such as income inequality. Based on an analysis of the Brazilian Labor Reform, this paper recommends a partial revocation of the policy by advancing four main reforms: further protections for unions, guarantees of access to labor justice, fair severance payments, and pro-competition labor law exceptions for small companies.

BACKGROUND

In July 2017, Brazil's Senate approved the country's most extensive labor reform since the Consolidation of Labor Laws of 1943 (Consolidação das Leis Trabalhistas, CLT). This reform was advanced under the interim term of President Michel Temer (of the Brazilian Democratic Movement – MDB¹), who proceeded the impeached President Dilma Rousseff (of the Workers Party - PT²).

¹ Original Portuguese Expression: Movimento Democrático Brasileiro (MDB)

² Original Portuguese Expression: Partido dos Trabalhadores (PT)

Exploring the background of these events will help contextualize the social and political conditions in Brazil that catalyzed the reforms. The crises marking their rise happened during an inflection point between 2013 and 2017.

In 2013, a series of demonstrators started protesting increases in bus fares in many Brazilian state capital cities. After some very successful online social media-led mobilizations, these demonstrations evolved into larger demands for better public services and critiques of public expenditures being used to host the 2014 FIFA World Cup and 2016 Summer Olympics. The first demonstrations started in July and eventually spread to more than 500 cities. They were large, noisy, and precipitated demands for significant reforms.

In 2014, the federal police launched an investigation to examine corruption allegations in the state-owned petroleum company Petrobrás. This operation became known as Operação Lava-Jato (Operation Car Wash) and investigated several influential individuals, including entrepreneurs and politicians. Before concluding in 2018, the controversial inquiry resulted in the arrest of ex-President “Lula” Luiz Inácio Lula da Silva and influenced the results of the 2018 Brazilian elections. However, almost four years after its end, the Supreme Federal Court ruled that the judge and the prosecutors of Operação Lava-Jato were guilty of bias, resulting in the overturning of former-President Lula’s conviction.

In this context of this political instability, President Dilma Rousseff began a second term, which was overshadowed by strong opposition in the National Congress, who limited discussion to what became known as a “bomb agenda³” of topics designed to destabilize the government.

In April 2016, Rousseff was impeached and removed from office after it was alleged that she had accepted bribes from Petrobras executives. However, after several accounting audits, she was later cleared of any wrongdoing.

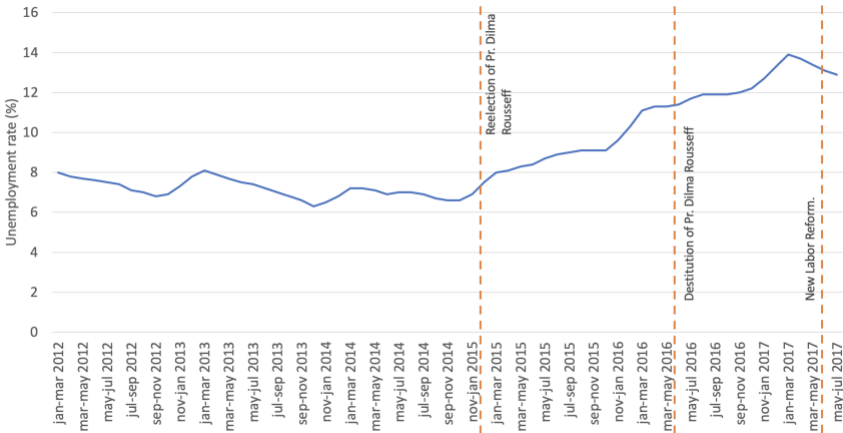
³ Original Portuguese Expression: Pauta Bomba

In the interim period, then Vice President Michel Temer assumed the Presidency of Brazil with the aim of regathering the divided country and implementing a new economic policy centered around deregulation of the labor market, lowering taxes, and reducing social security benefits. These measures were intended to improve the business environment in the country.

HIGH UNEMPLOYMENT OR LOW ECONOMIC GROWTH: WHICH CHALLENGE WAS THE BRAZILIAN LABOR REFORM DESIGNED TO ADDRESS?

The main problem that the Brazilian Labor Reform intended to confront was the growing unemployment rate, which had begun trending upward in the first quarter of 2015, as we can observe in Figure 1. The unemployment rate hovered around 8 percent after the re-election of Rousseff in October 2014 and rose to its highest point of 14 percent just before the reform vote.

Figure 1. Quarterly Brazilian unemployment rate from January 2012 to May 2017

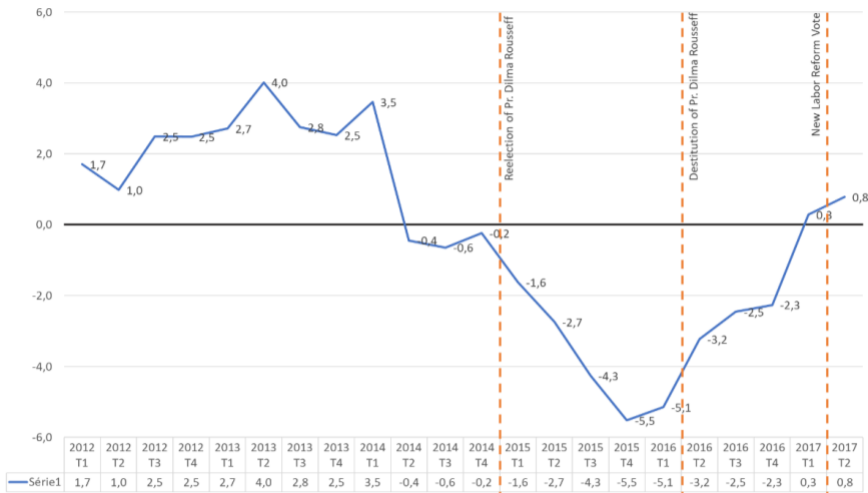


Source: IBGE, National Survey

Another contributing factor was the economic crisis that set in near the beginning of 2014, as shown by Figure 2. The worst point happened in the fourth quarter of 2015 when gross domestic product contracted by 5.5 percent. At the time, many specialists attributed this crisis to the exhaustion of Brazil's economic development model, which was based on a cycle of strong public investment. In essence, Brazil's economy had been anchored by

strong capital inflows and growing government spending deficits before becoming a victim of changing global market sentiments in 2014, when anxious investors pulled out of developing countries with high debt-to-spending ratios like Brazil (European Central Bank, 2016). A sudden devaluation of the currency made its debts more expensive, and Brazil's attempts to reverse the trend with interest rate hikes and government spending reductions only worsened the problem by disincentivizing investment, resulting in economic contraction, and reducing the tax revenue it could collect to pay back its skyrocketing debts. So, the government was under immense pressure to devise a radical new approach to mounting unemployment.

Figure 2. Real Gross Domestic Product (GDP) at market prices - Percentage change in relation to the same period of the previous year (2012-2017)



Source: IpeaData/IBGE - System of Quarterly National Accounts (IBGE/SCN Quarterly)

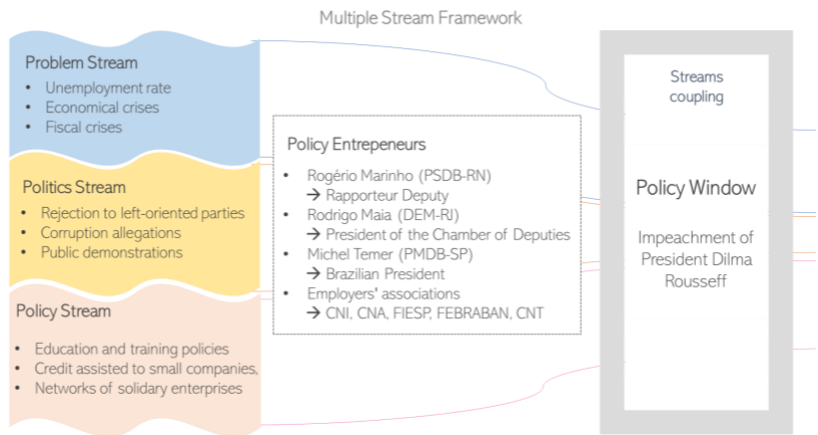
Several neoliberal reforms started to gain momentum in the public sphere. The rationale behind them was a sense that the Brazilian Labor Reform was outdated and mainly responsible for economic stagnation and growing unemployment rate. These discussed reforms, which this paper will outline later, were sold as the only real solution for this complex issue.

AGENDA SETTING: HOW DID BRAZILIAN LABOR RISE TO THE POLICY AGENDA?

To understand how the Brazilian Labor Reform became part of the policy agenda, I will analyze the agenda setting process through the lens of the Multiple Streams Framework, summarized in Figure 3. This framework suggests that policy decision are the result of the interaction between three streams: the problem stream, the politics stream, and the policy stream, each of which will be discussed in turn below.

Firstly, the problem stream refers to the identification of a problem that needs to be addressed, whether a social issue or an economic crisis (Zahariadis, 2019). Secondly, the policy stream refers to the development of potential solutions to the problem. This may involve researching different options and creating proposals for how to address the problem. Thirdly, the political stream refers to the political context in which the policy decision will be made. This includes factors such as the preferences of political leaders, the interests of different groups and stakeholders, and the potential impact on voters. When these streams come together, they can create a “policy window” during which a policy decision is likely to be made. This can happen when a problem is seen as pressing, potential solutions have been developed, and there is political support for addressing the issue.

Figure 3. Main Points of the Brazilian Labor Reform Agenda Setting



Source: adapted from Zahariadis (2007)

Taking into account the complex historical and social contexts of Brazil, the problem stream for the purposes of this analysis is composed of the complicated mix of low economic growth and high levels of unemployment in Brazil from 2013 to 2017, as detailed in the previous section.

The politics stream is characterized by the public rejection of left-wing oriented parties due to corruption allegations levied under Operation Car Wash. According to Rocha (2021), beginning in 2006, Brazil witnessed the formation of an ultraliberal counter public. Traditionally, the dominant political party, backed by powerful interest groups, would have upheld the opposing vision of a minimal state and stringent property rights in a fashion that dispensed with grassroots militants' influence in the political environment. However, as the Workers' Party extended its tenure in the Presidency, and the internet became popular among the middle and upper classes, organized support for alternative political agendas grew. Young university students and liberal professionals gathered in virtual forums and communities to translate and share texts, discuss abstract concepts and theories, form study groups, and create bonds and a common identity around the defense of market freedom as the ultimate foundation for the organization of the economy and society. This background explains the changes in the politics stream that led to the opening of an opportunity window for the passage of right-oriented policies.

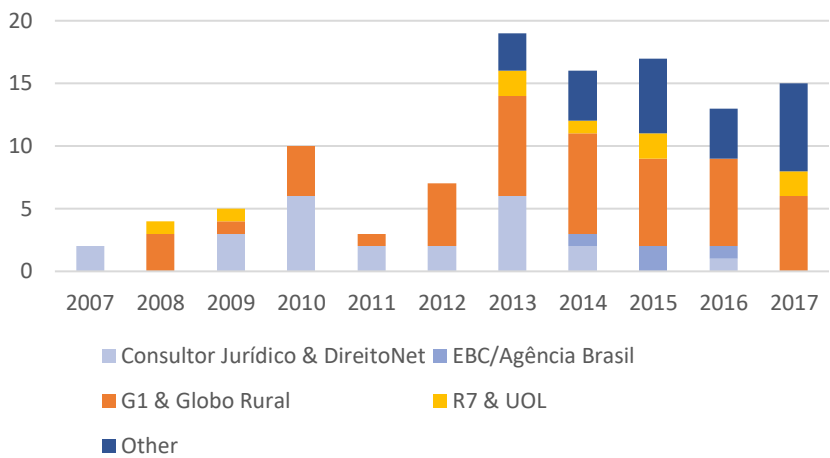
The policy stream consists of the left-oriented economic policies that had reigned from 2003 to 2015 but failed to stave off the 2013-2017 recession. Prominent among these policies were the formation and dissemination of networks of "solidarity" enterprises (such as fair-trade organizations); professional education and training for unemployed workers or individuals at risk of unemployment; and efforts to grant credit to micro- and small companies, cooperatives, and self-employed workers (IPEA, 2006).

Brazil's post-2015 right-oriented counter movement was essential to the success of Rousseff's impeachment process. I argue that the same opportunity window facilitated the passage of the right-oriented Brazilian Labor Reform in 2017.

As exploratory research for how the policy image of labor reform was built in public opinion, I searched for the keywords "labor

severances” and “labor severance” in Brazilian newspapers during the period of 2004 to 2017. The compiled data revealed more than 100 articles about the topic, and the large majority were published after 2013, as shown in Figure 4.

Figure 4. Headlines in Brazilian newspaper about labor severances (2004 – 2017)



Source: author’s own research

Until 2012, the topic was mainly discussed by the legal press (such as Consultor Jurídico and DireitoNet), however, in 2013 the topic started to be broadly covered by the largest Brazilian media organizations (such as G1 and R7). The most common narratives featured in these articles centered around severance payments that were being disburse to millionaires.

The final element propelling the Brazilian Labor Reform to the policy agenda was the presence policy entrepreneurs. In the Brazilian Labor Reform, they were:

- Rogério Marinho (PSDB-RN): the Rapporteur of the Chamber of Deputies (aligned with the Brazilian Social Democracy Party), who was responsible for evaluating reforms and advocating for them before the Brazilian Chamber of Deputies.

- Rodrigo Maia (DEM-RJ): He was the President of the Chamber of Deputies (aligned with the Democratic Party), who had formal control the agenda and could decide what measures came to a vote or should be acted upon with urgency.
- Michel Temer (PMDB-SP), Brazilian President: As Vice President, he succeeded Rousseff after her removal and proposed the main reform laws.
- Employers' associations⁴: They were responsible for providing propaganda supporting the reform and recommended several amendments that were later passed.

BRAZILIAN LABOR REFORM

After a long cycle of strong public investment, Brazil was facing serious fiscal concerns. So, a series of neoliberal reforms were discussed in the policy arena to address the high unemployment rate. The 2017 Brazilian Labor Reform was advanced as a way to reduce the cost of contracting workers and therefore enable companies to hire a larger number of workers for the same cost, thus increasing job vacancies and, consequently, reduce the unemployment rate.

The Brazilian Labor Reform was introduced by Temer in July of 2017 and came into force in November of the same year. The reform changed more than 100 articles of the CLT and altered rules on vacations, working hours, and union dues, among others. The general tone of the reform, as explained by Magalhães et al. (2017), is that what was negotiated between employers and employees took precedence over the existing law. Table 1 summarizes the main changes to the Brazilian Labor Law made by this new legislation.

⁴ CNI, CNA, FIESP, FEBRABAN, CNT

Table 1. Summary of the main changes in the CLT due to the Brazilian Labor Reform (BLR)

Before BLR	After BLR
Working day up to 10h/day.	Working day up to 12h/day.
Working days greater than 6h to at least 1h of resting.	Working days greater than 6h to at least 30 min of resting.
Mandatory union contribution.	Optional union contribution.
Collective agreements supersede the law when they favor workers.	Collective agreements supersede the law to even when they are worse for workers.
Job contracts longer than one year can be ended with approval by a union or the Ministry of Labor.	Job contracts longer than one year can be ended by the company with the employee’s lawyer present.
Pregnant and lactating employees cannot work in unhealthy places.	Pregnant and lactating workers can work in unhealthy places below the highest risk level ⁵ .
Intermittent work is not allowed.	Allows job contracts paid per hour.
Worker commute times are considered part of the working day.	Worker commute times are NOT considered part of the working day.
The time in which the worker must be available for the company is considered a working day.	Activities such as rest, study, food, personal hygiene, and uniform changes are no longer considered effective service time.
Labor severance is paid based on the worker’s salary.	Labor severance is paid based on retirement income (up to USD 1,135).

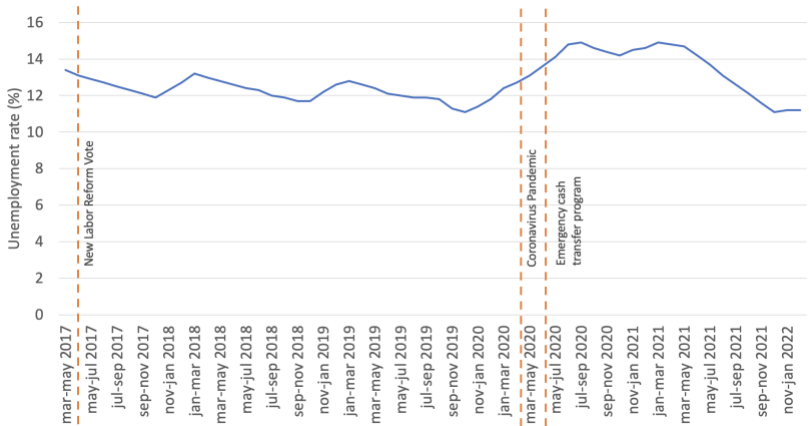
EXPLORATORY ANALYSIS OF LABOR REFORM RESULTS

2022 marks the fifth anniversary of the passage of the CLT, however the results of these reforms have largely fallen far below expectations. At the time of its adoption, the government spoke of the generation two million job in two years, and six million in ten years (Oliveira, 2021).

⁵ The permission for pregnant women works in unhealthy places was considered unconstitutional by the Federal Supreme Court.

However, in Figure 5, we observe stagnation in the unemployment rate at around 13 percent since the reform and growth to 15 percent after the Covid-19 pandemic. New jobs never materialized, and employment conditions became even worse after the onset of the COVID-19 pandemic in 2020.

Figure 5. Quarterly Brazilian unemployment rate from March 2017 to January 2022



Source: IBGE, National Survey by Sample of Households Continuous monthly

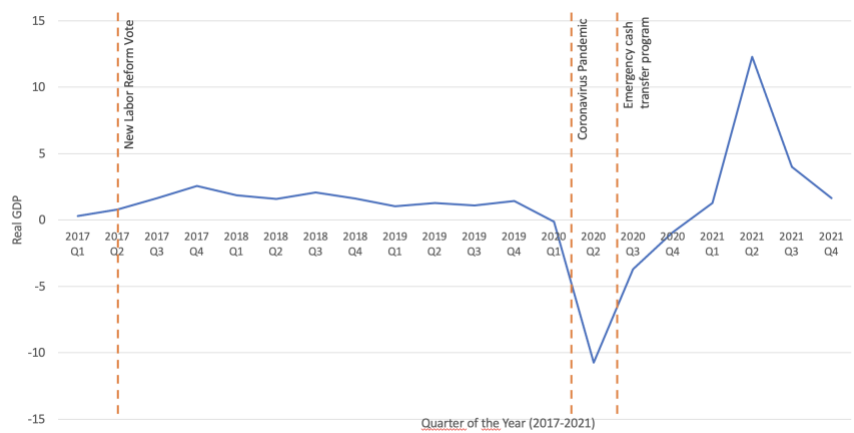
The GDP growth rate shown in Figure 6 indicates three years of economic stagnation followed by a strong depression during 2020. Combined, GDP and the unemployment rate illustrate that the Brazilian Labor Reform was not enough to put Brazil back on the right track toward consistent economic growth.

However, it is hard to predict how much the Brazilian Labor Reform as economic policy was able to influence these measures. Economic theory has ambiguous predictions about the effects of these types of policies. Looking for similar dynamics in other countries yields research conducted by Daruich et al. (2021) in Italy. The authors compare the effects of the Partial Employment Protection Reform on sectors that were subject to the reform earlier than others.

Their conclusions suggest that these reforms reduced the chance of workers migrating from temporary to permanent arrangements and kept workers in more precarious jobs. On the other hand, employers cut costs by hiring temporary workers and increased their profits.

Overall, these reforms failed to significantly reduce unemployment and only worsened income inequality.

Figure 6. Real Gross Domestic Product (GDP) at market prices - Percentage change in relation to the same period of the previous year (2017-2021)



Source: IpeaData/IBGE - System of Quarterly National Accounts (IBGE/SCN Quarterly)

A side effect of the Brazilian Labor Reform has been the weakening of labor unions. In the first full year after the implementation of the new reforms, dues contribution to labor unions dropped by more than 90 percent. Brazil also lost 21.7 percent of unionized workers after the Labor Reform. In 2019, the country reached the lowest rate of union members on record (Silveira, 2020).

Franko & Witko (2012) and Bivens & Shierholz (2018) have sounded the alarm about the consequences about this dangerous mix of weak unions and low access to labor justice on income inequality. Brazil has one of the highest levels of income inequality in the world, with income concentration among the richest 1 percent totaling 28.3 percent (Sasse, 2021). Expanding the range from the richest 1 percent to the richest 10 percent of Brazilians, the total share of the country's income rises to 41.9 percent. In other words, the bottom 90 percent of the population earns less than 60 percent of the total income.

Considering there was no relevant impact of the Brazilian Labor Reform on the employment level or economic growth, and given its

potential to widen income inequality, it is imperative to ask whether the values the Brazilian Labor Reform upholds still reflect those of the Brazilian people five years after its implementation.

CONCLUSIONS AND POLICY RECOMMENDATIONS

Clearly, the Brazilian Labor Reform was not an effective policy to address the Brazilian economic crisis and its effects. The change in more than 100 articles of the Consolidation of Labor Laws (CLT) has also resulted in a very significant erosion of the mechanisms for access to labor justice.

So, considering the background and negative outcomes of the Brazilian Labor Reform explored above, this paper recommends partially revoking the policy. This revocation should focus on four main points:

- **Protect unions:** unions have an important role in guaranteed workers' rights, especially when one considers low-income occupations.
- **Guarantee access to labor justice:** there is currently a great power imbalance between employers and employees. Policy changes should balance this relationship and allow workers to properly demand their rights. Specifically, there must be a reconsideration of the outsized role of union laws in determining worker severance payments and unfairly punishing workers for seeking legal recourse by requiring them to pay court costs.
- **Provide fair severance:** new policies should keep existing auditing mechanisms of severance, such as unions' conference of severance, but use salary as the base of severance payments rather than limits to social security payments.
- **Pro-competition labor law exceptions for small companies:** the comparatively difficult business environment faced by small businesses requires flexibility in labor law restrictions on arrangements like per-hour contract work.

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No Bears in the Caviar: Using the Punctuated Equilibrium Framework to Evaluate the U.S.'s Sanctions Response to Russia's Invasion of Ukraine

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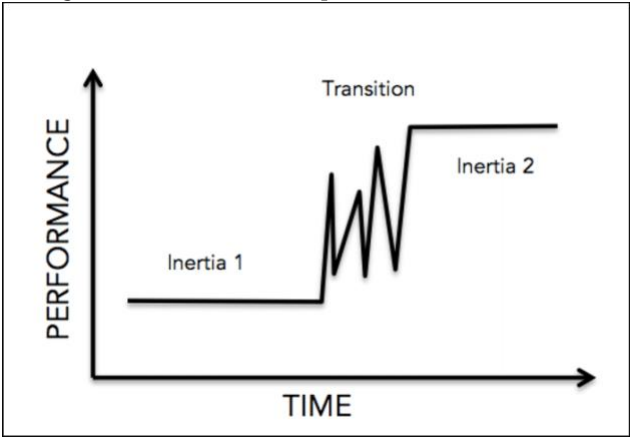
ABSTRACT

On February 24th, 2022, Russia launched an invasion of Ukraine that shocked NATO member states in Europe and elicited a coordinated sanctions response that upended decades of Western policies toward Moscow. Applying the Punctuated Equilibrium (PE) framework of the policy making process to the United States' February 28, 2022, sanctions against Russia, this paper attempts to answer three questions: why NATO member states in Europe were blindsided by the Russian invasion; where Western sanctions policies succeeded and failed; and what the strengths and limitations of the PE framework are when applied to an international policy making context, where it has scant been applied before. Books, scholarly journal articles, newspaper articles, government reports, press releases, speeches, legal documents, and a public opinion poll are cited to support the paper's four findings. These include (1) that the PE framework adeptly predicted the sudden and drastic nature of U.S. sanctions toward Russia and the subsequent bandwagon effect of follow-up sanctions; (2) the PE framework failed to appreciate the role played by individual personalities in forming the sub- and macro-elements of the policy making system; (3) the U.S.'s February 28 sanctions successfully crippled Russia's economy but lacked the clear stipulations required to bring about regime change and cease the invasion; (4) and the threat of U.S. secondary sanctions was powerful enough to reduce Chinese trade and financial flows into Russia after the invasion but deepened some scholars' worries that sanctions risk fracturing the international economic order into geopolitically divided blocs.

INTRODUCTION

According to the Punctuated Equilibrium (PE) framework of the policy making process, the policy making system is usually in a state of equilibrium, characterized by stasis between the system and the broader policy environment. But occasionally, problems emerge that “punctuate” the equilibrium and must be met with sudden and dramatic shifts in policy to usher in a new status quo (True et al., 2006). Figure 1, illustrated by Raes (2015), visualizes the framework with performance (approximating policy performance, in this case) on the y axis and time on the x axis.

Figure 1: Punctuated Equilibrium Framework



In their classic book on the framework, Baumgartner and Jones (1993) describe the PE framework as a mode of analyzing American domestic politics, in which subsystems include Congress and organized advocacy groups and the macrosystem is the presidency. Parallel processing occurs in the two systems as they function in harmony, each fulfilling their reciprocal but distinct roles. A defining characteristic of a subsystem is its policy making responsibility in a particular issue area that is “supported by some powerful idea or image” (True et al.). A subsystem therefore constitutes a policy monopoly that is chiefly interested in “dampen[ing] pressures for change.” In other words, policy monopolies act in line with an ideology of bounded rationality that prefers to enact incremental changes as challenges arise to maintain the policy image as wholly as possible. But developments in the policy environment sometimes force a fundamental re-evaluation of the policy image, and this is

when the policy making system must give way to sudden and dramatic policy changes to restore equilibrium. As True et al. write, compared to other policy making frameworks, the PE framework thus “emphasises two related elements of the policy process: [problem] definition and agenda setting.”

Lundgren et al. (2017) note that most studies on the PE framework focus on fluctuations in the agendas of national and local governments. Claiming to have authored one of the first studies that translates the PE framework to the “international domain,” they praise its new value and insights.

Against the background of the U.S.’s February 28, 2022, sanctions response to Russia’s invasion of Ukraine, this article attempts to further evaluate the PE framework’s predictive and analytical efficacy in international policy making. Divided into eight subheadings, the article discusses the PE framework, identifies the policy problem, provides background on the policy selected to address it, traces and weaves the PE framework into the five stages of the policy process, evaluates the policy, and then offers conclusions and recommendations on how to improve the policy and the PE framework.

Under the PE framework, actors comprising the policy subsystem of the U.S. sanctions regime vary according to the nature of the given threat to U.S. national security—namely, whether the threat involves American allies (and which ones) or exclusively the U.S. Similarly, the policy making relationship between the sub- and macrosystems varies according to the personalities of the actors in each system at a given time. In the case of Russia’s invasion of Ukraine, the primary subsystem of the U.S.’s February 28 sanctions against Russia is the North American Treaty Organization (NATO), whose national security interests, as shared by the U.S., were a causal factor in the enactment of sanctions. The macrosystem, of course, is President Joseph Biden.

Given the wide latitude of the U.S. president’s power to authorize sanctions (against which there effectively is no check), the subsystems that compel the president to authorize sanctions in the face of a threat to national security are in some cases, and in varying degrees, dependent on voluntary associations of tacitly agreed upon mutual obligations. If former U.S. President Donald Trump had been

in office during the Russian invasion of Ukraine, for example, his foreign policy isolationism and antagonistic relationship with NATO likely would have seen him pursue U.S. national security interests as he perceived them without close coordination with NATO partners. This would have altered relationship between the subsystem and macrosystem (Barnes & Cooper, 2019). But President Biden was quick to consult with NATO allies and publicly announce amid authorizing sanctions that his top priority was to strengthen and preserve the unity of NATO (Salama, 2022; Shear, 2022).

THE PROBLEM

Russia's invasion of Ukraine upended the policy image of Russia held by NATO members for more than a decade. As the literature explains, three of NATO members' pre-invasion beliefs explain why. The first belief was that Russia's worldview had grown closer to the liberal democratic order of the West after the dissolution of the Soviet Union. The second was that Russia's trade policies and political systems could be further liberalized through continued and expanded economic interdependence with the West. The third was that Russia would not engage in aggression that jeopardized its most lucrative economic interests in the West. These principles were upheld by the orientation of key NATO states toward Russia in realms such as trade, finance, military security, and intelligence gathering.

As Fried and Volker (2022) write, after the fall of the Soviet Union, the West "spent years working to integrate it into a new post-Cold War order... provid[ing] Russia with substantial financial and technical assistance." Russia and the West even "signed multiple agreements pledging to uphold key principles, including refraining from the threat or use of force; renouncing any change of borders by force; and affirming the right of all states to choose their own political and economic systems and security alliances." In the United Kingdom, until Russia's annexation of Crimea in 2014, the general attitude was "the Cold War is over, we won, move on," states Carl Scott, UK defense attaché in Russia from 2011 to 2016 (Rathbone, 2022). Even after Russia's annexation of Crimea, German Chancellor Angela Merkel publicly held out on Moscow, "believ[ing] that through trade you could bind Russia into a multilateral system, and thus a rules-based order," according to Jana Puglierin, head of the European Council on Foreign Relations' Berlin office (Oltermann, 2022). And as

Wilson Center Fellow Lucian Kim writes (2018), even after Russian President Vladimir Putin had ensconced himself in the Kremlin as a dictator hostile to the Western liberal order, French President Emmanuel Macron nevertheless “fancied himself a ‘Putin whisperer’” who could charm the Russian president into accommodating the West on critical matters.

Before the invasion of Ukraine, this attitude toward Russia on the behalf of leading NATO members in Europe, if not itself fueled by a desire for Russia to conform to a friendly post-Soviet image, not only resulted in the creation of financial opportunities that would achieve this effect alone, but encouraged a relaxing of economic policies toward Russia that would make the West vulnerable and unprepared to respond to an act of Russian aggression on the continent. According to Transparency International UK (2022), for example, in the UK, 150 land titles worth £1.5 billion have been “bought by Russians accused of corruption or links to the Kremlin” since 2016. The UK’s MI5 intelligence service reduced the resources it devoted to Russia from one-fifth in 2000 to less than 3 percent in 2009. Germany, Italy, and France increased their dependency on Russian natural gas imports to 16, 12, and 8 percent, respectively in 2021 (Rathbone, 2022; EIA, 2021). As reported by Barnes et al. (2022), between 2015 and 2020, France, Germany, Italy, Austria, Bulgaria, the Czech Republic, and the UK (all NATO members except for Austria) even sold a combined €350 million of military equipment to Russia, consisting of “bombs, rockets, missiles, and guns.” It is plausible that this military hardware is presently being used in Ukraine.

In the meantime, Fried and Volker (2022) write, Putin leveraged these economic ties for purposes that contradicted every Western desire and expectation, “rebuilding the Russian military, modernizing and expanding Russia’s nuclear arsenal, and reviving and expanding Russian intelligence services.” Putin also “took control of media outlets, consolidated state industries and undermined opposition to his United Russia party, including assassinating political opponents.” All this occurred while Russia waged brutal wars in Chechnya (1999-2009) and Georgia (2008) to dismember populations that declared independence; violated U.S. President Barack Obama’s “Red Line” deal in 2013 while providing military support in the Syrian civil war for dictator Bashar al-Assad; and annexed Crimea by force in 2014.

In line with the expectations of the PE framework, all these events unfolded incrementally. The NATO policy monopoly's desire to maintain the rosy post-Soviet policy image of Russia as a friend of the West, buttressed by the attractive financial opportunities created by expanding economic ties to Moscow, saw it react to challenges in the policy environment according to a bounded rationality that preferred to adopt incremental policies suited to "satisfice" rather than policies that would optimally address the challenges emerging from the policy environment. Thus, Russia's February invasion of Ukraine was a culminating moment that suddenly and totally exploded NATO's policy image of Russia. What the bloodshed on European soil made NATO confront was the fact that Putin's Russia had long ago become an imperial power, motivated by nationalist aims to disrupt the Western liberal order and reclaim a revisionist conception of its former empire at any cost: including the cleaving of its most critical economic ties to the West (Harris et al., 2022).

But the definition—and the very designation—of Russia's invasion of Ukraine as a problem within the PE framework is contingent upon the existence of the personalities currently inhabiting its policy sub- and macrosystems. If former President Trump had been in office, his well-known disdain for NATO and isolationist foreign policy tendencies might have resulted in his National Security Council being the primary subsystem, not NATO. This blind spot of the PE framework subverts its generalizability to the U.S. sanctions regime, whose policy making actors do not comprise a fixed system, but are instead dynamic, amid a similarly fluid policy environment of competing policy images.

THE POLICY

As artillery strikes and machine-gun fire ripped through Ukraine, many NATO states scrambled to issue a response that could stymie Russia's invasion. Bound by Article V of the organization's Treaty, NATO could not, however, provide direct intervention because it was acutely aware that any NATO casualties sustained at the hands of Russian soldiers would trigger a full-fledged war between Russia and all thirty NATO members (Raine, 2022).

So, most NATO members' immediate policy response was to impose economic sanctions. The Council on Foreign Relations (2019) defines sanctions as "the withdrawal of customary trade and

financial relations for foreign- and security-policy purposes.” “Sanctions may be comprehensive,” they add, “prohibiting commercial activity with regard to an entire country... or they may be targeted, blocking transactions by and with particular businesses, groups, or individuals.”

As Mulder (2022) writes, economic sanctions became a tool of Western foreign policy in the wake of World War I. Witnessing the devastation wrought by the wartime blockade of Imperial Germany—where interrupted flows of goods, energy, and food resulted in the decisive weakening of German forces and the deaths of hundreds of thousands of civilians from starvation and disease—the founding powers of the League of Nations realized they had a powerful new tool at their disposal. Dubbed the “economic weapon,” sanctions were instantiated in Article 16 of the Covenant of the League of Nations as a peace-time instrument to deter inter-state conflict. In President Woodrow Wilson’s words, sanctions were “something more tremendous than war” whose threat was “an absolute isolation... that brings a nation to its senses just as suffocation removes from the individual all inclinations to fight.”

Since World War II, multilateral institutions and the United States have made sanctions a mainstay of Western foreign policy. The United Nations (UN) and European Union (EU), for example, have participated in sanctioning sundry individuals, entities, and countries which have transgressed international law—lending sanctions “a legitimacy that the interwar League of Nations never could” (Mulder, 2022). As Mulder explains, economic sanctions emerged as a favored mode of deterrence during the Cold War, when “the risk of nuclear escalation meant that forms of force that did not trigger conventional war became newly attractive as ways of weakening opposing states.”

But over the past few decades, many believe the United States has surpassed all other Western nations in its willingness to employ economic sanctions. The practice has been increasingly perceived as a controversial regime of foreign policy “sanctionism” (Haass, 1998). Mulder (2022) attributes this phenomenon to three factors: America’s “unique military dominance, the ideological inflection of Cold War politics, and the role of U.S. financial markets in the world economy.” The power of U.S. economic sanctions relative to the costs of implementing them—which, compared to military

intervention, are practically the price of the ink and paper with which they are authorized—has incentivized their use to address an ever-expanding array of problems. As Mulder writes, since the Cold War, goals of economic sanctions have evolved from external purposes of merely preventing inter-state war to achieving more internal goals of punishing human rights violations, encouraging regime change, and even obtaining concessions. Recently, the U.S. has come under fire for weaponizing global financial interdependence on the dollar, which is the premier reserve currency and most popular medium for global trade and debt issuance. Critics decry economic sanctions' potential to force major financial markets to develop infrastructure to circumvent the dollar-based order and fracture the global economy into politically divided blocs (Drezner et al., 2021). Close U.S. allies have also taken firm stances against Washington's recent attempts to administer secondary sanctions, which attempt to penalize actors not under the legal jurisdiction of the U.S. for transacting with parties it has sanctioned. In 2018, the EU enacted a largely symbolic "blocking statute" in public opposition to the measures (Ruys & Ryngaert, 2020).

Mulder (2022) notes that the track record of sanctions in achieving their increasingly broad aims has been quite poor. Only one in three uses of sanctions during the twentieth century were "at least partially successful," he writes, adding that "more modest goals have better chances of success." But despite sanctions' "history of disappointment," few desirable alternatives have emerged.

AGENDA SETTING

According to the PE framework, after a problem in the policy environment dismantles the subsystem's policy image, the parallel processing between the subsystem and macrosystem breaks down. Usually accompanied by heightened media attention, this process pressures the macrosystem to enact major change(s) and restore equilibrium.

On the day of Russia's invasion of Ukraine, NATO members held an emergency meeting at which they agreed to levy economic sanctions against Russia on the grounds that it had threatened the alliance's security and violated principles of international law, the United Nations Charter, and several diplomatic agreements (NATO, 2022). Though polling data from the day of the invasion is hard to

find, a Pew (2022) poll from March 15 shows that American public opinion was so firmly in favor of punishing Russia that a high percentage of Americans still felt Biden had not retaliated strongly enough, even after his authorization of sanctions on Russia's central bank, National Wealth Fund, and Ministry of Finance on February 28.

This chain of events suggests the agenda setting pressure on the U.S. sanctions regime came from below, chiefly from NATO and to a lesser extent the public (Pew Research Center, 2022).

POLICY FORMULATION

Under the PE framework, an ideology of bounded rationality guides policy formulation toward incremental changes informed by similar existing and past policies. As a result, policy makers borrow tools from past policies and occasionally make incremental tweaks to confront new challenges.

This reasoning explains the U.S.'s approach to formulating its February 28 sanctions against Russia's central bank, National Wealth Fund, and Ministry of Finance. While it was an unprecedented innovation for the U.S. to seize billions of dollars of assets held by a central bank (U.S. Department of the Treasury, 2022), the U.S.'s choice to use the "blunt weapon" of sanctions (Mulder, 2022) to address the very specific policy problem of Russia's violation of Ukraine's sovereignty is redolent of past sanctions policies intended to punish aggressor states (Wright, 2022).

As explained by O'Toole and Sultoon (2019), sanctions are a primary tool of U.S. foreign policy because they are easy to authorize and implement quickly, powerful due to the U.S.'s global financial preeminence, and adaptable to a broad range of applications.

In the wake of Russia's invasion, the U.S.'s immediate interest was to deter Russia from continuing the war. Few policy tools powerful enough to slow the inertia of the massive Russian military machine would have been available except (1) intervening directly with NATO forces, (2) arming Ukraine with sufficient firepower to defend itself, or (3) leveraging the U.S.'s financial power to impose crippling economic sanctions on Russia. The latter option was preferable as an immediate response because it prevented the U.S from becoming

entangled in a military conflict with Russia and could be achieved far more quickly and cheaply than arming Ukraine.

By the time of Russia's invasion, Biden had already laid the strategic groundwork for the February 28 sanctions via Executive Order 14024 of April 15, 2021, which empowered the president to authorize sanctions against Russia after it had illegally interfered in the 2020 U.S. presidential election ("Blocking"). This equipped Biden a full arsenal of economic sanctions measures, including trade barriers, tariffs, and the restriction of financial transactions (asset freezing) for actors such as individuals, companies, and banks. Particularly powerful for the U.S. is its ability to leverage access to its own financial system, since around half of all international bank loans and debt securities are denominated in U.S. dollars, the top currency for invoicing cross-border transactions (Bank for International Settlements, 2020).

While formulating the U.S. sanctions response, some U.S. officials promoted replicating the "Iran model" (Wright, 2022). Some doubted that these Tehran-style sanctions would have a similar effect on Moscow, but others touted the model as the best example of effective sanctions (Maloney, 2014). Proponents pointed to the fact that the Iran sanctions had induced the election of a politically moderate Iranian president in 2013 who was willing to make concessions to the U.S. and eventually signed the Joint Comprehensive Plan of Action in 2015. But to label the "Iran model" an unqualified success would be self-evidently problematic, and one could reference the outcomes of the similarly comprehensive sanctions levied against Venezuela and North Korea to cast doubt upon its effectiveness.

Nevertheless, in response to Russia's invasion of Ukraine, the Biden administration had similar aims. Though not clearly articulated, experts gathered that these were to cripple the Russian economy as punishment for its violation of international law, create domestic pressure to delegitimize Putin's leadership, and deter Russia from continuing the war effort (Wong & Crowley, 2022).

POLICY ADOPTION

In the adoption stage of the February 28 sanctions against Russia, the PE framework is a useful reference point insofar as its limitations shine a spotlight on the stage's most defining elements: the contingent personalities of policy making actors. It is likely that the personality of the president was a deciding factor in the sanctions policy's specific targets and mechanisms, strategic goals upon adoption, and coordinated adoption alongside NATO allies, whose similar sanction policies compounded the impact on Moscow.

According to O'Toole and Sultoon (2019), there are typically three stages in the sanctions adoption process après formulation. First, the U.S. Treasury Office of Foreign Assets Control (OFAC) "selects targets and sanctions measures" to recommend to the president. The White House then crafts an executive order in consultation with the OFAC, Department of Justice, and Department of State. Finally, the president signs an executive order authorizing sanctions.

It is doubtful, however, that the traditional OFAC-led selection of targets and sanctions measures apply to this policy adoption process. On the one hand, some mechanisms of the policy were unique to the practices of the OFAC. The targeting of designated organizations as well as their subsidiary companies is one example (Friedlander et al., 2022). But according to the White House, the sanctions response was primarily characterized by "historically close coordination" (The White House, 2022) with NATO partners in the EU, who enacted similar sanctions on the same day as the U.S.

According to a February 26 statement by the European Commission (2022), EU sanctions against Russia's central bank aimed to "prevent the Russian central bank from deploying its international reserves in ways that undermine the impact of [the EU's] sanctions." A similar rationale, expressed in Biden's State of the Union Address (2022) and by other administration officials, guided U.S. sanctions, which were adopted with a few specific aims: to freeze central bank assets that would allow Russia to (1) rescue the ruble from capital flight by purchasing it at high prices with foreign exchange reserves; (2) pursue expansionary monetary policy by pumping liquidity into the economy to offset the dampened demand; and (3) fund the Russian war machine (Rappeport, 2022).

Close coordination between the U.S. and NATO allies via the EU—enabled by Biden’s foreign policy strategy to project American leadership abroad and unite NATO—resulted in a compounding effect of unprecedented sanctions against Russia’s chief financial institutions (Salama, 2022; Shear, 2022; Barnes & Cooper, 2019; Friedlander et al., 2022).

Finally, since President Biden had already signed an executive order in April 2021 authoring the OFAC to issue follow-up sanctions, the OFAC simply codified the February 28 sanctions by issuing directive 4.

POLICY IMPLEMENTATION

According to the PE framework, a policy change is sufficient if it achieves its aims and restores equilibrium to the system. But if the policy fails to restore equilibrium, it is insufficient. Applied to the U.S.’s February 28 sanctions against Russia, the PE framework reveals that the policy did cripple Russia’s financial institutions but failed to achieve the Biden administration’s broader aims, which were to deter Russia from continuing its military operation in Ukraine and force internal political transformation.

On February 28, the U.S. imposed primary sanctions on Russia’s central bank, National Wealth Fund, and Ministry of Finance, making it illegal for Russia to access the \$140 billion of foreign exchange reserves it held in accounts at the U.S. Federal Reserve and commercial banks under U.S. jurisdiction (Berner et al., 2022). Because these sanctions were enacted in lockstep with the EU and allies such as the UK, Switzerland, and Japan, over half of Russia’s \$630 billion of foreign exchange reserves were frozen concurrently (Funakoshi et al., 2022).

In China, there has been widespread worry that this international support for U.S. primary sanctions against Russia could embolden the U.S. to follow up with secondary sanctions against other actors who fail to observe them, as well. As a result, Chinese exports to Russia plummeted from over \$8 billion monthly at the end of 2021 to under \$4 billion in April (Sonnenfeld et al., 2022). Several Chinese banks have withdrawn all credit and financing from Russia since the start of the invasion, and energy giants such as Sinochem have suspended all Russian investments and joint ventures. By mid-

March, China's central bank had also refused to utilize its bilateral swap lines with Russia to quickly convert the Russian central bank's significant yuan holdings equal to \$77 billion into hard cash (Friedlander et al., 2022).

According to Berner et al. (2022) in March, "the damage done to the Russian economy and financial systems includes, but is not limited to":

A plunge of the ruble (by more than 25% versus the dollar over the past month amid heightened volatility); runs on domestic banks; a sharp hike in the central bank's policy rate; the imposition of capital controls; a shutdown of the Russian stock market; the collapse in the value of Russian companies traded on foreign stock exchanges; the removal of Russian equities from global indexes; and the collapse of Russia's sovereign credit rating to junk status."

All these effects suggest that U.S. sanctions have contributed significantly to the crippling of the Russian economy. But so far, they have not marked Putin's ouster or stopped Russia's invasion.

POLICY EVALUATION

Under the PE framework, the policy macrosystem receives negative feedback when its policy change restores equilibrium. But when a policy change is insufficient, positive feedback is received that triggers a "bandwagon effect" or "feeding frenzy" of additional policy changes. As predicted by this framework, the failure of the U.S.'s February 28 sanctions to halt Russia's invasion set loose a deluge of follow-up sanctions against Russian individuals, banks, and companies. In evaluating the initial policy, one could argue the sanctions would have more effectively incentivized Russia to undergo political transformation and end the war if they had been accompanied by clearer conditions under which they could be lifted. Instead, the sanctions have merely galvanized Russian nationalism and forced the U.S. to resort to a grand strategy of weakening Russia through attrition on the battlefield. This conclusion gets at the heart of criticisms against the efficacy of sanctions, which some maintain are a tool that is too blunt—and geopolitically polarizing—for frequent use.

Since February 28, the U.S. has enacted new rounds of sanctions to patch the holes in its initial policy. These measures have banned Russian ships from entering U.S. ports; frozen the assets of named Russian oligarchs, members of the state Duma, and bank executives; blocked trade with dozens of Russian defense companies; and even suspended Internal Revenue Service information exchanges with Russian tax authorities under a 30-year-old treaty (Funakoshi et al., 2022).

These efforts have failed to induce a shake-up of Russia's political leadership and made small progress on eroding Russia's military industrial complex. According to Russian state media and Ukrainian intelligence officials, sanctions have obstructed Russia's access to microchips and computer systems and significantly raised prices on components and materials such as armored steel, all of which are required to build weapons systems such as air defense batteries, tanks, and more (Altman, 2022). One report suggests these obstacles have resulted in the partial or total closure of over twenty "military enterprises." However, John Hardie, research manager at the Foundation for Defense of Democracies, is "skeptical about claims that sanctions... will meaningfully limit Russia's ability to prosecute the war in the short term."

Faced with the reality that Russia's political leadership is unsusceptible to economic pressure and its military machine cannot be stopped with sanctions anytime soon, the U.S. has shifted its grand strategy to weakening Russia through attrition on the battlefield. U.S. Defense Secretary Lloyd Austin confirmed this on April 25 during a trip to Kyiv, when he expressed a desire "to see Russia weakened to the degree that it can't do the kinds of things that it has done in invading Ukraine" (Mauldin & Grove, 2022). Billions of dollars of military aid in the form of modern howitzers, Soviet-era helicopters, and more has since arrived in Ukraine, and more continues to flow (Gedeon, 2022).

Drezner (2022) suggests the February 28 sanctions would have more likely achieved political change and battlefield concessions if they had been accompanied by a stipulation of conditions under which they could be lifted. This is a fundamental element of sanctions policy that gives them "coercive impact," Drezner writes. Instead, many of the Russian people have interpreted them as a Western attack on the very Russian way of life. This perception has

stoked Russian nationalism in a conflict whose systematic killings of Ukrainian civilians and destruction of Ukrainian cultural artifacts is already indicative of ethnic cleansing (Human Rights Watch, 2022; We Are Ukraine, 2022). Russian Foreign Minister Sergei Lavrov has even gone as far as to redesignate the conflict as a “proxy war” between the peoples of Russia and the West (Marson, 2022).

That these sanctions could result in a counterintuitive “rally-around-the-flag” effect is grounded in much precedent—both recent and historical. The effect was not only observable in the Russian public’s response to sanctions levied after Russia’s 2014 annexation of Crimea, but also in pre-World War II Germany and Italy, as Mulder (2022) writes (Seitz & Zazzaro, 2020). In the latter contexts, severe sanctions exacerbated surging “nationalism, fear-mongering, and violent racism,” along with “ideals of cultural unity, historic rights to territory, and promises of self-determination and social transformation.”

Herein lies the fundamental criticism of the U.S.’s blunt tool of sanctions: they may be effective, but do they have efficacy? “From the available data, the history of sanctions is largely a history of disappointment,” Mulder (2022) writes, adding that “stitching animosity into the fabric of international affairs and human exchange is of limited use in changing the world.” In an increasingly multipolar world order, some worry that sanctions might, in fact, be “something more tremendous than war,” as Woodrow Wilson said, threatening to fracture the post-World War II global economic order into politically divided blocs (Posen, 2022).

CONCLUSIONS AND RECOMMENDATIONS

The PE framework predicted many elements of the policy process of the U.S. sanctions response to Russia’s February 2022 invasion of Ukraine. After a long period of stasis in NATO member states’ economic policies toward Russia, the war in Ukraine upended the policy image beheld by the NATO subsystem and forced a sudden, dramatic, and serially processed sanctions policy change from the White House macrosystem to restore equilibrium. As the PE framework anticipated, the resulting February 28 sanctions were insufficient to achieve the Biden administration’s wider aims beyond hamstringing Russia’s economy, resulting in positive feedback from

the policy environment and a bandwagon effect of follow-up policy changes intended to better restore equilibrium.

But the PE framework failed to account for how the contingent personalities of policy actors could determine the makeup of the policy macrosystem and subsystems, where President Biden's multilateral approach to international affairs—contrasted with his predecessor's isolationism—proved decisive to the sanctions' effectiveness. Future research might determine how to incorporate this variable into the framework.

Furthermore, the insufficiency of the U.S.'s initial and follow-up sanctions opens a wider discussion about the efficacy of sanctions more broadly, which, in this case, seem to have merely stoked Russian support for the war in Ukraine. Articulating clearer circumstances under which sanctions like these can be lifted would provide more concrete incentives for sanctioned states to cooperate.

A growing literature on sanctions warns their continued use in this blunt manner risks rearranging channels of global trade and finance into discrete blocs, where allied Western democracies form one bloc and China, its major trading partners in East Asia, and other allied pariah states including Russia form another. The U.S.'s recent sanctions against Russia could form a testing ground for this theory.

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Shots Fired: A Spatiotemporal Analysis of Gun Violence in the City of Philadelphia, 2015-2019

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ABSTRACT

Gun violence is one of the leading causes of premature death in the United States, and is an issue that disproportionately affects urban areas. I combined multiple data sources, including Philadelphia Police Department and American Community Survey data to analyze the distribution of shooting incidents in Philadelphia over a five-year period from 2015-2019. To examine temporal trends within the data, a series of plots were produced to reveal seasonal, monthly, daily, and hourly patterns in shooting incidents across the city. Global and local clustering analysis was also performed, utilizing Ripley's K function and local indicators of spatial association (LISA) to examine geographic variation in shooting incidence rates and to identify hotspot and coldspot clusters within the city limits. My findings indicate that while the number of shootings remained fairly stable over this five-year period, there was a degree of seasonal variation in the frequency of shooting incidents, with a higher number of shootings observed during summer months. Similarly, incidents were predominantly confined to non-daylight hours. In terms of spatial patterns, global spatial analysis indicated significant clustering of shooting incidents across the study area. Univariate local spatial analysis identified 156 hotspot clusters and 364 coldspot clusters. Analysis of hotspot clusters also revealed that shootings were concentrated in census block groups with a higher percentage of 18-24 year olds, higher poverty levels, lower educational attainment, and census block groups with a higher percentage of non-Hispanic Black residents.

BACKGROUND

Gun violence is one of the leading causes of premature death in the United States. Each year, more than 39,000 individuals die as a result of firearm incidents (Centers for Disease Control and Prevention [CDC], 2005). Tens of thousands more experience non-fatal firearm injuries (CDC, 2005). While the incidence of gun-related deaths declined significantly during the early 1990s to the mid-2000s, the U.S. has recently experienced a significant increase in the rate of gun-related deaths. In 2020, there were 13.6 gun deaths per 100,000 population — the highest rate observed since the mid-1990s (Gramlich, 2022). Among these deaths, 6.2 deaths per 100,000 were attributable to gun-related homicides (Gramlich, 2022).

While these national figures are indicative of the overall level of gun-related violence in the U.S., they obscure the fact that such violence is often a very localized phenomenon. For example, other studies have shown that gun violence is often clustered in urban centers among poorer neighborhoods and communities of color (Kellermann et al., 1996; Morenoff et al., 2001; Harper et al., 2007). Prior research also indicates that gun violence is often heavily concentrated within small social networks, predominantly among young males (Papachristos et al., 2012; Papachristos et al., 2014).

This study focuses exclusively on reported incidents of gun violence occurring in Philadelphia, Pennsylvania from 2015-2019, a place where gun violence has become endemic. According to the latest FBI data, Philadelphia ranks 25th among U.S. cities with the highest gun homicide rates (Federal Bureau of Investigation, 2022). Furthermore, more recent Philadelphia Police Department data suggest that the city is likely to set an all-time record for the number of shooting incidents in 2022 (Philadelphia Police Department, 2022). Thus, gun violence remains a key public health concern within the city.

The objectives of the study are two-fold: (1) to utilize various sources to analyze temporal and spatial patterns in gun violence in Philadelphia; and (2) to analyze the demographic, socioeconomic, and contextual factors associated with these patterns, both at a city-wide and census block group scale.

By conducting these analyses, I hope to assist policymakers in identifying which populations are most at risk of gun violence within the city of Philadelphia.

METHODS

STUDY AREA

The city of Philadelphia is situated in the south-eastern corner of Pennsylvania, and is currently the sixth largest city in the U.S., with a population of approximately 1.6 million people (U.S. Census Bureau, n.d.). According to the 2019 American Community Survey (ACS) 5-year estimates, median household income in the city was \$45,927 (compared to \$62,843 nationwide). Similarly, the percentage of Philadelphians living in poverty was estimated at 24.3%, compared to 11.6% among the U.S. population. The city is also racially and ethnically diverse, with almost an equal percentage of Non-Hispanic Black and White residents (42.1% and 40.7%, respectively), along with a significant Hispanic population (10.2%) (U.S. Census Bureau, 2019).

DATA COLLECTION & PROCESSING

Philadelphia Police Department shooting data were obtained via the Open Data Philly portal (Philadelphia Police Department, 2022). These data are publicly released by the Philadelphia Police Department on a daily basis and contain data on all reported shooting victims, including criminal and officer-involved shootings. Each incident record contains location information, including the address (generalized to the block level) and associated geospatial information (specifically, the latitude and longitude coordinates associated with each block address); the date and time of the incident; the sex, age, and race of the victim; the types of injuries sustained; and whether incident was fatal or non-fatal. For the purpose of analyses described herein, observations without geospatial information (i.e., latitude or longitude coordinates) or temporal information (i.e., date and time) were excluded. This left 6,272 unique shooting incidents.

Census block group geometries were also obtained from the U.S. Census Bureau utilizing the *tigris* package in R (Walker, 2016). A

spatial join was then performed to match census block groups with each shooting incident.

To identify sociodemographic characteristics corresponding with each of the census block groups, I utilized ACS 2015-2019 5-year estimates. These data comprise demographic information, including population estimates by age, sex, and specific racial/ethnic groups. ACS data obtained also included the socioeconomic characteristics of each census block group, including indicators for education, income, and poverty. All ACS data were downloaded directly from the U.S. Census Bureau server utilizing the *tidycensus* package in R (Walker & Herman, 2022).

Utilizing the merged shootings dataset, I then computed the average number of firearm incidents occurring in each census block group over the five-year study period. Five-year incident rates were calculated to provide the average annual number of shooting incidents per 100,000 population for each census block group.

Finally, the total number of shootings across the entire study area were summarized by month, day of the week, and hour of the day for the purpose of the temporal analyses discussed herein.

TEMPORAL ANALYSIS

Temporal trends in the data were analyzed by examining the frequency of, and variance in, shooting incidents across the entire study area over the duration of the study period. A series of plots were produced to allow for visual examination of these trends.

GEOSPATIAL ANALYSIS

Utilizing the merged shooting dataset, I first examined the spatial distribution of firearm incidents by generating a series of maps: (i) a kernel density map, displaying the estimated kernel density of shooting incidents within the study area; and (ii) a choropleth map (utilizing Jenks natural breaks) to illustrate the distribution of five-year shooting incident rates across census block groups.

I then performed global and local clustering analysis to further examine the geographic variation in shooting incident rates within

the study area, with the aim of determining spatial dependence and identifying hotspot clusters. Global cluster analysis was performed utilizing Ripley's reduced second moment (K) function. This tests the point distribution against the null hypothesis that the points are distributed randomly and independently (Dixon, 2012; Marcon et al., 2013). Similarly, local clusters were determined based on Anselin's (1995) local indicators of spatial analysis (LISA), utilizing the Local Moran's I tool in GeoDa (Anselin et al., 2006). Each of these clustering methods is described further below.

GLOBAL SPATIAL ANALYSIS: RIPLEY'S K FUNCTION

Ripley's K function is a spatial clustering method that summarizes the spatial dependence (i.e., feature clustering or feature dispersion) over a range of distances. The K function $\hat{K}(r)$ — or technically it's sample-based estimate — is equal to the ratio of the number of neighboring points observed within a given distance of each point and the density of points, λ . Density can be estimated as $\hat{\lambda} = N/A$, where N is the observed number of points and A is the area of the study region. The estimated $\hat{K}(r)$ function is shown in Equation 1:

$$\hat{K}(r) = \hat{\lambda}^{-1} \sum_{i=1}^n \sum_{j \neq i}^n w(l_i, l_j)^{-1} \frac{I(d_{ij} < r)}{N} \tag{1}$$

where r is the radius of a test circle, d_{ij} is the distance between the i – th and j – th points, and $I(x)$ is an indicator function with the value 1 if x is true and 0 otherwise. The weight function $w(l_i, l_j)$ provides edge correction. It has a value of 1 when the circle centered at l_i and passing through point l_j (i.e., with a radius of d_{ij}) is completely inside the study area. If part of the circle falls outside the study area, then $w(l_i, l_j)$ is the proportion of the circumference of that circle that falls inside the study area (Dixon, 2012).

As the K function is calculated at multiple distances, it is able to demonstrate how point-pattern distributions change with scale by comparing observed and expected distributions of points around an index point within circles of different sizes. Under complete spatial randomness (CSR), the density of points is uniform. However, if the observed estimate of the K function lies above the theoretically expected envelope, this indicates that the points are clustered at

every distance across the study area. Conversely, if the estimate of the K function falls below the expected envelope, then this indicates that the points are dispersed.

Prior to calculating Ripley’s K function, incident data were converted into a spatial polygons dataframe object and projected using the Universal Transverse Mercator (UTM) coordinate system. This was in turn converted into a point pattern object in R. As part of the analysis, I conducted a Monte Carlo simulation (utilizing the envelope and Kest functions from the spatstats package in R) to generate pointwise envelopes from 99 simulations of CSR (Baddeley et al., 2022).

LOCAL SPATIAL ANALYSIS: LISA

One of the limitations of Ripley’s K function is that it is a measure of global spatial dependence; that is, it does not allow for the identification of local clusters (or so-called hotspots). To determine which census block groups were similar or different from neighboring block groups, I utilized local indicators of spatial association (LISA) to identify local cluster patterns or spatial outliers (Anselin, 1995). Specifically, in this instance, the local Moran’s I statistic was calculated using GeoDa to assess local spatial autocorrelation. For each observation i , the local Moran’s I statistic was calculated as follows:

$$I_i = \frac{z_i}{m_2} \sum_j w_{ij} z_j \ ; \ m_2 = \frac{\sum_i z_i^2}{n} \tag{2}$$

where z_i is the deviation from the mean, z_j is the deviation from the mean for a neighboring area j , m_2 is the sample variance, w_{ij} is the spatial weight for the pair of observations i and j , and n is the number of observations.

The resultant statistics were then used to produce a LISA cluster map in GeoDa. In practice, spatial autocorrelation for each census block group was evaluated in terms of five categories: (i) high-high; (ii) low-low; (iii) low-high; (iv) high-low; and (v) not significant. Block groups were evaluated as high-high if they had a high shooting incident rate and neighboring block groups also had high incident rates (i.e., indicative of a hotspot). Conversely, block groups were

evaluated as low-low if they had low incident rates and were surrounded by neighboring block groups that also had low rates (i.e., denoting a coldspot). Where block groups were evaluated as low-high and high-low, this indicates negative spatial autocorrelation; that is, there was a disparity between this census block group and neighboring block groups.

Once local spatial clusters were determined, I also plotted summary statistics for hotspot versus coldspot clusters to compare the relationship between shooting incident rates and various socio-demographic characteristics, namely the percentage of the population aged between 18-24, educational attainment, income and race/ethnicity. These characteristics were chosen because they have previously been associated with gun violence and firearm mortality (Kellermann et al., 1996; Morenoff et al., 2001; Harper et al., 2007).

RESULTS

From January 1, 2015 to December 31, 2019 there were 6,272 reported shooting incidents in the city of Philadelphia, 1,273 of which resulted in fatalities.⁶ Table 1 provides summary statistics about these incidents.

In terms of temporal trends, the number of shooting incidents remained fairly stable over this five-year period (Figure 1A), although there was a degree of seasonal variation in the frequency of shooting incidents, with a relatively higher number of shootings observed during summer months (Figure 1B). Heatmaps of firearm incidents by day of the week and hour of day also reveal a higher number of shootings during non-daylight hours, i.e., late-evenings and the early-hours of the morning (Figure 1C).

⁶ Note: these figures do not include reported incidents that were excluded due to missing data (see Data Collection & Processing section above for further details).

Table 1. Summary of shooting victims, Philadelphia 2015-2019

	Frequency (%)
Total no. of incidents	6,272
Outcome	
Fatal	1,273 (20.3%)
Non-Fatal	4,999 (79.7%)
Sex	
Male	5,746 (91.6%)
Female	526 (8.4%)
Age	
<18	485 (7.7%)
18-24	2,289 (36.5%)
25-34	2,070 (33.0%)
35-44	821 (13.1%)
45-55	382 (6.1%)
55-64	150 (2.4%)
65+	51 (1.0%)
Unknown	24 (<1%)
Race/Ethnicity*	
White	1,042 (16.6%)
Black	5,182 (82.6%)
Asian	48 (0.1%)
Other/Unknown	0 (0.0%)

**Race/ethnicity is only classified as “White,” “Black,” “Asian”, or “Other/Unknown” within the dataset.*

Figure 1A. Frequency of shooting incidents by month

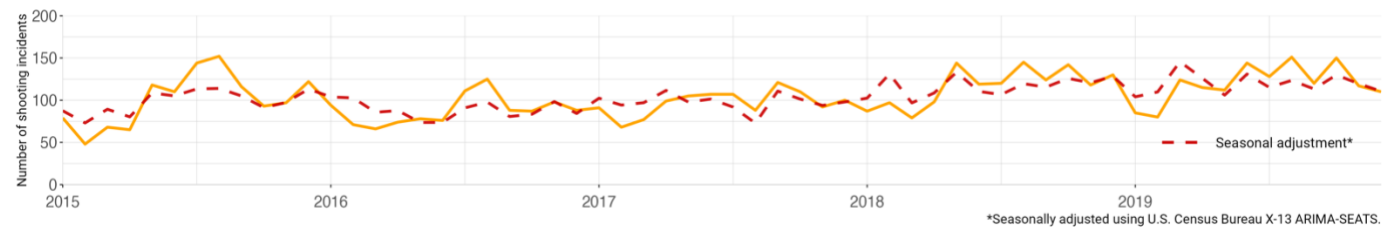


Figure 1B. Cumulative frequency of shooting incidents by month

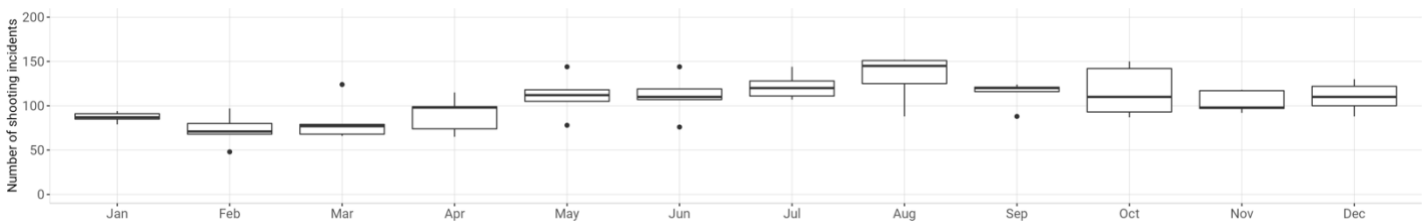
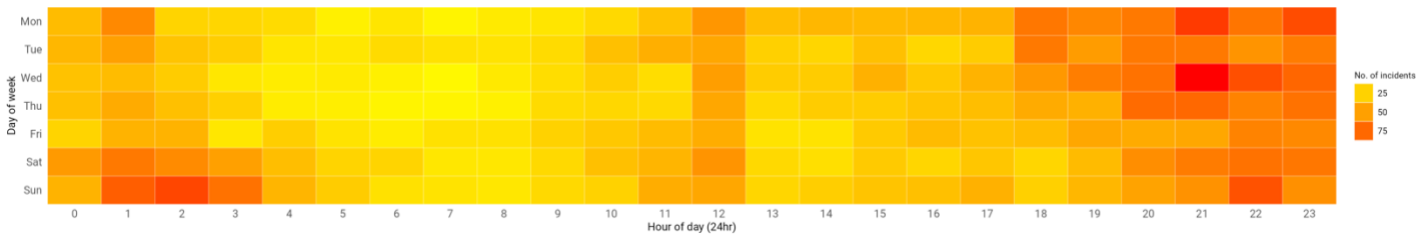
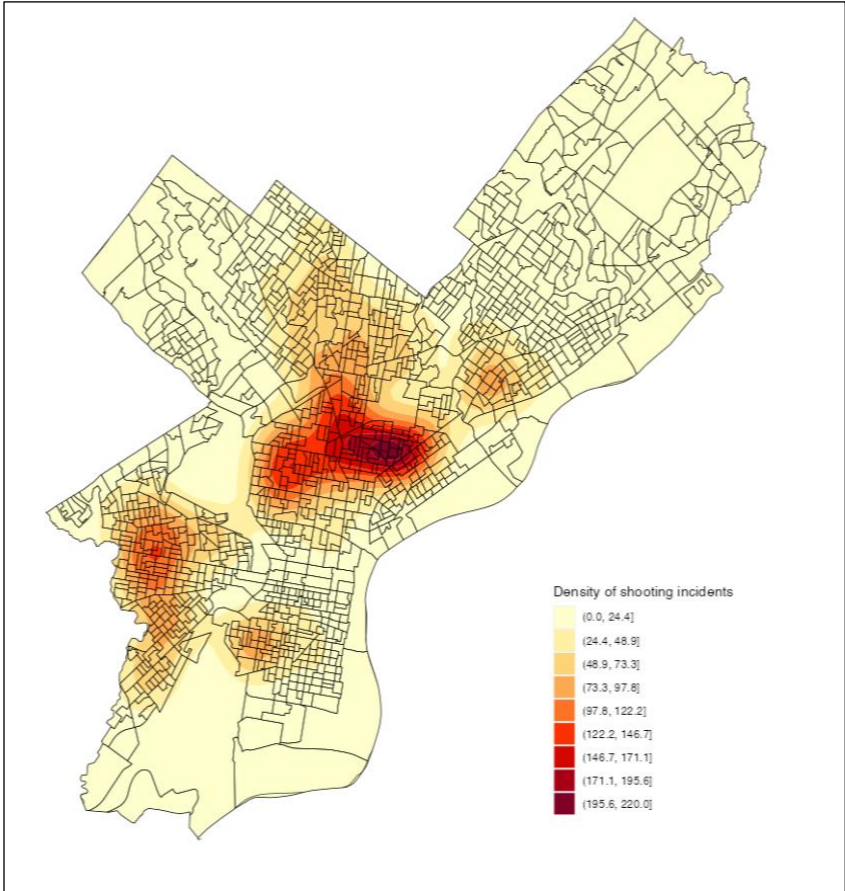


Figure 1C. Heatmap of shooting incidents by day of week and hour of day



In terms of the spatial trends observed within the data, the kernel density map shown at Figure 2 reveals clear evidence of clustering of shooting incidents within the city, with particularly high densities observed in north and west Philadelphia. The neighborhoods worst affected include East and West Kensington, Glenwood, North Philadelphia East, North Philadelphia West, West Philadelphia, Haddington, and Cobbs Creek.

Figure 2. Kernel density map of shooting incidents in Philadelphia, 2015-2019

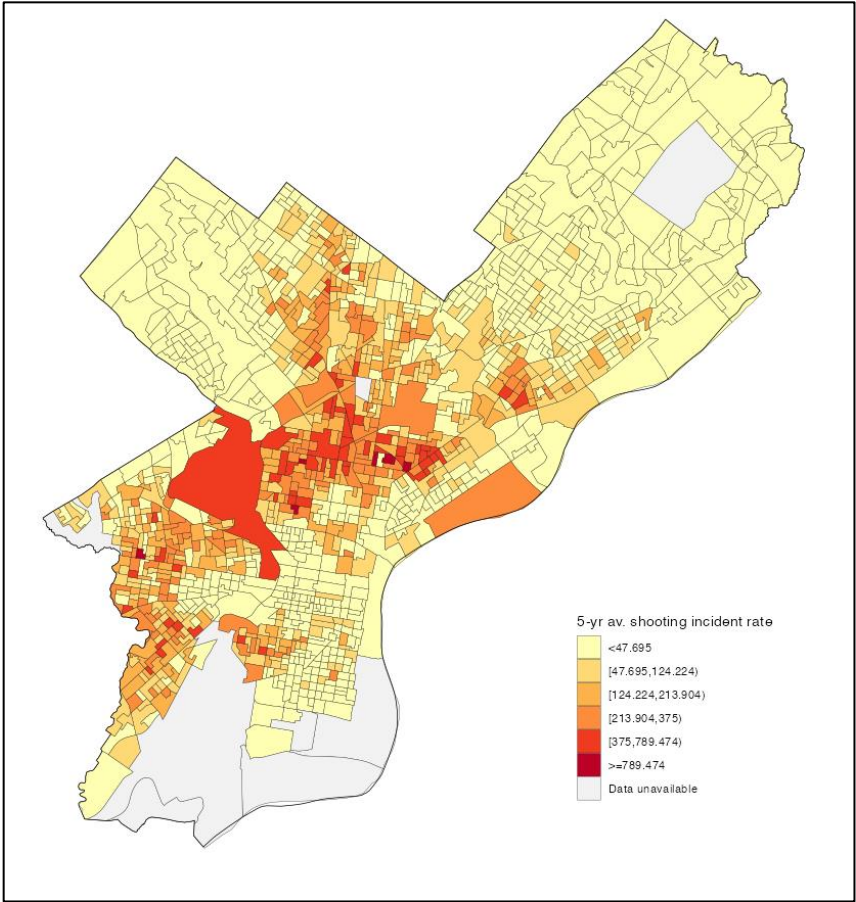


Note: all rates shown are per 100,000 population.

Similarly, Figure 3 shows five-year average shooting incident rates by census block group as determined by the Jenks natural breaks method. Again, I witnessed a very similar pattern, with the highest incident rates observed in north and west Philadelphia. Two census

block groups that experienced relatively high incident rates (that were not highlighted in the kernel density map shown at Figure 2) are Block Group 1, Tract 9800.02 and Block Group 3, Tract 378, which encompass the areas of Fairmount Park and the Port Richmond Rail Yards, respectively. This is largely a function of the fact that both of these block groups include areas with relatively small populations, thus inflating incident rates. There were also several census block groups where ACS population estimates were not available, therefore, incident rates could not be calculated. These census block groups are labelled accordingly in Figure 3.

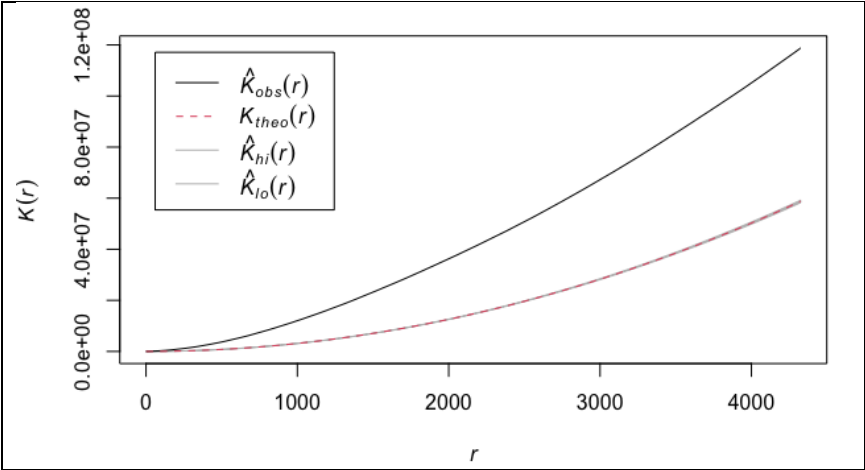
Figure. 3. Shooting incident rates by census block group in Philadelphia, 2015-2019



Note: all rates shown are per 100,000 population.

Figure 4 reveals the result of the global spatial analysis. As the estimate of the observed K-function (i.e., the solid black line shownn in Figure 4) falls above the theoretical envelope of K generated by the Monte Carlo simulation, there is clear evidence of a clustered pattern of shootings at every distance across the city.

Figure 4. Ripley’s K function for shooting incidents in Philadelphia, 2015-2019



Similarly, the univariate LISA cluster map (Figure 5) reveals the level of local spatial autocorrelation within the data. As noted above, each census block group was evaluated in terms of five categories: (i) high-high; (ii) low-low; (iii) low-high; (iv) high-low; and (v) not significant. Block groups were evaluated as high-high if they had a high shooting incident rate and neighboring block groups also had high incident rates (i.e., indicative of a hotspot). Conversely, block groups were evaluated as low-low if they had low incident rates and were surrounded by neighboring block groups that also had low rates (i.e, denoting a coldspot). Where block groups were evaluated as low-high and high-low, this indicates negative spatial autocorrelation; that is, there was a disparity between this census block group and neighboring block groups.

Where block groups were evaluated as low-high and high-low, this indicates negative spatial autocorrelation; that is, there was a disparity between this census block group and neighboring block groups. In total, I identified 156 high-high clusters (i.e., hotspots), 364 low-low clusters (i.e., coldspots), 30 low-high clusters, and 9 high-low clusters. The remaining 769 census block groups were not significantly associated with their neighbors, indicating that incident rates in these block groups were randomly distributed.

Figure 5. Univariate LISA cluster map of shooting incidents in Philadelphia, 2015-2019

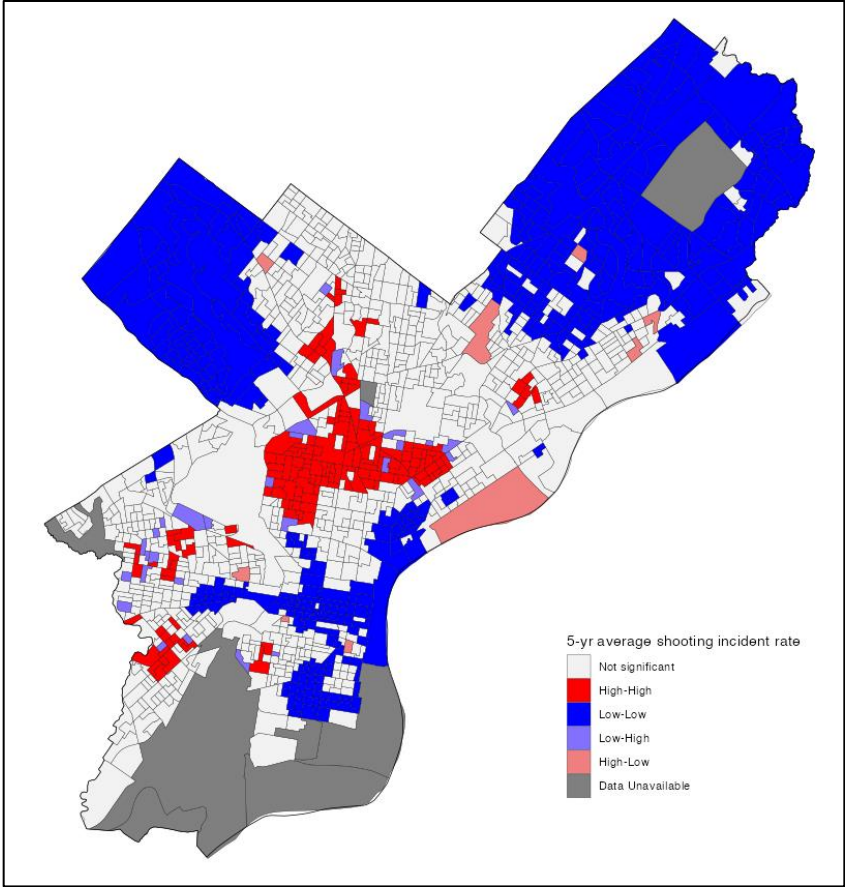


Figure 6 provides a comparison of various socio-demographic characteristics for hotspots versus coldspots. The dashed line in each sub-plot also indicates the median value observed across all

census block groups for that particular characteristic. My findings indicate that hotspots were located in census block groups with a relatively high proportion of 18-24 year olds, lower educational attainment levels, higher poverty levels, and a higher proportion of non-Hispanic Black individuals. Conversely, while coldspots also had populations with a greater share of 18-24 year olds compared to the median across all census block groups, they otherwise had contrasting sociodemographic characteristics to hotspot clusters. In particular, coldspot clusters were found in census block groups with above-median educational attainment levels and below median-poverty levels. Similarly, the racial makeup of coldspot clusters stood in stark contrast to hotspot clusters. The mean percentages of non-Hispanic White and non-Hispanic Black residents among census block groups located within coldspot clusters were (65.5% and 12.3%, respectively, compared with 4.44% and 69.0% among census block groups located within hotspot clusters).

DISCUSSION

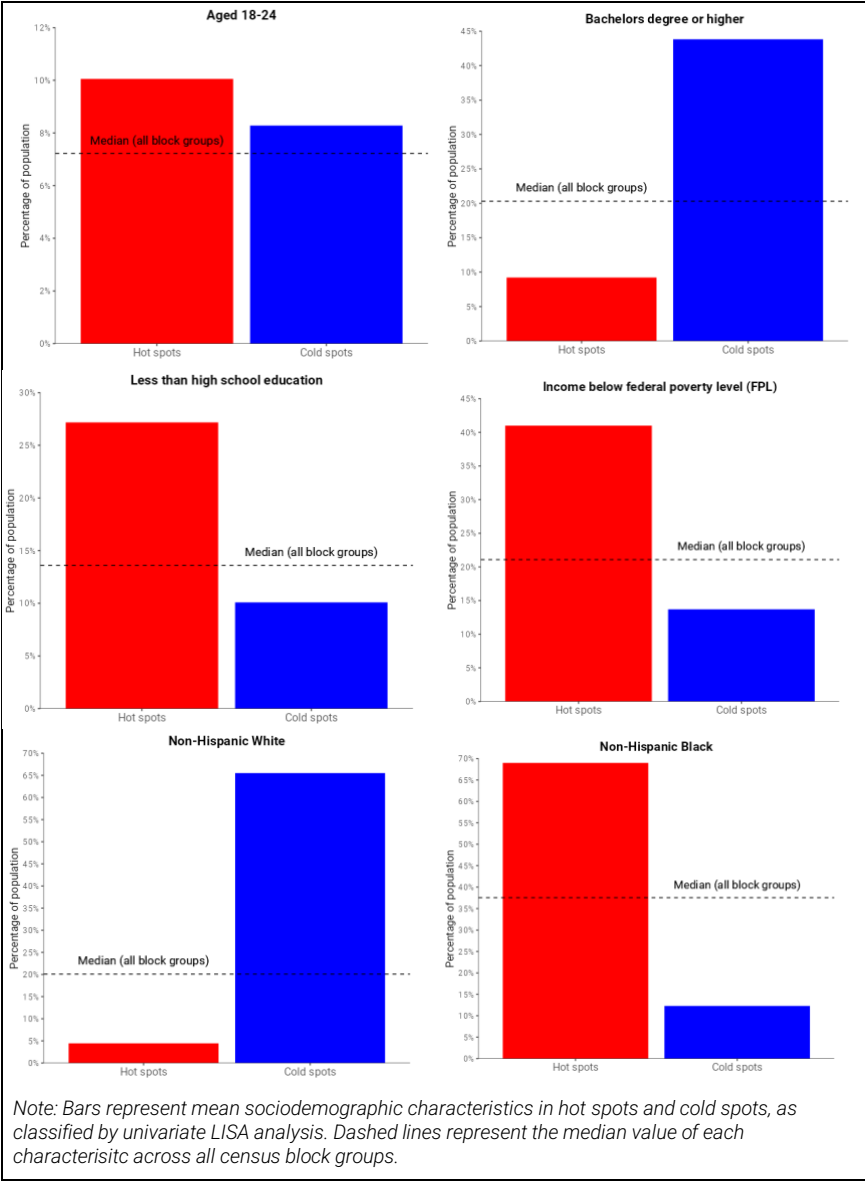
This study has demonstrated how various data sources can be combined to examine temporal and spatial patterns in shooting incidents in Philadelphia, both at city-wide and census block group scales.

While temporal analysis revealed that the volume of shooting incidents remained relatively stable from 2015-2019, spatial analysis indicated that certain areas of Philadelphia — in particular, north and east Philadelphia — were disproportionately affected by gun violence. Given the geographic heterogeneity observed, it is clear that some populations are substantially more at risk than others in terms of witnessing gun violence.

In addition to assessing the concentration of firearm incidents across the city, this study has also assessed socio-demographic characteristics of shooting hotspot and coldspot clusters. My findings indicate that shootings were concentrated in block groups with a higher percentage of 18-24 year olds, higher poverty levels, lower educational attainment, and census block groups with a higher percentage of non-Hispanic Black residents. These results

are consistent with findings relating to other locations (Kellermann et al., 1996; Morenoff et al., 2001; Harper et al., 2007).

Figure 6. Sociodemographic characteristics of hotspot and coldspot clusters



In terms of policy implications, the concentration of firearm incidents within particular Philadelphia neighborhoods suggests that there is a need for more focussed and effective delivery of police

and public safety services in these areas of the city. Potential measures that could be explored include the use of “place network investigation” techniques, which focus on identifying and disrupting crime-place networks (Lum et al., 2022; National Academies of Sciences, Engineering, and Medicine, 2018), along with further direct deployment of police in crime hot spots (Braga et al., 2012). Research has also demonstrated that improving the environmental condition of neighborhoods may help reduce serious crime and gun violence (MacDonald et al., 2019). Such measures include improving street lighting, cleaning up vacant lots, and remediating abandoned housing.

The findings presented here need to be considered within the context of this study’s limitations. Firstly, it should be noted that this study is ecological; that is, it does not explain the root causes of gun violence and merely provides an indication of the sociodemographic characteristics of Philadelphia neighborhoods that witnessed high shooting incident rates. Secondly, the underlying data only reflect reported incidents of gun violence observed within the city therefore they do not represent an exhaustive record of gun violence in Philadelphia. Thirdly, as with all geospatial studies, the results are sensitive to the spatial units employed. Although census block groups are the second-smallest unit for which sociodemographic data were available, they do not necessarily reflect the scale at which these social processes occur. Other, more finely-grained spatial microunits, such as street blocks, may be more appropriate for capturing these urban social processes. Finally, these findings only provide a snapshot of shooting incidents over a five-year period. Although my findings suggest that the frequency of shooting incidents remained fairly stable from 2015-2019, these trends may not hold in the future. Indeed, initial evidence already suggests suggest that gun violence may in fact have surged during the COVID-19 pandemic (MacDonald et al., 2022).

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The Effect Of The Big Five Personality Traits On Support For Mask Mandates

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ABSTRACT

Recent research around the public's response to the COVID-19 pandemic has created an opportunity to understand how personality shapes policy preferences. In this thesis, I examine how the Big Five personality traits shape public support for mask mandates to combat the COVID-19 pandemic. I construct a theoretical framework in which I describe how four key traits either influence individuals to support or oppose mask mandates. Combining existing literature about the Big Five personality traits with recent studies related to pandemic precautions, I argue that four of the five traits should affect opinions of mask mandates. Using nationally representative public opinion survey data, I construct several regression models that provide evidence suggesting that higher levels of the agreeableness trait contribute to increased support for mask mandates. Additionally, one of the models suggests that higher levels of openness to new experiences contributes to a greater emphasis on mask mandate policy in the 2022 midterm election. This study provides validation for the inclusion of personality traits in public policy research, suggesting that personality can account for variation in policy support even when controlling for partisanship.

INTRODUCTION

The COVID-19 pandemic has upended much of the American public's preconceived notions of what their relationship with government should look like. From stimulus checks to vaccine mandates, national, state, and local governments have implemented a vast array of policies to combat the pandemic. One of the most notable new policies undoubtedly has been mask mandates, which require all individuals to cover their faces in businesses, public

spaces, and at times even the outdoors. While some have supported mask mandates as a necessary precaution to end the pandemic, others have condemned them as ineffective or authoritarian (Congressional Digest, 20210).

The factors influencing an individual's support for mask mandates are complex and multifaceted, as with any other policy area. However, with party polarization on the rise in the United States, many have been quick to point to partisan identity as the primary factor influencing support for mask mandates (Adolf et al., 2020). Other scholars suggest the explanation may not be that simple. While the partisan split on pandemic restrictions in the U.S. involves Democrats expressing more willingness to support lockdowns than Republicans, other countries such as Israel have seen the reverse, as the right-wing parties support further restrictions while the left-wing parties protest them (Ayyub, 2020). Partisanship could still be the primary driver of these differences, but the variation across countries suggest other factors could play a role. Polls from the U.S. have confirmed this trend, suggesting that a significant minority of Republicans support mask mandates, while other factors such as population density may play a role in determining an individual's support for the policy (Jackson et al., 2021).

Due to the uncertainty and novelty of mask mandates, exploring individual factors that develop prior to party identification, such as personality traits, is crucial. Specifically, this study examines how the Big Five personality traits influence support for mask mandates. The Big Five are ideal to evaluate because they are present to varying degrees in everyone, change very little over time, and do not overlap (Diener & Lucas, 2019). They have also been validated thoroughly and have been shown to predict political behavior. Thus, they could have some influence on an individual's support for mask mandates.

LITERATURE REVIEW

THE BIG FIVE PERSONALITY TRAITS

In order to understand how the Big Five traits influence support for mask wearing, one must understand the Big Five personality traits and the concept of personality more generally. Personality represents a person's characteristic patterns of thoughts, feelings,

and behavior that are stable over time (Diener & Lucas, 2019). Personality traits are specific types of individual characteristics, and they are often combined through factor analysis to create a few broad traits that are theoretically independent of each other. These personality traits should appear at varying levels within all people, meaning that researchers can objectively evaluate anyone across the world for the traits (Diener & Lucas, 2019).

One of the most common factored trait models, the Big Five, uses five factored traits to predict individual behavior: extraversion, agreeableness, conscientiousness, openness to new experiences, and neuroticism. Extraversion measures an individual's tendency to be talkative, sociable, and assertive. Agreeableness measures an individual's tendency to agree with others rather than assert themselves. Conscientiousness measures an individual's tendency to work hard, follow rules, and be careful. Openness to new experiences measures an individual's tendency to appreciate, understand, and accept new concepts. Finally, neuroticism measures an individual's tendency to experience mood swings and negative emotions such as anger, anxiety, and sadness (Diener & Lucas, 2019).

Agreeableness is the main trait involved in prosocial behaviors, and it often describes individuals who are altruistic, straight-forward, trusting, soft-hearted, modest, and compliant (Carlo et al., 2005). Graziano and Tobin (2002) note that agreeableness is not easily manipulated by self-favoring biases, meaning agreeableness measures are valid and do not just reflect how participants want to be seen. In the context of politics, agreeableness has been found to be associated with both liberals and conservatives (Hirsh et al., 2010). Liberals are associated with the compassionate side of agreeableness, which is related to empathy and interpersonal concern. Conservatives are associated with the politeness aspect of agreeableness, which is related to norm compliance and traditionalism. In addition, Furnham and Fenton-O'Creevy (2018) found that agreeableness intersects with class, as wealthier individuals who possess strong levels of agreeableness are more likely to be left-leaning, while agreeableness does not predict lower income individuals' likelihood of being left-leaning.

Conscientiousness relates to organization, persistence, and ambition, and it is associated with self-oriented perfectionism (Stoeber et al., 2009). Analysis of its sub traits demonstrates that the strongest elements of conscientiousness are industriousness, perfectionism, and organization (MacCann et al., 2009). In politics, researchers have found a negative association between conscientiousness and political interest (Furnham and Fenton-O'Creevy 2018). Conscientiousness is also associated with right-wing politics (Furnham & Fenton-O'Creevy, 2018). In addition, Lawson and Kakkar (2020) found that conscientiousness correlates with a decrease in the sharing of fake news among conservatives (i.e., among low conscientiousness people, conservatives are more likely to spread fake news, while among high conscientiousness people neither conservatives nor liberals are more likely to spread fake news).

Openness to new experiences is marked by broad interests, preference for novelty, inquisitiveness, and imagination (Nusbaum & Silvia, 2011). Academics differ over whether to see this trait primarily in terms of intellect (based on aspects such as intellectual curiosity and quick thinking) or openness (fantasy, aesthetics, feelings, ideas, etc.). One argument against the intellect side is that it does not correlate well enough with intelligence scales. However, openness to new experiences is correlated with deep learning (i.e. learning academic material due to interest in it rather than to pass the class or compete with others) (Chamorro-Premuzic & Furnham, 2009). In politics, openness to new experiences has been associated with being more left-leaning, more active in political protesting, and possessing an interest in politics (Furnham & Fenton-O'Creevy, 2018). It is generally associated with an interest in political issues and taking part in political events.

Neuroticism is associated with experiencing negative emotions, responding poorly to environmental stress, interpreting situations as threatening, and being overwhelmed by frustration (Widiger & Oltmanns, 2017). It predicts many forms of mental health issues such as anxiety disorders, mood disorders, and eating disorders. Substance abuse issues may also be traced to neuroticism due to a need to suppress the negative emotions. It is associated with physical problems such as heart issues as well as social problems such as marital issues, and neuroticism not only predicts the actual

problems themselves but also the subjective feeling that the problems exist. In politics, neuroticism has been found to be associated with right-wing ideology among lower class people and left-wing ideology among higher class people (Furnham & Fenton-O'Creevy, 2018). It also has been found to negatively correlate with life satisfaction (Burton, 2015).

MASK WEARING BEHAVIOR

The aforementioned five traits clearly influence how people interact with politics, so naturally, these traits should influence how people form opinions on issues like mask mandates. No studies have examined the relationship between the Big Five traits and support for mask mandates, but several studies have assessed how the traits influence masking behavior and compliance with mandates. An important distinction between compliance and support exists: some people such as those who exhibit more rule following behavior, may choose to comply with mask mandates without necessarily supporting them. However, there may be a link between masking and support for mandates, as researchers have already studied how the Big Five personality traits influence mask wearing behavior (Barceló & Sheen, 2020; Wilroth et al., 2020; Clark et al., 2020).

PERSONALITY AND MASKING

Three groups of researchers have studied personality and masking. Barceló and Sheen (2020) conducted a study using survey data collected from interviews of Spanish participants. Wilroth et al. (2020) surveyed two samples of people from the United States. Finally, Clark et al. (2020) studied an online survey of a global sample. The results of these studies were mixed, as Barceló and Sheen (2020) found that only extraversion was significant; Clark et al. (2020) found that agreeableness and conscientiousness were significant; and Wilroth et al. (2020) found that extraversion, agreeableness, conscientiousness, and openness to new experiences were all significant.

While not entirely in agreement, these data seem to suggest that at least extraversion and agreeableness are significant predictors of mask wearing behavior in response to the Covid-19 pandemic.

These compliant individuals may not support the mask mandates, as this behavior does not imply underlying support and, in addition, many of these participants may have masked for a variety of other reasons. Furthermore, only one of the studies was conducted using a sample entirely based in the United States, meaning it is the only one that directly applies to the U.S. political context.

OPPOSITION TO MASKING

Scholars have also investigated the motivation behind opposition to wearing masks. One study looking at Twitter posts found that people who opposed mask use cited physical discomfort, lack of effectiveness, and the mask itself being unnecessary or inappropriate in some circumstances as explanations for their opposition (He et al., 2021). They also found that more people supported mask use than opposed it, and those who opposed it were less likely to link to studies in support of their argument (He et al., 2021). In addition, Halpern (2020) found that opposition to mask use is due to perceived violations of freedom and disbelief in the effectiveness of masks. Another researcher, Jarry (2020), determined that the four main reasons people do not wear masks are medical reasons, disliking how the mask feels, distorting science, and a belief in personal freedom.

MEASURING SUPPORT OVER COMPLIANCE

An important distinction exists between support for and compliance with mask mandates. Support for mask mandates implies that a person would want a mandate to be in place, while compliance with a mask mandate merely means that they regularly mask as a result of an existing mandate. A person may comply with a mask mandate without supporting it for numerous reasons, such as wanting to wear a mask to protect themselves or fearing repercussions. More relevant to this study, a person may comply because they feel compelled to follow rules, which is an aspect of conscientiousness (Diener & Lucas, 2019). Support, on the other hand, does not involve rule following, so conscientiousness may exert a different influence on levels of support. Existing studies have offered extensive analysis regarding the influence of personality traits on mandate compliance, but this study contributes to scholarship on mask mandates by explicitly measuring levels of support (Barceló & Sheen, 2020;

Wilroth et al., 2020; Clark et al., 2020). The results from this research provide a thorough understanding of how individual personality traits shape their perspective on salient public policies.

THEORY

In this paper, I focus on connecting four of the Big Five traits to support for mask mandates. Previous studies suggest that agreeableness, conscientiousness, openness to new experiences, and neuroticism have some connection to mask mandate support. I have decided not to focus on extraversion because the theoretical connection between it and support for mask mandates is not as strong. Studies on masking suggest extraversion may play a role in compliance with mask mandates, but this does not mean it relates to support for mask mandates (Barceló & Sheen, 2020; Wilroth et al., 2020).

Extraversion primarily involves the desire to talk to others and be the center of attention (Diener & Lucas, 2020). Thus, extraversion does not relate to support for mask mandates in an obvious way, as someone high in extraversion may talk to others while still wearing a mask.

Scholars have established that agreeableness includes altruistic behaviors (Carlo et al., 2005). Altruistic individuals are more empathetic, and empathetic individuals take specific actions to care for others. The pandemic quickly cast the world into a state of disarray, as the virus infected people from all walks of life. Empathetic individuals may support mask mandates as a result of their desire to care for individuals who are more at risk of contracting the virus and experiencing potentially damaging consequences. The virus not only upended society by creating a public health catastrophe, but it also threatened the livelihoods of those who managed to avoid contracting the virus, as various industries suffered from sick workers, supply-chain issues, and other forms of financial stress (Rodrigues et al., 2021). Empathetic individuals may support mask mandates in an effort to minimize the chances of people contracting the virus at their workplaces.

Conversely, individuals with low agreeableness may be less likely to support mask mandates due to a lack of empathy (Graziano et al.,

2007). While empathetic individuals feel for others and may engage in more altruistic behaviors, individuals without empathy are more likely to focus on themselves. When faced with a pandemic, an unempathetic individual may be more likely to evaluate potential policy solutions based on their effects on their personal life and the perceived costs to people in similar positions. For example, a young, healthy person low in agreeableness may be against masks because the discomfort of the mask outweighs their concern for infection. Individuals low in agreeableness are also likely to value their personal freedom (Iyer et al., 2010). Thus, they may be more threatened by policies such as mask mandates, due to fears of government overregulation in their personal life. Therefore, I propose the following hypothesis:

Agreeableness Hypothesis: As agreeableness levels increase, support for mask mandates will also increase.

Conscientiousness includes rule-following behaviors, such as being on time for appointments, obeying traffic laws, and submitting to authority (Diener & Lucas, 2019). While this trait naturally may lead someone to comply with a mask mandate, it may have the opposite effect on supporting a mask mandate. Rule following can lead an individual to be more supportive of the status quo, leading to system justification (Jost et al., 2004). System justification occurs when an individual supports the status quo due to believing that the rules underlying the system exist for a good reason. Crucially, this can occur even when an individual is actively harmed by the system, as has been found in some studies of African Americans (Jost et al., 2004). The onset of the pandemic led many public officials to consider greatly overhauling existing policies concerning public health and welfare, fundamentally changing the government's relationship with its citizens. While only some of these changes were put into practice, an individual high in conscientiousness engaging in system justification may likely see these policies as an attack on the system. They may seek to protect the status quo of pre-pandemic life even if it does not benefit them to do so.

Individuals low in conscientiousness, however, are less goal-oriented and more complacent than those high in conscientiousness (Diener & Lucas, 2019). They could be less driven in their career. They could have an external locus of control, meaning they believe they have

little control over their own life outcomes (Saint-Germain et al., 2011). This complacency could carry over to their political engagement, as someone low in conscientiousness may believe individuals cannot do enough on their own to prevent infection and must rely on an outside force like the federal, state, or local government. This belief stands in stark contrast to those high in conscientiousness, who are more likely to have an internal locus of control, meaning they feel they have greater control over their life, and may be more likely to believe individuals can survive COVID-19 on their own (Saint-Germain et al., 2011). Therefore, I propose the following hypothesis:

Conscientiousness Hypothesis: As conscientiousness levels increase, support for mask mandates will decrease.

Researchers have established that openness to new experiences is associated with a preference for novelty, inquisitiveness, and imagination (Diener & Lucas, 2019). The presence of this trait could allow an individual to have an easier time adopting a new policy or perspective. When the pandemic began, different countries had differing policy reactions that produced mixed results. Some of these policies were informed by past experiences with public health crises. For example, China, a country that has a history of encouraging masking when ill, swiftly adopted new mask mandates to curb the spread of the novel coronavirus (Tan et al., 2021). Individuals high in openness to new experiences may have been more willing to adopt novel policy ideas that appeared to have been successful in other countries, like China, because of their ability to easily adopt new perspectives.

On the other hand, individuals low in openness to new experiences remain firm in their conventional methods of thinking and committed to their routines (Diener & Lucas, 2019). They only trust strategies that have served them in the past, as they are skeptical of change. In the U.S., disease outbreaks in the recent past, such as the 2009 H1N1 epidemic, were managed by health officials through funding health equipment and research, rather than public health mandates ("The Swine Flu Response" 2009). Someone low in openness to new experiences may respond to a mask mandate with skepticism, perceiving it as an unnecessary new idea. Their reliance on conventional wisdom may push them to rely on individualistic

responses to the pandemic, in contrast to the communal response of masking. Therefore, I propose the following hypothesis:

Openness to New Experiences Hypothesis: As openness to new experiences levels increase, support for mask mandates will also increase.

An important aspect of high neuroticism is the concept of healthy neuroticism, which tends to occur in individuals high in both neuroticism and conscientiousness. While most of the effects of high neuroticism, such as a greater propensity for anxiety, sadness, and emotional instability, impair daily functioning, healthy neuroticism can lead a person to take proactive behaviors to support their health (Graham et al., 2020; Turiano et al., 2013). This behavior may occur as a result of neuroticism's association with an increase in both real and perceived health issues, as someone who is neurotic may be more likely to notice and be concerned about a potential illness. A pandemic should exacerbate these concerns, leading a highly neurotic person to be more likely to take personal action against the virus. While these actions could simply exist at the personal level, such as limiting time in public, eventually the mounting costs of avoiding public spaces may lead them to leave home to secure essentials and attend important appointments. Thus, a neurotic individual may feel compelled to support policies that make them feel less anxious about the possibility of others infecting them in a public space.

By contrast, individuals low in neuroticism are less likely to panic in threatening circumstances (Diener & Lucas, 2019). They tend to have calmer moods, as well as fewer bouts of anxiety or depression. They have developed effective coping mechanisms for maintaining their composure, though these coping mechanisms may cause them to underestimate threats in their environments. In an effort to minimize threats, they may convince themselves that they are not in danger, rather than taking preventative action. Throughout the pandemic, many older individuals have insisted that they are not afraid of COVID-19 (Quadros et al., 2021). These individuals may possess low levels of neuroticism, as they are less threatened by the pandemic than other age groups despite being at greater risk. They may not support mask mandates because they do not feel like they

are needed, as they believe the pandemic is not likely to harm them. Therefore, I propose the following hypothesis:

Neuroticism Hypothesis: As neuroticism levels increase, support for mask mandates will also increase.

METHODS

Using an original public opinion survey, I assess how personality traits affect support for mask mandates. I administered the survey instrument using Qualtrics, an online survey software company. The survey was distributed in February 2022, to a national sample (n=214) and is representative of the population with respect to age and sex. In addition, the survey was pretested on two distinct student pools at a large public university in order to assess the strength of original survey questions designed to test my hypotheses.

The Big Five traits were measured using a 44-item Big Five Inventory (John & Srivastava, 1999). Participants were asked to rate statements describing themselves and their habits on Likert scale questions with responses ranging from 1 to 5, with 1 corresponding to the “strongly disagree” category and 5 corresponding to the “strongly agree” category. The questions measured a different aspect of each of the four traits. Some questions assess the presence of one of the four traits, asking respondents how closely their habits conform to the high end of the trait dimensions. For example, a person who strongly agrees with the statement “I see myself as someone who likes to cooperate with others” would score higher on the agreeableness trait. Other questions involve the relative absence of one of the four traits, meaning they ask respondents to assess whether or not their behaviors resemble the low ends of the trait dimensions. For example, a person who strongly agrees with the statement “I see myself as someone who starts quarrels with others” would score lower on the agreeableness trait. I then aggregated the results for each of the five traits, with the exact scale dependent on the number of questions for each trait. More information about the scale trait measures can be found in the supplemental appendix, which is available on the PSPPA website.

I operationalize support for mask mandates using two questions. First, participants were asked to rate their support for mask

mandates in their community at the current time. Their support was measured on a scale of 1 to 5 with 1 being “strongly support” and 5 being “strongly oppose.” This question attempts to directly measure the participants’ support for mask mandates. Then, they were asked to rate the importance of a politician supporting their views on mask mandates in the 2022 midterm election. I measured this variable on a scale of 1 to 5 with 1 being “not at all important” and 5 being “extremely important.” This question is a more indirect measure of support for mask mandates and a way of measuring how important the issue is to the participant because it connects their views on this topic to a specific political behavior: voting.

The survey also included questions that measure the respondents’ demographic information, specifically age, biological sex, level of education, population density, partisanship, and race. Finally, participants were asked to report their immediate thoughts when they hear about a mask mandate in their community at the current time in an open-ended question.

The analysis was conducted using a series of multivariate linear regression models. Model 1 regressed the first mask support measure on the Big Five traits, with no control variables. Model 2 regressed the first mask support measure on the Big Five traits while including the control variables. Model 3 regressed the second mask support measure on the Big Five traits without controls, and finally Model 4 regressed the second mask support measure on the Big Five traits while including the control variables.

RESULTS

I ran a series of OLS regressions to evaluate my hypotheses. The models are displayed below in the following tables.

Table 1. How Personality Shapes Support for Mask Mandates

	Model 1	Model 2
Intercept	3.348 ***	4.227 ***
Extraversion	0.003	-0.006
Agreeableness	-0.036	-0.039 *
Conscientiousness	0.003	0.011
Openness to New Experiences	-0.034 *	-0.025
Neuroticism	-0.017	-0.015
Age		-0.003
Female		-0.437 *
Education		0.017
Population Density		-0.009
Partisanship		-0.198 ***
Black or African American		-0.368
American Indian or Alaska Native		-0.832
Asian		-0.495
Hispanic / Latinx		-0.211
Adjusted R ²	0.029	0.178
N	214	212

*Note: Significance codes: 0.001*** 0.01** 0.05**

Models 1 and 2 regressed the Big Five traits on individuals' support for mask mandates, with negative coefficients indicating a predicted increase in support for mask mandates. In order to evaluate the Agreeableness Hypothesis, I included the agreeableness variable in these models. In Model 2, the p-value of this variable is 0.028, which is statistically significant at the 0.05 level. Thus, I can reject the null hypothesis that there is no significant relationship between agreeableness and support for mask mandates. The coefficient suggests that agreeableness is associated with an increase in support for mask mandates, which aligns with the relationship I predicted in the Agreeableness Hypothesis.

In order to evaluate the Conscientiousness Hypothesis, I included the conscientiousness variable in these models. In Model 2, the p-value of this variable is 0.557, which is not statistically significant at the 0.05 level. Thus, I fail to reject the null hypothesis that there is no significant relationship between conscientiousness and support for mask mandates.

In order to evaluate the Openness to New Experiences Hypothesis, I included the openness to new experiences variable in these models. In Model 1, the p-value of this variable is 0.038, which is statistically significant at the 0.05 level. In Model 2, when controlling for other variables, the p-value of this variable is 0.112, which is not statistically significant at the 0.05 level. Despite the significant coefficient in the first model, I fail to reject the null hypothesis that there is no significant relationship between openness to new experiences and support for mask mandates when I operationalize support using the survey question that asks respondents directly about their support for mask mandates. I failed to reject the null hypothesis because the effect of openness to new experiences in Model 1 is removed by the control variables added in Model 2.

In order to evaluate the Neuroticism Hypothesis, I included the neuroticism variable in these models. In Model 2, the p-value of this variable is 0.323, which is not statistically significant at the 0.05 level. Thus, I fail to reject the null hypothesis that there is no significant relationship between neuroticism and support for mask mandates.

Models 3, 4, and 5 regressed the Big Five traits on the importance of political candidate holding the individual's views on mask mandates, with positive coefficients indicating a predicted increase in support for mask mandates. In order to evaluate the Agreeableness Hypothesis, I included the agreeableness variable in these models. In Model 4, the p-value of this variable is 0.847, which is not statistically significant at the 0.05 level. Thus, I fail to reject the null hypothesis that there is no significant relationship between agreeableness and support for mask mandates when I operationalize support using the question about a candidate's views.

In order to evaluate the Conscientiousness Hypothesis, I included the conscientiousness variable in these models. In Model 4, the p-value of this variable is 0.134, which is not statistically significant at the 0.05 level. Thus, I fail to reject the null hypothesis that there is no significant relationship between conscientiousness and support for mask mandates.

Table 2. How Personality Shapes Concern for Candidates Sharing Views on Mask Mandates

	Model 3	Model 4	Model 5
Intercept	1.441 ***	1.516 **	2.469 ***
Extraversion	0.019	0.027	0.026
Agreeableness	-0.001	0.004	-0.005
Conscientiousness	0.027	0.030	0.032
Openness to New Experiences	0.059 ***	0.050 **	0.045 **
Neuroticism	0.031 *	0.031	0.0298
Age		-0.075	-0.076
Female		0.181	0.082
Education		-0.023	-0.019
Population Density		0.056	0.054
Partisanship		0.056	0.012
Black or African American		-0.087	-0.170
American Indian or Alaska Native		0.130	-0.057
Asian		-0.466	-0.577
Hispanic / Latinx		0.071	0.023
Mask Mandate Support			-0.225 **
Adjusted R ²	0.104	0.097	0.133
N	214	212	212

*Note: Significance Codes: 0.001*** 0.01** 0.05**

In order to evaluate the Openness to New Experiences Hypothesis, I included the openness to new experiences variable in these models. In Model 3, the p-value of this variable is 0.0002, which is statistically significant at the 0.05 level. In Model 4, when controlling for other variables, the p-value of this variable is 0.003, which is also statistically significant at the 0.05 level. Openness to new experiences continued to be statistically significant in Model 5, which included support for mask mandates as a control variable. Thus, I can reject the null hypothesis that there is no significant relationship between openness to new experiences and support for mask mandates when I operationalize support using the question about a candidate's views on mask mandates. The coefficients suggest that openness to new experiences is associated with greater importance of shared mask mandate views, which supports my hypothesis.

In order to evaluate the Neuroticism Hypothesis, I included the neuroticism variable in these models. In Model 3, the p-value of this variable is 0.042, which is statistically significant at the 0.05 level. In Model 4, when controlling for other variables, the p-value of this variable is 0.056, which is not statistically significant at the 0.05 level. Despite the significant coefficient in the first model, I fail to reject the null hypothesis that there is no significant relationship between neuroticism and support for mask mandates when I operationalize support using the survey question that asks respondents about the importance of candidates holding their views on mask mandates. I failed to reject the null hypothesis because the effect of neuroticism in Model 3 is removed by the control variables added in Model 4.

OPEN-ENDED RESPONSES

I also examined responses to an open-ended question asking participants to report what immediately comes to mind when they hear about a mask mandate in their community at the current time. I will focus on the results for individuals with high and low levels of agreeableness and openness to new experiences, as these traits were significant in at least one regression model. One individual who scored at the maximum level of agreeableness wrote, "it needs to be worn at all times to be safe." This response suggests that the individual prioritizes the safety of their community. Another

individual scoring high in agreeableness responded, “NECESSARY”, which suggests that they believe mask mandates are necessary to slow the spread of COVID-19. A final individual high in agreeableness wrote, “It’s a good thing. We need to protect the public from infection.” This response suggests that the individual seeks to protect their community from infection.

I also looked at responses from individuals with relatively low levels of agreeableness. One participant said, “I am against masking mandates. We should all have the right to choose if we were (sic) a mask.” This response suggests that the individual primarily considers their own freedom when determining their preferred policy. Another wrote “I didn’t like it and I thought it was fake”, which suggests that they oppose mask mandates. An additional participant relatively low in agreeableness responded, “I am all for it”, suggesting that they are supportive of mask mandates.

Due to its significance in the regressions, I examined responses from individuals relatively high and relatively low in openness to new experiences. One individual with high levels of openness to new experiences wrote, “Ounce of prevention is worth a pound of cure.” This response suggests that they value preventing the spread of COVID-19 through the use of mask mandates more than relying on methods for recovering from the virus. Another said, “It’s help keeping us safe”, implying that the individual believes the mask mandate is effective at preventing the spread of COVID-19.

Finally, I looked at responses from individuals with relatively low levels of openness to new experiences. One participant responded, “I didn’t understand what was going on”, which suggests that they did not understand the logic behind mask mandates. Another wrote, “Not necessary”, implying that they do not support mask mandates because they do not believe the mandates are needed. Finally, another participant said, “Annoying”, which means they view the mask mandates as causing more harm than good.

These responses give some clues as to why agreeableness and openness to new experiences were significant in the regression models. The high agreeableness responses frequently mention protecting the public from infection, suggesting an empathetic, cooperative approach to the pandemic, in contrast to the responses

from low agreeableness individuals, who emphasize personal freedom. The high openness to new experiences responses stress their understanding of the mask mandate and how it affects the spread of COVID-19, while some of the low openness to new experiences responses suggest that many of them may not support it due to a lack of understanding of mask efficacy.

DISCUSSION

KEY FINDINGS

The results from Model 2 indicate that higher levels of agreeableness are associated with greater support of mask mandates. According to my theory, this finding likely reflects the role of empathy in supporting policy. Individuals with higher levels of agreeableness tend to be more empathetic, which could make it easier for them to sympathize with those most vulnerable to COVID-19 (Carlo et al., 2005). Conversely, individuals with less empathy may only engage in policy to maximize their own benefits or may only sympathize with people in situations similar to their own (Graziano et al., 2007). This difference may explain the difference in views on mask mandates, as some feel they are necessary to protect public health while others view them as an unnecessary burden.

The results from Models 3, 4, and 5 indicate that higher levels of openness to new experiences are associated with a greater emphasis on politicians sharing one's views on mask mandates. While this is not necessarily the same as supporting a mask mandate, this finding suggests that people with higher levels of openness to new experiences may be more willing to support candidates with views on mask mandates similar to their own. This finding supports my theory that higher levels of openness to new experiences can lead to a greater willingness to support policies being used in other countries (Diener & Lucas, 2019). In this case, individuals may be putting pressure on politicians to keep or reinstate mask mandates (and potentially other pandemic restrictions) in order to mimic stricter restrictions in countries such as China.

The results from the open-ended question largely supported the results from the regressions. The responses from individuals high in

agreeableness were largely in support of mask mandates and appeared to be driven by an urge to protect the public from COVID-19. By contrast, individuals low in agreeableness appeared to be less supportive of mask mandates and were more likely to mention freedom when talking about their opposition to the mandate. The results for individuals with varying levels of openness to new experiences were more difficult to interpret, although the most informative responses tended to match the regression results.

These findings were significant despite the fact that partisanship was a control variable in both models. These results suggest that while party identity influences positions on public policies, there is still room to examine other factors that influence an individual's policy preferences. Partisanship has become the go-to explanation for nearly all variation in individual political views on this topic, but this study demonstrates that personality still plays a role in this process, suggesting that individual factors apart from party identity prove meaningful to examine (Adolf et al., 2020).

LIMITATIONS

One limitation of this study was the data collection time period. Given how salient mask mandates have been since the COVID-19 pandemic began in early 2020, the timeframe in which the survey data were collected likely affected the results. Thus, considering this context proves important when interpreting the results. The data were collected in late February 2022, around the same time that the CDC loosened its guidance on masking, and many states and local areas dropped their mask mandates (Huang & Wroth, 2022). The impending end of many mask mandates may have made this issue less clearly partisan for many people, as even Democratic areas decided to end their mandates.

Models 3 and 4 seem to have been especially affected by the changing policies, as their dependent variable measures how important mask mandates are to participants as they consider candidates for the midterm elections. As the mask mandates were actively ending in many areas, participants may have seen mask mandates as much less important than they would have a year ago. In addition, partisanship was not a significant factor in Models 3 and 4, despite the fact that other scholarship highlights its exclusive

importance in shaping individual views on mask mandates (Adolf et al., 2020). This discrepancy may be due to the fact that partisanship heavily influences voting outcomes, but it may not factor into shaping the perceived importance of sharing views on mask mandates with political candidates.

Another limitation is my use of self-reported measures of personality traits in the survey. While the Big Five inventory I used has been validated and provides a direct method of measuring personality, self-reported measures always leave room for potential problems. A common issue involves social desirability bias, in which participants select answers corresponding to how they think they should behave or how they believe the researchers want them to behave, rather than how they actually act (Fisher & Katz, 2000). Big Five test averages are typically skewed based on social desirability, with certain trait averages deviating substantially from the midpoint of their scale (Bäckström & Björklund, 2013). Researchers must be mindful of these biases when analyzing self-reported survey data.

An additional potential limitation is the adjusted R^2 value in each of my models. These values are relatively low in the models, including those that added control variables. Regression models using survey data often produce relatively low R^2 values, as human behavior is difficult to predict, but Model 2 still managed to capture nearly 20% of variability in support for mask mandates. Model 4, however, has an adjusted R^2 value below 10%, suggesting that this model did not capture much variability in the importance of sharing views on mask mandates with a candidate. Model 5, which includes one additional control variable than Model 4, had a slightly higher R^2 . In addition, Model 1's adjusted R^2 is only 2.6%, suggesting that the Big Five traits capture very little variability in support for mask mandates without including control variables. Finally, Model 3, which measured the association between the Big Five traits and the importance of politicians sharing an individual's view on mask mandates without including control variables, had a surprisingly high adjusted R^2 at 18.4%, suggesting that the control variables added very little to this model. The relatively low adjusted R^2 in some models reinforces a previous limitation about the data collection timeframe, as variation in shared issue positions may be due to a perception that mask mandates will not be as salient of an issue in the future.

CONCLUSION

In this study, I have found evidence that personality, specifically the agreeableness and openness to new experiences traits, may play significant roles in determining individual support of mask mandates to combat the COVID-19 pandemic. As the pandemic continues to exert influence on our daily lives, we need to consider the factors that shape our collective responses to it. Political scientists often rely on partisanship exclusively to explain variation in policy preferences, but this study shows that other factors are worthy of consideration. Individual factors that transcend context such as personality can shape policy preferences, and future research should keep them in mind.

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The Trouble with Tech: How Information and Communication Technologies are Making the Problem of International Child Abuse Worse, and What We Can Do About It

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INTRODUCTION

The exponential development of technology in recent years has enabled instant international communication across once-vast distances, moving continents closer together. Information and Communication Technologies (ICTs) in particular have achieved this effect; today both governments and non-state actors have the power to influence events occurring beyond their national borders (Karsten, 2022). In the context of child sex tourism (CST), which the United Nations defines as “the exploitation of children for sexual purposes by people who travel locally or internationally to engage in sexual activities with children,” the disastrous consequences of these technological developments are as self-evident as any serviceable benefits they yield to law enforcement (M'jid, 2013). On the one hand, ICTs may empower agencies to identify, track, and prosecute instances of CST. On the other hand, ICTs worsen the problem globally and facilitate abuse at every step, enabling culprits to groom and procure children on the Internet, communicate with other offenders, and even distribute or live stream instances of abuse (HT Correspondent, 2016). Further, messaging applications and other mobile technologies give offenders a platform to discover and communicate with vulnerable minors, rendering what would otherwise be difficult communication relatively easy (Moloney, 2018). While CST offenders have employed ICT in furtherance of their crimes against children, several natural limitations on law

enforcement reflect some challenges for agencies attempting to make efficient use of technologies. Law enforcement working to prevent CST crimes are often restricted by their own national jurisdictions (Karsten, 2022). In order to navigate this natural limitation, agencies must cooperate with counterparts in other countries, or make use of complex bilateral agreements or other treaties (Karsten, 2022). To be sure, the international nature of this issue has meant that perpetrators are more easily able to slip through the cracks of different enforcement schemes. In the face of the worsening problem of CST, countries have been slow to act upon existing treaty obligations and to enforce extraterritorial laws concerning CST. Considering the devastating role technology has played in the proliferation of CST crimes, however, the fundamental question becomes: how has the development of ICTs exacerbated the problem of CST, and how could the same technologies better empower law enforcement to mitigate the problem? This paper will explore that question in a nuanced fashion. Section II reviews the sources of law relevant to CST prevention and prosecution and consider ways in which ICT and CST converge. Section III contends that law enforcement must make better use of technologies to mitigate the problem of CST and offers key policy recommendations for both public and private actors to better achieve this end. Finally, Section IV briefly concludes.

THE PREVALENCE OF CHILD SEX TOURISM

The problem of CST, along with related issues of the global sexual exploitation of children more generally, cannot be overstated and constitutes a serious global concern (Koops et al., 2017). Per the International Labour Organization (ILO), as many as 1.8 million children were prostituted or coerced into pornographic acts in 2000 alone, with other estimates amounting to 10 million children affected worldwide (Koops et al., 2017). It is further estimated that these related ‘industries’ amass 5 billion US dollars a year, with CST accounting for a significant portion of that alarming sum (Koops et al., 2017). For instance, between 2–14% of the GDPs of Indonesia, Malaysia, the Philippines, and Thailand can be connected back to CST (Fredette, 2009). Historically, the destination states for CST offenders have been centered in South-East Asia, Central America and the state of Brazil; however, this activity is becoming increasingly prevalent in South America; South, North-West, and East

Africa; India; and Mongolia (Fredette, 2009). CST offenders, in contrast, are thought to be from European and North American countries, as well as from Russia, Japan, Taiwan, Australia, and New Zealand (Fredette, 2009). However, the national origins of CST offenders have been disputed. Trafficking experts at the 2018 International Summit on Child Protection in Travel and Tourism in Bogota, Colombia suggested that “[t]he typical picture of a sexual predator is no longer a white, wealthy middle-aged man from a western country but business travelers, migrant workers and local tourists in their own country or region” and that minors worldwide are more likely to be abused by residents of their own nation rather than foreign tourists seeking to engage in illicit CST activities (Moloney, 2018).

The motivations of CST patrons and sex tour operators similarly evade monolithic characterization. The literature often distinguishes two types of CST offenders: patrons and sex tour operators (Fredette, 2009). Of course, a key motivator for sex tour operators is financial gain. Generally speaking, “a group of perpetrators involved in CST, who sometimes partner with traffickers, are so-called “sex tour operators” (Fredette, 2009). Operating predominantly in industrialized countries, certain travel agencies arrange tour packages for tourists who seek sexual encounters with children (Fredette, 2009). In addition to securing standard travel accommodations, operators arrange local guides who facilitate sexual encounters at brothels populated with prostituted children (Fredette, 2009). The number of sex tour operators has increased in recent years, multiplying patrons’ “avenues for exploitation” (Fredette, 2009).

It is also well established that offenders enjoy a sense of security in the anonymity of being in a foreign country and are thus more willing to commit sexual crimes against children overseas (Koops et al., 2017). In addition, because of misguided stereotypes or prejudiced notions, offenders may believe that children in different cultures are more willing to engage in sex (Koops et al., 2017). Other cultural factors include archaic views of male dominance which condone the consumption of child sex, false notions that young prostitutes are less likely to be infected with AIDS and other sexually transmitted diseases, and cultural beliefs proposing that sex with virgins will cure maladies or increase male stamina and health (Fredette, 2009).

Researchers distinguish “elective” and “core” CST offenders (George & Panko, 2011). “Elective” CST offenders constitute those individuals who, while on a business trip, engage in CST offenses on a whim while the “core” group is comprised of offenders who plan entire trips around the sexual exploitation of vulnerable children (George & Panko, 2011). Generally speaking, the psychological profiles of CST offenders are probably similar to those of adults who commit sexual crimes against children in other contexts; pedophilic sexual proclivities might be a result of antisocial behaviors, prior victimization or other experiences of sexual abuse, hypersexuality, and prior consumption of child pornography (Koops et al., 2017).

There are also alarming emerging trends in the commission of CST crimes, most notably in Asian countries (Hawke & Raphael, 2016). Over the last 20 years, heightened business travel by East Asians in the region represents a notable change that increases the risk of CST, especially among “elective” offenders (Hawke & Raphael, 2016). The corporate customs in East Asian countries commonly include late night meetings which might include alcohol and sex to bind business relationships (Hawke & Raphael, 2016). These meetings might include “dinner and drinks in restaurants, karaoke sessions, massages and evening entertainment” (Hawke & Raphael, 2016). In these settings, companies may employ young “entertainers” to accompany businesspeople throughout the evening, who then become CST offenders (Hawke & Raphael, 2016). Worse yet, there is a well-documented uptick in the demand for sexual encounters with virgins (Hawke & Raphael, 2016). CST in the East Asian region is mostly perpetrated by businessmen from China, Japan, South Korea and Taiwan who are fueling the expansion of Cambodia’s CST infrastructure, which in large part is centered around the exploitation of virgins. According to researchers,

virginity-seeking is reported to be highly prevalent in the Philippines... [where] demand...is driven largely by Japanese, Korean and Chinese men traveling to [the Philippines and other [Southeast Asian] countries. Chinese men value sexual relations with children, especially virgins, because of the belief that the act would be ‘rejuvenating’ or would bring good luck to a planned business venture (Hawke & Raphael, 2016).

Still other trends suggest an emerging market for pedophiles from Western countries seeking to exploit prepubescent children regardless of the child's home country or ethnicity (Hawke & Raphael, 2016). As the diverse nationalities and motives of CST offenders indicate, CST represents a global problem that is as complex as it is disturbing.

KEY STAKEHOLDERS

Any consideration of an issue of Human Rights Law should begin with a clear understanding of the chief stakeholders. In the CST context, the stakeholders are the exploited children themselves; minors under the age of 18 who typically live in countries with struggling justice systems, are of low socioeconomic status, or who have under other specific circumstances found themselves in the position of being forced into the illicit network of CST (Office to Monitor and Combat Trafficking in Persons, 2005). Girls account for the majority of CST victims, although boys are increasingly at risk as well (United Nations Office on Drugs and Crime: Vienna, 2015). The gender of victims is largely dependent on the Destination State, however; 90% of Sri Lanka's prostituted children are male, while Thailand's are predominantly female (Fredette, 2009). Children are at specific risk if they live in countries where government corruption is pervasive (Hawke & Raphael, 2016). Several other factors heighten a child's risk of exploitation, such as instances of prior sexual abuse and family breakdown which place children at risk, as well as their status as a migrant or refugee (United Nations Office on Drugs and Crime: Vienna, 2015). Furthermore, certain deeply held cultural or religious convictions suggest it is the duty of a child to support their family; thus, "children are sometimes reinforced by cultural beliefs that children should support their aging parents, encouraging prostitution by children with no other means of doing so" (Fredette, 2009). Increasingly, extremely young children are victimized and minors who engage in careless or risky online behavior and who are inattentive to online safety precautions are at higher risk of grooming and CST exploitation (United Nations Office on Drugs and Crime: Vienna, 2015). Every child, regardless of their nationality, has a right to protection against any method of neglect, cruelty, and exploitation, and not to be the subject of traffic in any form (1959). These rights are infringed when children become victims of CST on nearly every level. In addition to being an unacceptable assault on

the dignity of children as individuals, their exploitation at the hands of CST offenders has far-reaching consequences, which according to the United States Department of State “may include long-lasting physical and psychological trauma, disease (including HIV/AIDS), drug addiction, unwanted pregnancy, malnutrition, social ostracism, and possibly death” (Office to Monitor and Combat Trafficking in Persons, 2005).

BACKGROUND

SOURCES OF LAW

Nations have used treaties to address CST in the framework of international human rights law. Furthermore, CST crimes have been successfully prosecuted under individual States’ domestic laws that might involve extraterritorial components. Both formal cooperation between nations, such as treaties, and informal cooperation, such as police sharing of investigative information across jurisdictional lines, continue to be important in the battle against child sex tourism (United Nations Office on Drugs and Crime, 2014). International cooperation is necessary because of the transient nature of the crime and the ease with which predators can simply adjust their travel plans to jurisdictions with less severe penalties or less likelihood of being apprehended (United Nations Office on Drugs and Crime, 2014).

INTERNATIONAL AGREEMENTS

The United Nations Convention on the Rights of the Child (UNCRC) addresses the sexual exploitation of children, a category under which child sex tourism falls (Klain, 1999). More specifically, Articles 34 through 37 of the UNCRC cover the protection of children from sexual exploitation (World Tourism Organization, 2001). In relevant part, the text of Article 34 UNCRC states:

State parties undertake to protect the child from all forms of sexual exploitation and sexual abuse. For these purposes state parties shall in particular take all appropriate, national, bilateral and multilateral measures to prevent; (a) the inducement or coercion of a child to engage in any unlawful sexual activity; (b) the exploitative use of children in prostitution or other unlawful

sexual practices; (c) the exploitative use of children in pornographic performances and materials (United Nations General Assembly, 1990).

While this treaty is sufficiently broad in its assignment of responsibilities to member States, the UNCRC defines a child as a person under 18 years of age unless national laws set a different age for adulthood, which many nations do (Klain, 1999). This lack of specificity is a key defect which will be described in more detail later on. Fortunately, the treaty has garnered wide support; the UNCRC has been ratified by nearly every nation in the world, except for the United States and Somalia (World Tourism Organization, 2001).

Additional international instruments include the UNCRC's Optional Protocol on the Sale of Children, Child Prostitution and Child Pornography (2000) (CRC Optional Protocol), the United Nations Convention against Transnational Organized Crime (2000) (UNTOC) and its Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children (2005) (TIP Protocol), and the International Labour Organisation's (ILO) Convention (No. 182) Concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour (1999) (ILO Convention 182) (United Nations Office on Drugs and Crime, 2014). These treaties enjoy similar, near-universal participation although in application they largely rely on the goodwill of States to ensure compliance.

The Optional Protocol on the Sale of Children, Child Prostitution and Child Pornography addresses sex tourism specifically, stating in its preamble that the practice "directly promotes the sale of children, child prostitution and child pornography" (Mattar, 2006). Article 10 of the CRC Optional Protocol includes directives for State parties to take all necessary measures to strengthen international cooperation via multilateral, bilateral, and regional arrangements in combatting sexual exploitation, including child sex tourism (Mattar, 2006). Article 10 also requires that State parties promote international cooperation to provide physical, psychological, and other assistance to child victims, and to address root causes that lead to the vulnerability of children, such as poverty and underdevelopment (Mattar, 2006). Taken together, these international agreements are probably among the most effective treaties on the global stage, although the very

issue of CST and the development of ICTs can undermine the laudable goals espoused by them.

EXTRATERRITORIAL LAWS

At the domestic level, some States have passed laws with extraterritorial components, allowing a State to hold their citizens or permanent residents accountable for crimes committed abroad (Fraley, 2005). Without an extraterritoriality component, domestic laws targeting CST lack any real ability for enforcement (Fraley, 2005). Some countries have passed legislation dealing specifically with child sex tourism, in which extraterritoriality is a component; in some countries extraterritoriality might be generally incorporated into countries' penal codes (Fraley, 2005).

For instance, in the United States, Section 2423(c) of Title 18, United States Code, is entitled "Engaging in illicit sexual conduct in foreign places" (The United States Department of Justice, 2020). This enables the United States to prosecute U.S. citizens and permanent residents who participate in CST in other countries with a maximum of thirty years' imprisonment (The United States Department of Justice, 2020). In the United States, at least four defendants were federally convicted during fiscal year 2021 of engaging in extraterritorial child sexual exploitation and abuse, and at least three defendants were federally convicted during fiscal year 2020 (U.S. Department of State, 2022). The numbers may be higher due to prosecution under laws not reflected in these statistics (U.S. Department of State, 2022). The U.S. government also endeavored to reduce the demand for participation in CST by its citizens by proactively investigating allegations of child sexual exploitation crimes committed overseas by U.S. citizens and by partnering with foreign law enforcement to share information about registered child sex offenders' international travel (U.S. Department of State, 2022).

As another example, in 2010 the Australian Parliament amended the Crimes Act 1914 to add Division 272, entitled "Child sex offenses outside Australia," to the Criminal Code Act 1995 (The Human Trafficking Legal Center et al.). Among the crimes and punishments listed, child sex offenders engaging in sexual intercourse with a child less than 16 years old outside of Australia carries a maximum penalty of 25 years' imprisonment, while engaging in sexual activity

other than sexual intercourse with a child under the age of 16 years outside Australia carries a maximum penalty of 20 years' imprisonment (The Human Trafficking Legal Center et al.). An aggravated offense, such as if the child has a mental impairment at the time of the offense or dies due to physical harm suffered in connection to the sexual activity, can lead to a life sentence (The Human Trafficking Legal Center et al.). In 2021, the Australian government prosecuted 31 defendants for planning or engaging in sexual activity with children overseas (some cases being initiated in earlier reporting periods), which resulted in four convictions of child sex tourists (U.S. Department of State, 2022). In 2020, Australia reported 38 prosecutions with one conviction (U.S. Department of State, 2022).

Japan's 1999 Act on the Regulation and Punishment of Acts relating to Child Prostitution and Child Pornography, and for Protecting Children, and its 2014 amendments, enables the Japanese government to hold nationals accountable for certain crimes in line with the legislation's name, including when those crimes are committed abroad (Ryu et al., 2018). The legislation criminalized engaging in, acting as an intermediary for, and soliciting the commercial sexual exploitation of a child, with a punishment of a maximum of five years' imprisonment, a fine, or both (U.S. Department of State, 2022). Japan's legislation is more lenient than both the United States' and Australia's legislation in terms of a maximum sentence length for offenders (Fraleay, 2005). Furthermore, while the Japanese government has extraterritorial jurisdiction to prosecute Japanese nationals who engage in child sexual exploitation in other countries, it did not report investigating or prosecuting any cases of child sex tourism under this jurisdiction in 2021 or 2022 (U.S. Department of State, 2022). Despite the current dearth of successful prosecutions, this five-year maximum sentence does at least reflect a change toward stronger potential punishments for the crime. Prior to later amendments being enacted, under the original 1999 Laws for Punishing Acts Related to Child Prostitution and Child Pornography, and for Protecting Children, Japanese offenders who engaged in child sex tourism abroad faced a maximum of only three years' imprisonment or a fine (Fraleay, 2005).

The intent of these laws is that if the CST offender is not held responsible for the crimes they commit in the destination state by the destination state, the sending state can still hold their citizens or permanent residents to account (Fraley, 2005). A major benefit of this approach is that the sending state with the extraterritorial law can hold the offender to their own laws. They can do this even if the CST offender's action does not violate the destination state's laws (as long as the sending state's extraterritorial law does not impose double criminality requirements) (Fraley, 2005). For instance, the offender can be held to account for violating the age of consent laws their own country sets, even if they committed the crime abroad in a country that has a lower age of consent. While these extraterritorial laws are on the books in some countries and have been used to successfully prosecute CST offenders, the actual enforcement of these laws is still a challenge that these countries must work to address and continue to improve. Improvements in this space could have tremendous impacts in the battle against CST.

INFORMATION AND COMMUNICATION TECHNOLOGIES AND CHILD SEX TOURISM

Despite the existence of a complex legal structure which thwarts the commission of CST crimes worldwide, difficulties remain. One key problem lies at the confluence of new ICTs and CST. The emergence of the internet and mobile technologies have fundamentally altered the organization of the international criminal sex sector, making instances of CST misconduct more difficult to identify and prosecute (Hawke & Raphael, 2016). In South Korea for example, long periods of economic vitality in congruence with ICTs have stoked CST crimes (Hawke & Raphael, 2016). The country's internet infrastructure is one of the fastest and most developed in the world, with 92% of South Koreans reporting internet usage (Jobst, 2022). The proliferation of internet usage has had disastrous effects, however, on children at risk for sexual exploitation in South Korea. According to one researcher, more than 95% of the sexual exploitation of children was arranged and planned over ICT channels (Hawke & Raphael, 2016). The rise of ICTs have not only made communication with minor children more convenient; minors are more vulnerable because their parents or other guardians are often unfamiliar with ICT tools and are thus unable to supervise their

children adequately or advise them on safe internet use (Hawke & Raphael, 2016).

The rise of ICTs has allowed CST patrons and sex tour operators alike to cast a wider net when discovering children to exploit. Offenders gain access to extremely large groups of children through online forum messages, e-mails, social networks, and other online-based communication tools (United Nations Office on Drugs and Crime: Vienna, 2015). In an instant, offenders can connect with as many as 1000 “friends” who may be “at different stages of grooming” (United Nations Office on Drugs and Crime: Vienna, 2015). Making use of such a large group of victims, offenders can take risks instigating sexual contacts with children online and then subsequently allocate their time on children who respond well; on those minors who would likely be the best targets for exploitation (United Nations Office on Drugs and Crime: Vienna, 2015).

The disclosure of personal information of a minor over ICTs is also a grave concern. Depending on the platform, ICTs may offer CST offenders an almost unrestricted bevy of information such as where and with whom the child lives, the age of the child, and may provide clues to other pieces of information, such as their cultural background or socioeconomic status (United Nations Office on Drugs and Crime: Vienna, 2015). Even more alarming, new social media features which allow users to “tag” their current location in posts or “check-in” to certain locations may give offenders more information about a potential victim (United Nations Office on Drugs and Crime: Vienna, 2015). Shockingly, even if a child follows best practices of internet safety, CST offenders have tools at their disposal to learn more about the minor. As an example, the “cree.py tool” is a software which produces from a single email all information it can discover from the account, providing geolocation data (United Nations Office on Drugs and Crime: Vienna, 2015). Further, concerning the actual recruitment of children into the CST infrastructure, ICTs can enable access to minors for the purpose of human trafficking by using a website designed for that purpose or social media to market their services to children and to prospective patrons (United Nations Office on Drugs and Crime: Vienna, 2015). In a similar fashion, CST patrons can use “chat rooms, message boards, peer-to-peer file-sharing servers, news groups, and specialized websites to obtain information on potential victims and

destinations, share stories, trade child sexual abuse material, and plan travels” (United Nations Office on Drugs and Crime: Vienna, 2015).

Regrettably, ICTs could not be more effective for the purposes of CST recruitment and exploitation. Researchers suggest that technology is “the engine behind a growth in the sex trade” and that the use of such technologies is often in proportion to the internet use of a country (United Nations Office on Drugs and Crime: Vienna, 2015). Thus, with internet speeds and availability on the rise, law enforcement officials should expect an uptick in the instance of CST recruitment and abuse.

KEY CHALLENGES IN THE ICT-CST CONTEXT AND RELATED CRIMES AGAINST CHILDREN

While the very nature of virtual communication has placed children at greater risk due to their naivete and unsophistication, it has also changed the game for CST perpetrators and has enabled their activity and made evasion from law enforcement detection easier. Put simply, the advantage that ICTs offer offenders would not be possible without the inherent inability of law enforcement to make effective use of those same technologies; CST offenders have won the technical arms race against those who would hold them accountable for their crimes. While ICT advances facilitate collaboration and planning of these offenses, law enforcement agencies simply lack the human and monetary resources, technical abilities, and appropriate legal mechanisms to identify, investigate, and prosecute instances of digital crime (United Nations Office on Drugs and Crime: Vienna, 2015). Further, when building a united front against CST, law enforcement coordination and other efforts require wisdom in navigating the challenges associated with variations in cultural and legal traditions around the world (United Nations Office on Drugs and Crime: Vienna, 2015).

Another challenge is a definitional one. Most states punish the exploitation of children, yet not all legal systems agree on what constitutes a “child” (United Nations Office on Drugs and Crime: Vienna, 2015). While Article 1 of the Convention on the Rights of the Child (CRC) defines the term as any individual “below the age of eighteen years unless under the law applicable to the child, majority

is attained earlier,” the CRC permits member states to endorse different ages of majority, which may be higher or lower than 18 (United Nations General Assembly, 1990). Those that do not draw the line at 18 in the context of sexual crimes often “differentiate between distinct categories of minors, such as infants, juveniles, and adolescents, thereby using different age-thresholds” (United Nations Office on Drugs and Crime: Vienna, 2015). While this presents challenges to addressing CST in a more united international concert, it remains true that at least most international treaties seem to converge on 18 as the age of majority; Article 3 (d) of the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children of the United Nations Convention against Transnational Organized Crime defines children as anyone under 18 years of age and Article 2 of International Labour Organization (ILO) Convention No. 182 on the Worst Forms of Child Labour uniformly settle on 18 years as being the threshold age for a child (United Nations Office on Drugs and Crime: Vienna, 2015).

Different countries similarly have different approaches to punishing instances of CST which involve ICT. Some states have enacted specific laws which prohibit the commission of crimes against children which are facilitated online, while others rely on preexisting laws that prohibit general sexual exploitation (United Nations Office on Drugs and Crime: Vienna, 2015). On the surface, this seems a rather banal problem; however, in some states there may be no legal basis at all for local law enforcement to pursue prosecutions against child abusers where the victim has reached the age of consent, regardless of whether the child is under the age of 18 (United Nations Office on Drugs and Crime: Vienna, 2015). In the majority of jurisdictions, the age at which a person can consent to sexual activity is below 18 years and the average ranges from 13 to 16 years (United Nations Office on Drugs and Crime: Vienna, 2015). These variations in the age of consent illustrate the complicated nature of the law in this area.

The inadequacy of domestic law in some jurisdictions is a basis for concern. The United Nations Children’s Fund (UNICEF) has identified several gaps in the criminal laws of states which have become party to the Optional Protocol on the Sale of Children, Child Prostitution and Child Pornography (OPSC) (ECPAT International, 2021). These defects include only criminalizing the prostitution of children who are

below the age of consent in the national context, defining prostitution along gender-specific lines, or excluding certain sexual acts from the definition altogether (United Nations Office on Drugs and Crime: Vienna, 2015). As a result, crimes against young boys or girls who are above the age of consent in a specific country may go unnoticed or unreported. Shockingly, the jurisprudence of some nations focuses entirely on the “immoral” nature of sex in general rather than the exploitation or CST offense that occurred; as a result, CST victims may themselves be prosecuted for the acts they were forced to perform during their exploitation (ECPAT International, 2021). To make matters worse, conviction rates for those who engage in CST or other forms of trafficking of minors remain extremely low, leaving children vulnerable (Fredette, 2009). To remedy this broken framework, States should pass amendments to international agreements, most notably the CRC, to agree that signatories will not criminalize children-victims in the enforcement of CST offenses, and that criminalization is not dependent on the gender of the child or whether they had reached the age of consent in the Destination State.

As described, the legal sources for combatting CST on the international stage are numerous. They include “mutual legal assistance treaties, direct law enforcement cooperation, multi-agency partnerships, forums for information-sharing and informal direct law enforcement cooperation” (Fredette, 2009). Challenges exist, however, in attaining international coordination in the context of each state conducting online investigations and in the sharing of electronic evidence or otherwise comporting with international obligations (Fredette, 2009). The advancements of technology have meant that, in theory, law enforcement agencies can make use of tools for “detection and investigation, such as the use of digital forensic techniques, automated search, image analysis and image databases, data mining and analytics...” and many other resources (Fredette, 2009). Yet, countries with well-equipped technological infrastructure may still be unable to put them to use due to internal systemic issues, such as insufficient state resources and its corollary, the corruption of public officials (Fredette, 2009). Impoverished or under-salaried law enforcement are more likely to accept bribes from CST perpetrators (Fredette, 2009). As an example, with their low salary of 15 dollars weekly, many Cambodian judges routinely accept bribes, which can provide CST offenders

with a quick way to avoid punishment (Fredette, 2009). Insufficient state funds also result in law enforcement officers lacking the necessary training and qualifications needed to adequately combat CST (Fredette, 2009). For example, a law enforcement officer's adversarial questioning of child prostitutes will often "garner[] incomplete or inaccurate information from intimidated and uncooperative victims... [t]hese results are similar to the difficulties experienced with child witnesses during courtroom proceedings that lack child-sensitive practices" (Fredette, 2009). Finally, archaic or otherwise careless customs practices at major points of entry in Destination States can also thwart the ability of law enforcement to prevent CST. For example,

A review of documented cases shows that sex tourists who have their passports confiscated prior to bail release are repeatedly successful in securing new passports at their embassies in order to leave the country. In part, this miscarriage of justice reveals that poor communication practices between local authorities and foreign State departments can frustrate both institutions. Ultimately, it seems that releasing foreign sex criminals on bail into a state with demonstrably porous borders shows a failure to appreciate these perpetrators as obvious flight risks (Fredette, 2009).

In this space, key issues concerning the monetary cost and competent use of these technologies, and the subsequent willingness of respective states to share evidence that they might yield, represent some of the largest challenges to combating CST in the context of ICT. Considering the current legal framework, some of these issues can be addressed at the level of international agreement. The CRC, for instance, can be amended for State members to adequately fund their police departments so that they may fight the issues of bribery and technological failure.

ANALYSIS

STRATEGIES FOR MORE STRINGENT ENFORCEMENT

There are several ways to address the myriad problems associated with or contributing to the proliferation of child sex tourism. Some of

these solutions are independent of the role of ICTs specifically and could impact the rates of both core and elective offenders. First, harsher punishments under sending countries' extraterritorial laws could serve as a powerful deterrent to would-be offenders. There is likely some risk-reward calculation that potential offenders engage in; the mere possibility of a punishment that would effectively amount to a slap on the wrist is not likely to deter would-be offenders. High maximum sentences for CST crimes could arguably lead to greater deterrence, if coupled with a likelihood or at least perceived likelihood of actual apprehension by authorities. In addition to helping prevent future abuse from occurring in the first instance, harsher maximum sentences for CST offenders would protect children around the world from further abuse by convicted CST offenders by removing the possibility of the offenders harming children while incarcerated. Currently, domestic laws with extraterritorial components vary greatly in maximum length for prison sentences, an example being Japan's Act on the Regulation and Punishment of Acts relating to Child Prostitution and Child Pornography, and for Protecting Children allowing for a maximum sentence of five years, as opposed to United States legislation allowing for a maximum sentence of thirty years (Fraleay, 2005).

Additionally, individual States should pass legislation that would provide economic incentives for tourism businesses and professionals headquartered or incorporated in their country if they include information regarding CST in brochures and other marketing materials, in airplane videos or in-flight instructions, and in other visible places. There are a vast number of touchpoints within the tourism industry that child sex tourists employ, including tour operators, travel agencies, hotels, and airlines (Fraleay, 2005). Any of these touchpoints are opportunities to try to stop the possible CST offender in their tracks.

AMENDING THE CONVENTION ON THE RIGHTS OF THE CHILD

One of the biggest challenges to addressing CST crimes vis-à-vis international agreements is definitional inconsistency with respect to the most essential terms. For instance, international agreements currently do not all discourage countries from defining “child” in non-age-specific terms and, worse yet, defining sex crimes based on the gender of the victim. As a result, State parties to the Convention on the Rights of the Child (CRC) should use the systems in place to modify the treaty so that the member states move away from vague categories such as infants, juveniles, and adolescents when considering whether a victim is a child. Fortunately, these updates may be attainable; there is an existing framework in the Convention for enacting these improvements, although they will not necessarily be easy to pass. Article 50 of the CRC provides ways in which the convention may consider and enact such amendments:

Any State Party may propose an amendment and file it with the Secretary-General of the United Nations. The Secretary-General shall thereupon communicate the proposed amendment to States Parties, with a request that they indicate whether they favour a conference of States Parties for the purpose of considering and voting upon the proposals. In the event that, within four months from the date of such communication, at least one third of the States Parties favour such a conference, the Secretary-General shall convene the conference under the auspices of the United Nations. Any amendment adopted by a majority of States Parties present and voting at the conference shall be submitted to the General Assembly for approval (United Nations General Assembly, 1990).

A perhaps more plausible way to achieve greater consensus in helping protect children while still respecting state sovereignty would be for the members of the CRC to propose a “baseline” age for minors. Even if this age is not 18, the current framework would allow a member State to set a much lower age, such as 13. While the substantial flexibility in the age of majority reflected in the current CRC was doubtlessly helpful in securing universal support for the CRC, proposing this change would help to more fully protect children moving forward. Additionally, State parties to the CRC should amend the convention to ensure that victims of CST will be protected even

if they have passed the Destination State's "age of consent." This age can be as low as 13 in some jurisdictions, and this allows CST operators and patrons alike to evade punishment in the absence of applicable extraterritorial laws. Finally, the CRC should be updated to reflect that State parties should not have domestic law that only criminalizes sex crimes against children along gender lines. Worse yet, in some jurisdictions, the children themselves are punished for the immorality of their actions. This too should be rejected by the CRC in an amendment. Such actions are not in keeping with the spirit of the CRC, and as a result pose serious challenges to enforcement. It seems clear that these changes, if adopted by member states, would exclude the participation of certain states who have adopted these limitations for cultural reasons. Therefore, a delicate balance must be struck between ensuring that children are protected, and that member States do not simply leave or refuse to be bound by the CRC. Incremental positive change is likely the best option in this space, which may be achieved by a rational and well-supported campaign to enlist at least the required one-third of states to make these changes to the CRC.

A RENEWED FOCUS ON INTERNATIONAL COORDINATION

No one state has the resources or jurisdiction to solve the global issue of CST. Therefore, greater regional and international cooperation is needed, both in terms of formal cooperation such as treaties and bilateral and multilateral agreements, and informal cooperation such as police agencies in different states cooperating on investigations and sharing information with the common goal of apprehending CST offenders. With offenses happening in regional spheres as well, groupings of neighboring countries in a region should also continue to enhance their communications and cooperation and find as much consistency in their laws as possible with regard to CST crimes specifically. International cooperation and coordination should also address root causes that lead to some of the vulnerabilities of children to this abuse, such as poverty.

CST AND ICTs

Regarding the issues of technology usage in CST, some of the challenges are inherent in the use of the internet – CST is more accessible, immediate, and widespread. However, there are some

possibilities to attempt to curb the impact. While the internet is difficult to control or manage, and indeed too much government oversight can lead to other significant problems, adult supervision is key. International guidance could be offered for States to create and enforce requirements for schools to block certain websites commonly used in CST and for school officials to also monitor their school computers, and to provide required training for school educators to notice signs of potential online sexual exploitation or grooming of students.

Additionally, governments can be intentional about directing increased government funds toward anti-CST activities and personnel, and toward more campaigns by governments to recruit cybersecurity specialists for anti-CST efforts. As described above, the key ICT disparity between enforcement agencies and CST offenders is mostly to do with financial resources. Indeed, this problem goes beyond funds allocated to the specific use of ICTs in law enforcement; if agencies are underfunded, underpaid officials are easy targets for bribery. It appears that increased funding to law enforcement in the Destination States may be one way to help address this problem.

Further, governments should use available resources to make the public aware of the serious harms posed by CST. Many child sex tourists rationalize their violations of children's bodies as benevolent choices, arguing that they are financially helping the child and their family who live in poverty (Fredette, 2009). While this seems as clear evidence as any that if people want to see their behavior as moral, they will, governments and nongovernmental entities such as players in the tourism industry can create campaigns around the harm done to children by CST. While this harm is perfectly evident to many people, those involved in CST seem to encourage themselves to believe otherwise, so increasing public awareness that CST is incredibly damaging to children, including while en route to another destination, could possibly serve as a deterrent for some potential offenders.

CONCLUSION

The wide-ranging nature of the issue of CST requires solutions that are equally inclusive. Of course, the most alarming problems of the status quo relate to enforcement. Unfortunately, some of these issues are related to the way existing treaties are formulated, and for that reason the changes recommended by this paper, to the CRC for instance, could be beneficial in international efforts to combat CST. In the absence of any changes, State parties will continue to be “ships passing in the night” with respect to their enforcement efforts. In those situations where no extraterritorial laws regarding CST would apply, for instance, 13-year-old children in some jurisdictions might be victimized by CST with no repercussions. Similarly, where no extraterritorial laws apply, the victim might not be able to get justice if he was male; in some areas, the children themselves may be held responsible for their actions. Therefore, in addition to the proposed changes to the CRC, individual States would be best to adopt, strengthen, and enforce extraterritorial laws regarding CST. Individual states can also take action to channel government funds into law enforcement efforts to combat CST and to promote public campaigns against CST. If enacted, the changes proposed by this paper could help remove some of the roadblocks to the global elimination of CST and help better protect children from abuse.

Although the problem of CST paints a bleak picture for future enforcement efforts, new technologies employed by enforcement agencies and private actors alike could be used to combat CST. The 2013 United States Global Report on Trafficking in Persons made note of the impact of technology on recruitment of child victims of trafficking:

In the fight against modern slavery, technology can be a double-edged sword. Traffickers use technology to advertise their services widely and develop new methods to recruit, manipulate, and lure potential victims. Meanwhile, governments, anti-trafficking advocates, and technology companies are collaborating to leverage technological tools to turn the tables on the traffickers (United Nations Office on Drugs and Crime: Vienna, 2015).

In collaborative efforts to combat CST, it is important that governments in destination states and sending states alike take action to ensure that the potential benefits of ICT are used to their full potential. Following the guidance proposed by this paper is a step in the direction towards crafting a world safer for children at risk of CST.

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“Both Sides Are Just As Bad”: A Comparative Analysis of Domestic Extremism in the U.S. using the Global Terrorism Database

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ABSTRACT

In this study, I used regression analysis to perform a comparative analysis of domestic extremism in the U.S., utilizing the Global Terrorism Database (GTD). Groups were split into three groups based on their ideology: right-wing, left-wing, or other. Outcome variables that were studied included total killed, total wounded, and total property damage suffered during terrorist incidents. In summary, I found that there is a statistically significant difference in total casualties between left-wing and right-wing groups. In response to the increased threat posed by domestic extremists, I recommend a series of policy solutions, including the listing of active far-right groups as terrorist organizations, thereby limiting their ability to operate on tech platforms, and more.

INTRODUCTION

The field of extremism research has exploded in the last decade with research and think tanks putting out regular reports detailing the specific threats that people face all around the world. With attention being drawn on to extremists of all stripes, especially in the last two years, there is a wealth of existing literature that explains why certain groups are motivated towards acts of extremist violence. However a crucial question remains: broadly speaking, which political groups pose a serious threat to the life and wellbeing of civilians in the U.S.?

This paper seeks to answer that question by using the Global Terrorism Database (GTD) to analyze the outcomes of extremists attacks carried out by left-wing and right-wing extremists in the U.S. from 1980 to 2019 (START, 2022).

I use data visualization to gain an understanding of the differences in outcomes between the groups and regression analysis to see if those differences are statistically significant. Finally, I attempt to place these findings within a broader historical context and discuss their potential implications from a policy perspective.

BACKGROUND

Within the U.S., there has been a great deal of attention paid to the rise in far right extremism since the late 2000s. One of the major forums for the proliferation of far-right extremist thought has been Telegram, a popular encrypted messaging app that enables individuals to build channels or groups and broadcast or exchange messages. Disinformation, conspiracy theories, and accelerationism have been particularly popular on the platform (Walther and McCoy, 2021).

In a broader sense, researchers have also mapped out extremist attacks in the U.S. and found that the nature of attacks is not restricted to any specific geography, but is rather a “complex mosaic” of groups and identities (Webb and Cutter, 2009). Others have examined what motivates individual actors to commit ideologically motivated crimes, finding that social networks and experiences of economic or social loss of significance can impact an individual's decision to embrace an extremist political position and act on it (Jasko et al, 2017).

In terms of comparative studies of left-wing and right-wing extremism in the U.S., there is currently a shortage of research. Many studies incorporate jihadism, or look at broader trends within the extremist milieu such as Koch's study of left-wing and right-wing participation in the Syrian Civil War (Koch, 2021). In particular, Koch's study focused on the potential future consequences of battle hardened extremists with opposing ideologies.

This study seeks to fill a gap in the existing research by using the GTD to perform a comparative analysis of left-wing and right-wing extremism within the U.S. from 1980 to 2019.

METHODS

The GTD is an open source database managed by the National Consortium for the Study of Terrorism and Response to Terror (START) at the University of Maryland (START, 2022). The GTD contains over 200,000 cases of terrorism across the globe from 1970 to 2020. The database includes information regarding bombings, assassinations, kidnappings, and more. Attacks that occurred earlier in the 1970s and 1980s include at least 45 variables for each attack, and the more recent attacks include more than 120 variables. These variables include nation of origin of the perpetrator(s), the name of the group responsible for the attack, how many people were killed or injured, as well as a host of other data points.

For the purpose of this study, I utilized a subset of the GTD data, covering a period from 1980 to 2019. As the focus of this study is domestic extremism, I also limited the subset to only include attackers who were U.S. citizens.

I also generated two new variables to display the ideology of an attacker based on binary indicators for “right-wing”, “left-wing”, and “other.” One of the variables is a numeric indicator of ideology, and the other variable interprets this numeric value. Because of the limitations of the GTD, I had to manually identify groups using a combination of prior knowledge, context clues, and additional information within the GTD itself.

Groups that fell within the “right- wing” group included but were not limited to: The Order; United Aryan Empire; Army of God; Ku Klux Klan, and other unnamed groups with a clear ideological motivation such as Incel extremists; Sovereign Citizens; or Neo-Nazi extremists. Groups that fall within the “left-wing” group included but were not limited to: Animal Liberation Front (ALF), Black Liberation Army, Nuclear Liberation Front, and other unnamed groups with a clear ideological motivation such as Anarchists, Anti-Fascist Activists, or Anti-Police Extremists. The “other” category serves as a catch all for a number of different groups and individuals who committed acts of extremism that are more international in the scope of their politics, or that do not map easily onto a left-wing/right-wing dichotomy. Groups within this category included but were not limited to: Puerto Rican Armed Resistance, Justice Commandos for the Armenian Genocide, Croatian Freedom Fighters, as well as different Jihadi-

inspired extremists. For the purposes of this study, the “other” category served as a way to filter out these groups.

Finally, I dropped all other variables from the dataset except for the year the attack was committed, the name of the group, the groups ideology, how many people were killed, how many people were wounded, and the total cost of any property damage incurred during the attack. Using this final dataset, I then generated summary statistics tables, performed linear regressions to see if there was a statistical significance between ideologies, and produced a series of data visualizations.

ANALYSIS

I began my analysis by comparing the total number of people killed or wounded and the total property damage incurred for all attacks, grouped by the ideology of the perpetrator(s).

Table 1. Extremist Attack Outcomes in U.S. 1980-2019, by Ideological Grouping

	Total Killed	Total Wounded	Property Damage
Left-wing extremist attacks	41	64	\$100,009,782
Right-wing extremist attacks	366	1154	\$676,122,824

Source: Global Terrorism Database

The initial numbers in Table 1 show a very clear difference between the severity of these attacks based on ideology. Right-wing attacks were vastly more damaging and were over eight times more deadly than left wing attacks. To better understand these differences, cross tables were generated to see the frequency of wounds or kills in these attacks.

Table 2. Frequency of Total Killed in Extremist Attacks in U.S., 1980-2019, by Ideological Grouping

	0	1	2	3	5	6	7	8	9	10	13	18	28	36	44	169	Total
Left-wing	29	3	1	2	0	0	0	1	1	0	1	0	0	0	0	0	38
Right-wing	15	6	4	2	2	1	1	1	0	2	0	1	1	1	1	1	39
Total	44	9	5	4	2	1	1	2	1	2	1	1	1	1	1	1	77

Source: Global Terrorism Database

Table 3. Frequency of Total Wounded in Extremist Attacks in U.S., 1980-2019, by Ideological Grouping

	0	1	2	3	4	5	6	7	9	10	11	12	13	15	17	24	32	36	56	63	79	732	Total
Left Wing	29	3	1	2	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	38
Right Wing	15	6	4	2	2	1	1	1	2	0	1	1	1	2	1	0	1	1	1	1	1	1	39
Total	44	9	5	4	2	1	1	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	77

Source: Global Terrorism Database

Table 3 shows us the total number of instances in which 0 people were killed, 1 person was killed, and so on. The first and most important observation here is that there were 38 instances of left-wing extremism, and 39 instances of right-wing extremism in the period we are analyzing. This is important because it means that the total number of attacks is similar between both groups. Secondly, there were 29 left-wing extremist attacks and 15 right-wing extremist attacks, respectively, in which no one was killed. At the top end of the distribution, I also observed that the five most deadly events were all committed by right-wing extremists.

Table 3 continues this same trend indicating that the total number of people wounded in right wing extremist attacks far outpaces the number wounded from left-wing extremist attacks. More than 18 times more people were injured in right-wing attacks.

Thus, I am able to conclude that, cumulatively, right-wing attacks have been more deadly and have resulted in more wounding than left-wing attacks. Regression analysis is one way we can understand if there is a statistically significant difference between the ideologically motivated attacks. To that end, I performed three linear regressions each using a different dependent variable: total killed, total wounded, and total property damage.

Table 4. Significance Test of Political Ideology and Total Killed

	Dependent Variable:
	Total Property Damage
Left Wing Extremism	-8.306* (4.574)
Constant	9.385*** (3.213)
Observations	77
R2	0.042
Adjusted R2	0.029
Residual Std. Error	20.067 (df=75)
F Statistic	3.297 (df=1; 75)

Note: *p<0.1; **p<0.05; ***p<0.01
 Source: Global Terrorism Database

Table 5. Significance Test of Political Ideology and Total Wounded

	Dependent Variable: Total Property Damage
Left Wing Extremism	-27.906 (18.976)
Constant	29.590** (13.331)
Observations	77
R2	0.028
Adjusted R2	0.015
Residual Std. Error	83.251 (df=75)
F Statistic	2.163 (df=1; 75)
Note:*p<0.1; **p<0.05; ***p<0.01	
Source: Global Terrorism Database	

Table 6. Significance Test of Political Ideology and Property Damage

	Dependent Variable: Total Property Damage
Left Wing Extremism	-14,704,646 (16,959,579)
Constant	17,336,483 (11,914,107)
Observations	77
R2	0.010
Adjusted R2	-0.003
Residual Std. Error	74,403,576 (df=75)
F Statistic	0.752 (df=1; 75)
Note: *p<0.1; **p<0.05; ***p<0.01	
Source: Global Terrorism Database	

These regression models shown above (Tables 4-6) used ideology as a factor variable. In this instance, the constant term can be interpreted as the average number of deaths, wounds, or value of property damage committed during a right-wing attack, and the co-efficient associated with left-wing extremism indicates the difference when the perpetrator is motivated by left-wing ideological beliefs.

From Table 4, it is evident that ideology is statistically significant when looking at the deadliness of the attacks. When an attacker is left-wing, my model predicts that one can expect to see, on average, 8 fewer deaths than if the attacker had been right wing. Interestingly, I did not observe this same result in Tables 5 or 6. Based on regression analysis, I am able to conclude that there is a statistically

significant difference between the deadliness of ideologically motivated terrorism in the United States between 1980 and 2019. In the case of wounds and property damage, we fail to reject the null hypothesis.

Finally, in order to more deeply understand the difference between ideological groups and the outcomes of their attacks, I also plotted extremist attacks by year.

Figure 1. Deaths from US Domestic Extremist Attacks 1980-2019

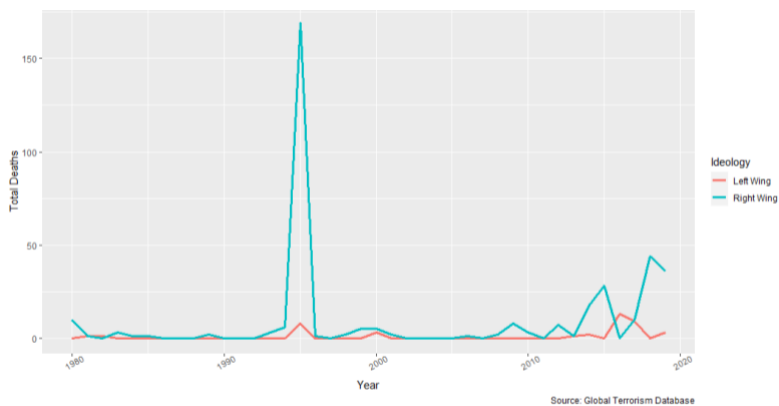


Figure 2. Wounds from US Domestic Extremist Attacks 1980-2019

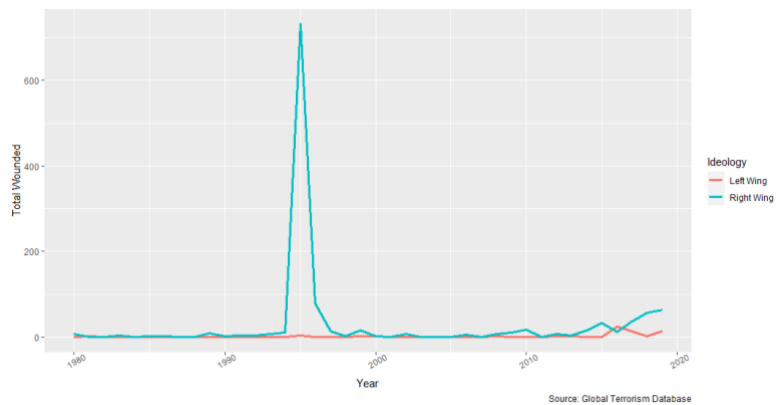
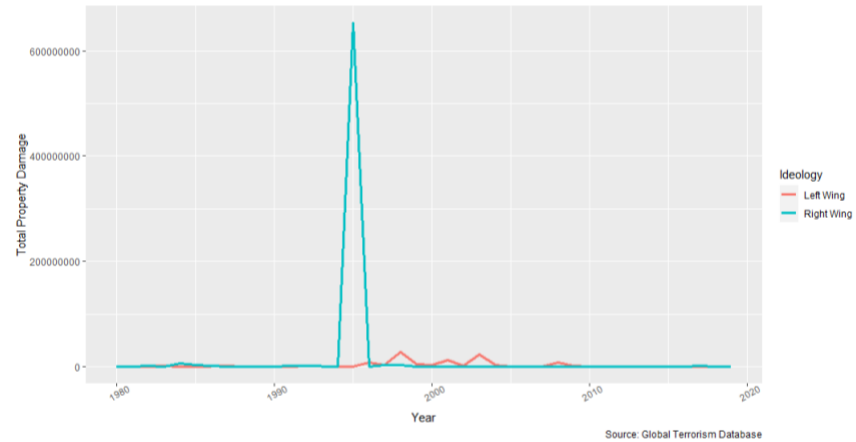


Figure 3. Property Damage from US Domestic Extremist Attacks 1980-2019



In Figures 1-3, I observed a large spike across in 1995. This spike is the Oklahoma City bombing, which was the deadliest terror attack on US soil up until 9/11, and continues to be the deadliest terror attack committed by a U.S. citizen. The event is massively significant, however, this prevents us from understanding the finer details of the differences between these groups over the four decades observed. To make the graphs more readable, I eliminated this attack from the dataset and generated a new series of graphs, as shown in Figures 4-6.

Figure 4. Deaths from US Domestic Extremist Attacks 1980-2019, Excluding the Oklahoma City Bombing

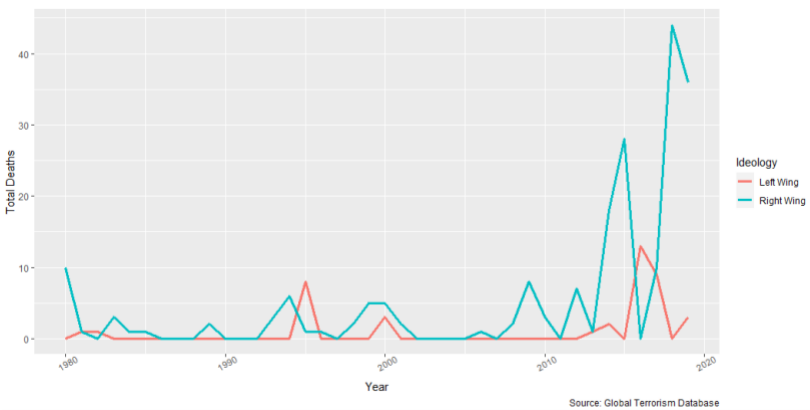


Figure 5. Wounds from US Domestic Extremist Attacks 1980-2019, Excluding the Oklahoma City Bombing

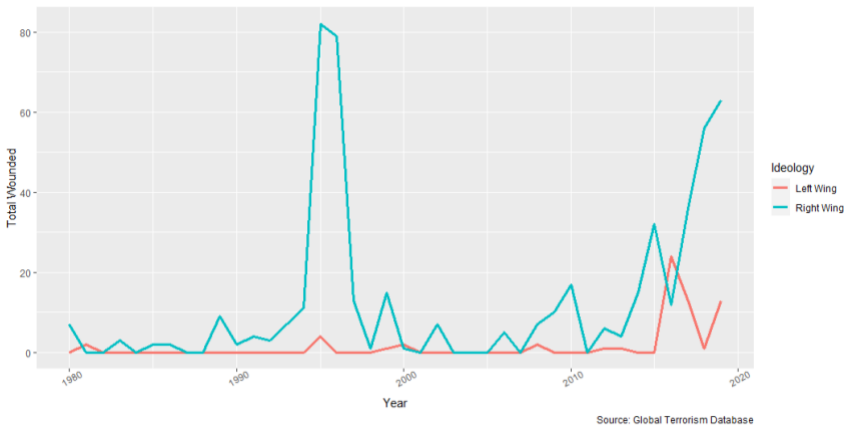
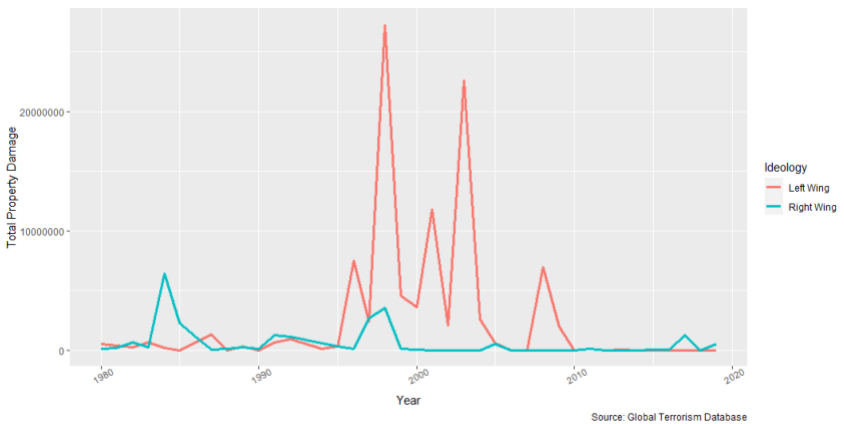


Figure 6. Property Damage from US Domestic Extremist Attacks 1980-2019



In Figure 4, it is clear that there were brief spikes in deadly violence from both groups throughout the 1990s and early 2000s, however, deaths from right-wing extremisms began to spike significantly around 2008 and continued to trend upwards afterwards, and then increased once again during and following the 2016 election cycle. A similar pattern can be seen in Figure 5 which looks at wounds from attacks, however, there is also a significant spike in the mid 1990s. Finally, as is evident from Figure 6, there were several attacks perpetrated by left-wing extremists that resulted in considerable property damage. These attacks were almost all committed by Earth

Liberation Front members, including the 1998 arson attack on the Vail Mountain Resort. These attacks then taper off almost entirely following the years-long campaign by the FBI to disrupt left wing extremism which specifically targeted environmentalist groups.

DISCUSSION

Based on my analysis, I can conclude that there is a statistically significant difference between left-wing and right-wing extremism. Right-wing extremists are deadlier on average in their attacks compared to left-wing extremists, even when we exclude the Oklahoma City Bombing from the dataset. While there doesn't appear to be a statistically significant difference between the number of people wounded by left-wing versus right-wing violence, there has been a recent increase in number of individuals hurt by right wing extremism from 2015 to 2019.

What is also concerning about these findings is that I observed a large spike in deadly right-wing violence in 2019. Although the data ends here, it has been established that far right groups in the US, such as the Proud Boys, have continued to organize and engage in street violence through 2020, and eventually carried out an attack on the U.S. Capitol, which resulted in the death of nine individuals (Cameron, 2022).

There are several reasons why right-wing extremists might be more deadly in their attacks, but Teun van Dongen posits one of the more likely reasons in his examination of left-wing extremism:

"But probably the most fundamental reason on the far-left to reject violence is that it goes against the principles that would be the basis of the kind of society they are striving for. For instance, while they make exceptions for self-defense or the defense of vulnerable groups, many anarchists point out that violence suggests domination and therefore should not have a prominent place in the repertoire of a movement that is all about liberation."

What van Dongen accurately points out here is that because left-wing political theory focuses far less on the elimination of outgroups,

there is less need for violence, and that is then reflected in the actions taken by those who ascribe to it (von Dongen, 2021).

From a policy perspective, we can use this deeper understanding of the threat environment to make more meaningful investments in public safety and encourage companies in the technology industry to take appropriate action to disrupt extremist networks. Policies for public safety could include declaring more active and violent right-wing extremist groups as terrorist organizations, particularly those involved in the attacks on the Capitol. It would also be in the interest of the public to prevent members of these groups from joining the military, police services, or serve in other capacities where they may be presented opportunities to abuse power or authority.

Similarly, the technology industry has a significant role to play as the platforms they create are used to radicalize others and inspire them towards acts of terror. Policies that would be of use include improving moderation algorithms, monitoring groups that are occupied by known extremists, banning accounts that share dangerous information, and investigating the accounts of "lone wolf" actors to better understand their radicalization process.

CONCLUSION

Based on my analysis, I am able to conclude that right-wing extremism is deadlier than left-wing extremism. While right-wing extremists are responsible for more non-lethal harm and more property damage, there was not a statistically significant difference from their left-wing counterparts.

Trends in extremism shift and change over time. From the Weather Underground, to neo-nazi skinheads, to ISIS inspired attacks, the U.S. has seen ebbs and flows in the ideology that inspires extremists to carry out acts of unspeakable violence. I believe that this study speaks to the threats we face in this current moment in history, and says quite clearly that far right extremist groups pose a serious and deadly threat to U.S.

Policies such as barring members of these groups from the armed forces and becoming police officers could be effective in limiting the types of training they are able to access. Similarly, their digital

networks should be disrupted by tech platforms whenever possible. Additional research could also be conducted in how these digital spaces are used to inspire individual actors. While these threats are real, it is more than possible for lawmakers to create policies that disrupt extremist networks and create a safer and more equitable world for us all.

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Associations between Neighborhood Characteristics and Children's Use of Preventive Health Services

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ABSTRACT

Andersen's Behavioral Model of Health Services Use acknowledges the importance of the external environment in how individuals utilize healthcare services. Using Anderson's model of behavioral health sciences, this study seeks to investigate the associations between children's external environment, at the neighborhood level, and their use of preventive health services. Specifically, this study uses data from the 2020 National Survey of Children's Health to investigate how parents' perception of their neighborhoods shaped children's use of preventive health services over the past year. Results show that children whose parents perceived their neighborhoods to be unsafe had lower odds of having a preventive medical visit; neighborhood amenities like sidewalks, walking paths, recreation centers, and community centers are associated with higher odds of having a preventive medical care visit; the presence of one or two detracting elements like litter or garbage on the sidewalk, rundown housing, and vandalism, are also associated with lower odds of having a preventive medical care visit, while three or more detracting neighborhood elements predict higher odds of having a preventive medical care visit. These findings suggest that neighborhood factors may influence children's utilization of preventive healthcare services either by creating barriers to access or by generating greater healthcare needs.

INTRODUCTION

Well-child and preventive care in childhood have a positive effect on health outcomes including a decrease in avoidable hospital visits (Hakim & Bye, 2001), and an increased likeliness of receiving appropriate immunizations (Davis et.al., 1999). The American

Academy of Pediatrics (AAP) recommends 30 preventive care visits from infancy to 21 years of age, including yearly visits from age 3, for optimal health outcomes (AAP, 2022). However, millions of children across the United States do not receive the recommended preventive care (CDC, 2014). In his Behavioral Model of Health Services Use, Andersen (1968) acknowledged the importance of community factors in how individuals utilize health-care services. A second model, developed in the 1990s, incorporated the ‘external environment’, comprising physical, political and economic components (Anderson, 1995). These factors, within communities, affect how individuals use health services. Using Anderson’s Behavioral Model of Health Services Use, this study examines how children’s external environment – at the neighborhood level and as perceived by their caregivers – influences their use of preventive care.

An individual’s neighborhood has previously been described as an important factor to health (Diez Roux & Mair, 2010). While there are many theoretical and methodological complexities to measuring the impact of neighborhood characteristics on health, and causality is often difficult to identify, previous studies have found associations between neighborhood characteristics and health outcomes (Sampson et.al., 2002 for a review of literature). As Kirby and Kaneda (2005) note, the concentration of disadvantaged individuals into a specific area turns disadvantage into an “emergent characteristic” of that area, thereby creating barriers in access to healthcare. Although neighborhood barriers to children’s use of and access to healthcare are understudied, neighborhood socioeconomic disadvantages in adulthood are associated with a decreased likelihood of having a usual source of care and an increased likelihood of experiencing unmet needs (Kirby & Kaneda, 2005).

Children’s immediate external environments can have a significant impact on their behaviors, health, and wellbeing. Earls and Carlson (2001) note the importance of studying the family, school, neighborhood, and community contexts in which children grow up. This study seeks to investigate the relationship between children’s external environments and their use of health services. Specifically, this study examines whether neighborhood characteristics – whether they are safe, supportive, have certain amenities or

detracting elements, as perceived by parents/caregivers –influence children’s use of preventive medical care.

DATA AND METHODS

This study uses data from the 2020 National Survey of Children’s Health (NSCH). The 2020 NSCH covers 50 states and the District of Columbia. Households were randomly sampled and contacted by mail to identify those with one or more children. Parents or caregivers within the sampled households were asked questions relating to the well-being of children, including access and quality of health care, parental health, school and after-school experiences and neighborhood characteristics. In households with multiple children, one child was selected at random to be the subject. A total of 42,777 surveys were completed for children between the ages 0-17. After deletion of missing responses on key indicators, 40,561 observations remained.

Preventive medical visits in the past year is the outcome variable of this study. In the NSCH, children were identified as having received preventive medical care if the respondent (the child’s parent/caregiver) responded “Yes” to the survey question “During the past 12 months, did this child see a doctor, nurse, or other health care professional for sick-child care, well-child check-ups, physical exams, hospitalizations or any other kind of medical care?” and if they reported at least 1 visit for the survey question “During the past 12 months, how many times did this child visit a doctor, nurse, or other health care professional to receive a preventive check-up?”. The outcome variable was binary coded (0 if the child had no preventive visits; 1 if the child had one or more preventive visits).

Neighborhood characteristics are measured using parents/caregivers’ perception of neighborhood safety, support, amenities and detracting elements. Neighborhood safety is assessed by whether parents/caregivers definitely agree, somewhat agree, or somewhat/definitely disagree that the child lives in a safe neighborhood. Neighborhood support is an indicator variable (0 = no; 1 = yes) derived from responses to three statements: 1) People in this neighborhood help each other out; 2) We watch out for each other’s children in this neighborhood; 3) When we encounter difficulties, we know where to go for help in our community. Children

are considered to live in supportive neighborhoods if their parents reported “definitely agree” to at least one of the items above and “somewhat agree” or “definitely agree” to the other two items. Neighborhood amenities are scored as a count variable (0-4) indicating the number amenities (parks, recreation centers, sidewalks, libraries) noted by the respondent in the neighborhood. Similarly, detracting elements are coded as a count variable (0-3) to indicate the number of detracting elements (litter or garbage on the street or sidewalk, poorly kept or rundown housing, or vandalism) that the respondent notes in the neighborhood.

Beyond the external environment, Andersen (1995) notes predisposing characteristics, enabling resources and health needs as factors that influence health behavior. In this study, I control for race, sex, and age to account for predisposing characteristics; chronic or lifelong conditions to account for health needs; and income and insurance status to account for enabling resources. I use logistic regressions to assess neighborhood effects on preventive medical care. Model 1 shows the unadjusted effect of neighborhood characteristics on preventive care. Model 2 adjusts for demographic and predisposing factors (sex, race, current or lifelong health conditions). Model 3 further adjusts for enabling resources (income, insurance status).

FINDINGS

DESCRIPTIVE STATISTICS

Figure 1 indicates that most children in the sample had a preventive medical care visit in the past year. Approximately 81% respondents indicated that their child had a preventive medical visit in the past year and 18% indicated that their child had not. Table 1 details the sample distribution by preventive medical care status. Based on responses by the parents/caregivers, of children that lived in unsafe neighborhoods 21.7% did not have a preventive care visit over the past year, and of children that did not live in a supportive neighborhood 19.8% did not have a preventive care visit over the past year.

Figure 1. Proportion of children that had a preventive care visit in the past year (n = 40561)

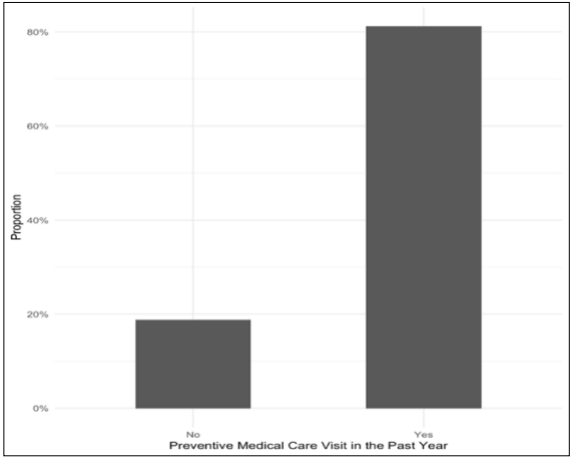


Table 1 presents descriptive statistics by preventive medical care visit status. As the number of neighborhood amenities increase (from 0-4), the percent of children that received preventive medical care also increases. For instance, of children whose parents indicated they have 1 neighborhood amenity, 78.6% had received preventive medical care in the past year and 21.4% had not; and of children whose parents indicated they had 4 neighborhood amenities, 82.9% received preventive medical care in the past year and 17.1% did not. Similarly, as the number of detracting elements increased (from 0-2) the percent of children that did not have a preventive medical care visit also increases. However, this trend breaks at 3 detracting elements, possibly due to the small subsample. 23.7% Hispanic respondents (as opposed to 16.8% White respondents) indicated that their child had not received a preventive care visit in the past year. 29.5% respondents that were under 100% of the federal poverty level and 45.3% that indicated their child was uninsured also indicated that the child had not received a preventive medical care visit in the past year.

Table 1. Descriptive Statistics by Preventive Medical Care Visit Status

	Total (n)	Preventive Medical Care Visit in the Past Year		X ²	p-value
		Yes (n%)	No (n%)		
	40561	32934 (81.2)	7627 (18.8)		
Safe neighborhood				11.93	<0.01
<i>Definitely agree</i>	28322	23093 (81.5)	5229 (18.5)		
<i>Somewhat agree</i>	10753	8677 (80.7)	2076 (19.3)		
<i>Somewhat/definitely disagree</i>	1486	1164 (78.3)	322 (21.7)		
Supportive neighborhood				15.30	<0.001
Yes	24730	20230 (81.8)	4500 (18.2)		
No	15831	12704 (80.2)	3127 (19.8)		
Neighborhood amenities				94.67	<0.001
0	4590	3577 (77.9)	1013 (22.1)		
1	4633	3640 (78.6)	993 (21.4)		
2	7505	6010 (80.1)	1495 (19.9)		
3	9503	7832 (82.4)	1671 (17.6)		
4	14330	11875 (82.9)	2455 (17.1)		
Neighborhood Detracting Elements				18.42	<0.001
0	30919	25213 (81.5)	5706 (18.5)		
1	6191	4920 (79.5)	1271 (20.5)		
2	2000	1601 (80.0)	399 (20.0)		
3	1451	1200 (82.7)	251 (17.3)		
Race				216.12	<0.001
White, NH	27038	22493 (83.2)	4545 (16.8)		
Black, NH	2621	2037 (77.7)	584 (22.3)		
Other, NH	5497	4280 (77.9)	1217 (22.1)		
Hispanic	5405	4124 (76.3)	1281 (23.7)		
Sex				3.33	<0.1
Male	7627	16925 (80.9)	4008 (19.1)		
Female	329934	16009 (81.6)	3619 (18.4)		
Lifelong health conditions				321.19	<0.001
None	23609	18474 (78.2)	55315 (21.8)		
One or more	16952	14460 (85.3)	2492 (14.7)		
Poverty level (FPL)				846.57	<0.001
0-99%	4920	3469 (70.5)	1451 (29.5)		
100 - 199%	6713	5153 (78.6)	1560 (23.2)		
200-399%	12476	9977 (80.0)	2499 (20.0)		
400% or greater	16452	14335 (87.1)	2117 (12.9)		
Insurance status				937.30	<0.001
Insured	38624	31875 (82.5)	6749 (17.5)		
Uninsured	1937	1059 (54.7)	878 (45.3)		

Source: National Survey of Children's Health, 2020

NEIGHBORHOOD EFFECTS ON UTILIZATION OF PREVENTIVE MEDICAL CARE

All three models (Table 2) show that that parent-perceived neighborhood amenities play a significant role in the utilization of preventive medical care. Neighborhood amenities consistently had a statistically significant dose-response relationship with children's utilization of preventive medical care. Children from neighborhoods that had at least two amenities had 14.5% (OR 1.145) higher odds of receiving preventive medical care than children from neighborhoods that had no amenities. These odds increase to 32.7% (OR 1.327) with three neighborhood amenities, and 36.6% (OR 1.366) with four neighborhood amenities.

While the presence of detracting elements has a statistically significant, negative association with preventive medical care visits in models 1 and 2, this effect is mediated in model 3 by income and insurance status.

Moreover, in model 3, as the number of detracting elements increase, children become more likely to access preventive medical care. Children from neighborhoods with three parent-perceived detracting elements had 11.8% (OR 1.118) higher odds of utilizing preventive medical care in the past year than those from neighborhoods with no detracting elements. Children whose parents indicated that the neighborhood was somewhat/definitely unsafe consistently had slightly lower odds of utilizing preventive medical care.

The control variables included in the study behaved as expected, with children from more vulnerable populations having lower odds of receiving preventive medical care. For instance, Hispanic children had 7.7% lower odds and black children had 19.5% lower odds of having had a preventive medical care visit in the past year, as compared to white children.

Table 2. Logistic estimates of preventive medical care in the past year

Preventive Medical Care Visit in the Past Year			
	(1) Unadjusted model Odds ratio	(2) Predisposing Characteristics Odds ratio	(3) Resources Odds ratio
Safe Neighborhood:			
<i>Somewhat Agree</i>	0.986	0.961	1.001
<i>Somewhat/Definitely Disagree</i>	0.860**	0.828**	0.934
Supportive Neighborhood:			
<i>No</i>	0.944*	0.962	1.009
Neighborhood Amenities:			
<i>1</i>	1.041	1.059	1.035
<i>2</i>	1.145***	1.177***	1.148***
<i>3</i>	1.327***	1.369***	1.258***
<i>4</i>	1.366***	1.466***	1.281***
Neighborhood Detracting Elements			
<i>1</i>	0.881***	0.858***	0.929**
<i>2</i>	0.939	0.877**	0.964
<i>3</i>	1.118	1.014	1.106
Race/ethnicity			
<i>Hispanic</i>		0.658***	0.805***
<i>Black, NH</i>		0.712***	0.923**
<i>Other, NH</i>		0.704***	0.742***
Sex			
<i>Female</i>		1.099***	1.085***
Age			
<i>6-11 years</i>		0.423***	0.420***
<i>12-17 years</i>		0.301***	0.296***
<i>≥1 current/lifelong health conditions</i>		2.059***	2.073***
Income level			
<i>100 - 199%</i>			1.366***
<i>200-399%</i>			1.575***
<i>400% or greater</i>			2.617***
Insurance status			
<i>Uninsured</i>			3.215***
Constant	3.716***	6.779***	1.290***
Observations	40,561	40,561	40,561
Log Likelihood	-19,583.10	-19,264.54	-18,650.70
Akaike Inf. Crit.	39,108.20	38,561.08	37,341.39

Note: * $p<0.1$; ** $p<0.05$; *** $p<0.01$

DISCUSSION

The results of this study provide evidence that neighborhood structures may influence children's utilization of health services and are consistent with Andersen's contention that one's external environment is an important factor to healthcare utilization. Specifically, this study finds that children have higher odds of having a preventive healthcare visit over the past year if they live in a safe neighborhood or in a neighborhood that has a greater number of amenities. This study also finds that an increasing number of detracting elements in the neighborhood is associated with higher odds of utilizing preventive health services.

Living in neighborhoods rich in amenities can contribute to social capital by building sociability and community engagement which can further promote the diffusion of health information (Berkman & Kawachi, 2000; Rogers 1983). These processes may also ensure access to services such as transportation and community health clinics which can aid the utilization of preventive health services. This may explain why amenities like sidewalks, walking paths, recreation centers, and community centers are significantly associated with greater odds of having a preventive medical care visit. Children whose parents perceived their neighborhoods to be unsafe had lower odds of having a preventive medical care visit over the past year. This finding is consistent with previous studies (Ceasar et.al., 2020; Tung et.al.,2018) that find individuals from unsafe neighborhoods less likely to utilize healthcare services and health-enabling resources. Neighborhoods that are perceived to be unsafe may also be less likely to have health-enabling businesses like clinics or pharmacies, therefore impeding children's utilization of preventive health services.

The presence of one or two detracting elements like litter or garbage on the sidewalk, rundown housing, and vandalism are also associated with lower odds of having a preventive medical care visit. However, three or more detracting neighborhood elements predict higher odds of having a preventive medical care visit. While it is difficult to say what causes this discrepancy, previous studies have shown that detracting neighborhood elements shape parent perceptions of worse health for children (Cornin & Gran, 2018). When parents perceive their children's health to be poor, they may be more likely to utilize healthcare services. An increasing number of

detracting elements may cause parents to perceive their children to be unhealthier and in need of health services, making them more likely to have a preventive medical visit. Additionally, poor neighborhood conditions have been associated with a higher number of hospitalizations (Yousey-Hindes & Hadler, 2012; Chang et.al., 2013), greater usage of emergency departments (Kaiser et.al., 2022) and higher potentially preventable healthcare costs (Zhang, 2020). Children who grow up in disadvantaged neighborhoods with multiple detracting elements may be more likely to have greater need for preventive care due to a range of social and environmental factors, such as exposure to toxins, inadequate housing, and lack of access to healthy food. Further research is required for a comprehensive understanding on how neighborhood detracting elements may influence healthcare utilization.

These findings suggest that neighborhood factors may influence children's utilization of preventive healthcare services either by creating barriers to access or by generating greater healthcare needs. Critical policy interventions may involve identifying at-risk neighborhoods and providing them with additional resources and guiding community-level efforts to improve children's health outcomes. However, there remains a gap in evidence on the socio-economic structures and policies that generate neighborhood level inequalities. Additionally, data that capture neighborhood-level characteristics and health outcomes remain insufficient.

While this study provides evidence that parents' perception of neighborhood characteristics may influence children's utilization of preventive healthcare services, the relationship between neighborhood disadvantage and healthcare utilization merits further research. This is a cross-sectional analysis, limiting causal inference. Apart from using parents' perception of neighborhood characteristics and neighborhood boundaries, children's preventive medical care visits are also reported by parents and may therefore be overreported due to social-desirability bias.

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