Michigan Foreign Policy Review

Volume 10 | Issue 1

MFPC

Dear Reader,

We, the Executive Board of the Michigan Foreign Policy Council (MFPC), are proud to share with you the nineteenth installment of the Michigan Foreign Policy Review. The following pages reflect the curiosity, passion, and diligence of our researchers and editors. Each article, from discussing the impacts of the Northern Ireland Protocol on European trade to the human rights implications of China's surveillance use, has demonstrated the dedication and high research standards that our membership upholds. We hope you are imparted with the same impression as you read.

As we look forward to the winter semester, we have taken the time to reflect back on our initiatives this semester in fostering mentorship, building professional development, fostering club camaraderie, and teaching research workshops. We extend our deepest gratitude to our membership, who worked on a condensed timeline this semester, and still put their best foot forward at every step. The dedication from our new class of members was especially palpable, and their enthusiasm reflects what makes MFPC so successful as both a center for research and a community. Together, we stand steadfast in our commitment to making a meaningful contribution to the literature shaping informed and productive foreign policy debate.

We strive to publish original papers while teaching fellow students the research, editing, and collaborative skills that will be vital in their future careers. Simultaneously, we focus on providing space for open discussion and debate, skills central to making progress within the field of foreign policy. As always, we remain rooted in our commitment to encouraging our membership to form policy opinions on the basis of substantive research.

We are confident that the nineteenth installment of the Michigan Foreign Policy Review demonstrates the dedication, curiosity, and enthusiasm of each one of our members. We hope the following pages spark your interest and teach you something new. They certainly did for us.

Sincerely,

Helen Hicks
Co-President

Leah Goldstein
Co-President

Lily Wu
Co-Editor-in-Chief

Alexandra Tokar
Co-Editor-in-Chief

Rachel Zaidan
Co-Editor-in-Chief

Grace Russel
Vice President of Policy

Allison Voto
Director of Membership

Audrey Brower
Director of Finance

Ananya Shah
Director of Marketing

Ameri Vest
Director of Development

Acknowledgements

The Michigan Foreign Policy Council would like to give special thanks to the following individuals and entities:

University of Michigan Department of Political Science
Departmental Sponsor

University of Michigan Program in International and Comparative Studies
Supporting Department

Javed Ali
For his significant contributions to our membership's professional development

The Weiser Diplomacy Center
For their dedication to encouraging foreign policy discourse on campus

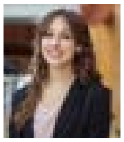
---

MFPC Editing Committee:

Michael Bryant, Amra Kelly, Rebecca Davidov, Anjana Murthy,

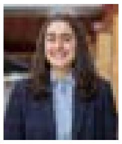
Natalie Timberg, Maggie Hartman, Natalia Pataq, Logan Marcum

Michigan Foreign Policy Council Executive Board



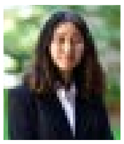
Helen Hicks | Co-President

Helen is a senior from Milwaukee, Wisconsin, pursuing a major in Biology, Health, and Society and a minor in Public Policy. She joined MFPC during her freshman year and has published two Global Health research papers. In addition, she has previous experience serving as Co-Editor-in-Chief and Director of Development. Upon graduation, Helen plans to attend medical school.



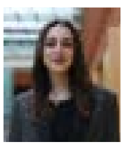
Leah Goldstein | Co-President

Leah is a senior from New York City majoring in International Studies. Her research interests are Turkish Politics, human rights and international law. She has previous experience in MFPC as Co-Editor-in-Chief, Director of Marketing, a researcher and a group editor. After graduation, Leah aspires to go to law school and focus on Middle Eastern Politics.



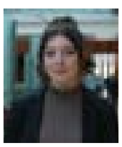
Lily Wu | Co-Editor-in-Chief

Lily is a junior from Horsham, Pennsylvania studying Economics and International Studies under the International Security, Norms, and Cooperation sub-plan. She previously published National Security research and has authored senior analyst articles about United Nations reform, Middle East pluralism, and more. She aspires to earn a PhD in economics.



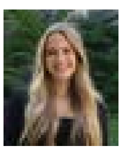
Alexandra Tokar | Co-Editor-in-Chief

Alexandra is a junior from Ashland, Massachusetts, studying Public Policy with minors in Business and Russian Language, Literature, and Culture. She joined MFPC her freshman year and published two human rights research papers and a policy proposal. After graduating, Alexandra hopes to work in the field of foreign policy and human rights.



Rachel Zaidan | Co-Editor-in-Chief

Rachel is a senior from Kalamazoo, Michigan pursuing double majors in International Studies and Sociology with a minor in Writing. She has served as a National Security group editor for MFPC, and has published a policy proposal on prosecutorial procedure in International Law. After graduating, Rachel will work in human rights and eventually attend law school.

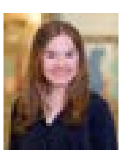


Grace Russel | Vice President of Policy

Grace is a senior from Marysville, Michigan, pursuing a major in Political Science and a minor in Law, Justice, and Social Change. She joined MFPC in her first semester of freshman year and has published two human rights research papers, as well as served as an editor for a global health research paper. After graduating, Grace aspires to attend law school.

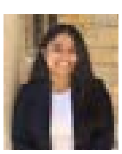
Allison Voto | Director of Membership

Allison is a junior from Waterford, Michigan, majoring in International Studies and Political Science with a minor in Spanish. She joined MFPC her freshman year and has published four research papers on human rights and climate and energy. She has also acted as an editor for two semesters. Upon graduation, Allison intends to attend law school.



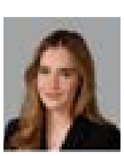
Audrey Brower | Director of Finance

Audrey is a senior from Denver, Colorado, studying economics and history of law and policy. She joined MFPC during her junior year after transferring to the University of Michigan and published a policy proposal in the Winter 2025 journal. Upon graduating, Audrey hopes to attend law school and become a lawyer.



Ananya Shah | Director of Marketing

Ananya is a sophomore from Sterling Heights, Michigan, studying Political Science with an interest in Comparative Politics. She joined MFPC during her freshman year and previously published national security research. After graduation, she aspires to one day attend law school.



Ameri Vest | Director of Development

Ameri is a junior from Boston, Massachusetts, pursuing a dual major in Philosophy, Politics, and Economics and International Studies, as well as a minor in History of Law and Policy. She joined MFPC during her freshman year and has published four research papers and served as a group editor. Upon graduation, Ameri plans to attend law school.

Table of Contents

SENIOR ANALYSTS

Allison Voto

Allison is a junior majoring in International Studies and Political Science with a minor in Spanish. Her research in MFPC has focused on human rights and climate in Latin America. This article focuses on President Arévalo’s anti-corruption efforts in Guatemala and the fight for the rights of nature in Ecuador.

Arévalo’s Fight Against Corruption in Guatemala

Anna Well

Anna is a senior majoring in in International Studies, with a focus on Security, Norms and Cooperation. Her past research in MFPC has included the regions of Sub-Saharan Africa as well as South America. This semester, her article focuses on the UAE's role in the war in Sudan.

The UAE’s Detrimental Role in the War in Sudan

Ben Saudek

Ben is a sophomore intending to major in Public Policy with a minor in Philosophy. He plans to attend law school after graduating. This article explores Nepal's recent democratic crisis and economic challenges amid rising public unrest. It also examines the strategic influence of global powers and the importance of international support for Nepal's stability.

Building Democracy: Why U.S. Support for Nepal Matters

Clara Adsit

Clara is a senior majoring in Political Science with a minor in Statistics. This article focuses on the impacts of artisanal and semi-industrial gold mining in Mozambique and the DRC, revealing how toxic extraction practices, weak regulation, and global demand have produced a regional public-health emergency.

Toxic Gold: How Mining Fuels Environmental Disasters in Africa

Emma Dorre

Emma is an International Studies major concentrating in Security, Norms, and Cooperation, with an Environment minor. Her article focuses on the EU's dependence on Russian energy, which is causing division. The dilemma raises a fundamental question: can the EU truly maintain unity when the price of solidarity entails national sacrifice?

Energy Dependence on Russia Causes Division Among EU States

Liam McCanny

Liam is a senior studying Political Science. He is interested in environmental and economic policies in the developing world, particularly in sub-Saharan Africa. After graduating, he will be working in environmental policy. This article compares the emerging relationship between Burkina Faso and Russia with the role France has played in its former colony.

Russia is Not Replacing France in Burkina Faso

RESEARCH PAPERS

The Northern Ireland Protocol and the Dynamics of Cross-Border Trade

Michael Bryant, Catherine Van Lent, Jackson Jonker, Samantha Chklovskii

Our research examines the impact of the 2021 Northern Ireland Protocol on cross-border trade between Northern Ireland and the Republic of Ireland (ROI). Following the UK's official withdrawal from the European Union (EU) in January 2020, the UK, Northern Ireland, and the ROI jointly created the Northern Ireland Protocol to establish a post-Brexit regulatory framework. The Protocol allows Northern Ireland to maintain alignment with EU single market rules while remaining part of the UK customs territory. To understand the Protocol's impacts on cross-border trade, we analyzed changes in total trade volumes, sectoral shifts, and changes in Northern Ireland's trade relationship with both the ROI and Great Britain. Our findings reveal a dramatic increase in cross-border trade between the ROI and Northern Ireland. This growth reflects Northern Ireland's reliance on the ROI's processing infrastructure, as once Northern Irish products are processed in the ROI, they gain barrier-free access to the entire EU market. Northern Ireland effectively uses the ROI as a gateway to EU markets, allowing Northern Irish goods to reach the broader EU without facing the customs barriers which affect the rest of the UK. Ultimately, we concluded that the Northern Ireland Protocol transformed the ROI into Northern Ireland's gateway to EU markets, though external factors such as the COVID-19 pandemic and inflation complicate attributing cross-border trade growth to the Protocol alone.

Introduction

Centuries of religious and political divisions within Ireland led to the island's division into two governments by the Government of Ireland Act of 1920. Northern Ireland is predominantly Protestant and has remained part of the United Kingdom (UK); the Republic of Ireland (ROI) is majority Catholic but gained independence from the UK. However, the ROI remained in the European Union (EU) in the aftermath of Brexit, which occurred on January 31, 2020, and marked the UK's withdrawal from the EU. The EU, formed after World War II, is a political and economic union that binds 27 member states under a common currency, the euro, and creates an economic zone with few trade barriers. Brexit created an unprecedented economic challenge: how to manage the new UK-EU border. Placing a hard border, marked by customs checks, between Northern Ireland and the ROI was feared to be an economic disruption to the flow of goods and to destabilize the peace established by the 1998 Good Friday Agreement.

To sustain high trade volume, the EU and UK proposed the Northern Ireland Protocol. Its purpose was to eliminate a hard border between the north and south of Ireland while also ensuring some regulation remained. The Protocol also created a new de facto customs border in the Irish Sea, with checks applied to goods moving from Great Britain to Northern Ireland. While this protected the island of Ireland (ROI and Northern Ireland), it was controversial among Northern Ireland's unionist communities and politicians who argued that it undermined their place within the UK and severed them constitutionally from the rest of the UK. The controversy led to political deadlock, with the Democratic Unionist Party refusing to participate in Northern Ireland's power-sharing government for two years in protest. In an attempt to resolve these tensions, the UK and EU renegotiated the agreement, culminating in the Windsor Framework in 2023 being finalized at Windsor Castle, a symbolic location for revitalized cooperation. The revised framework aimed to reduce the perceived border in the Irish Sea by creating a "green lane" for goods remaining in Northern Ireland and a "red lane" for those goods bound for the ROI and the EU Single Market.

This research examines the years 2015-2023 and the extent to which economic growth across the two nations can be attributed to the success of the Northern Ireland Protocol. Research was split into three approaches; First, cross-border trends were researched to better understand if the Northern Ireland Protocol provided key insights into the success of free trade agreements. Second, industry breakdowns and policy-linked shifts were examined to understand the effect of the Protocol on industry-specific performance and changing relationship between the ROI and the UK. Third, the research considered alternative contributors to economic growth, such as the COVID-19 pandemic, in addition to current global economic trends, that complicate the analysis of cross border trade after the Protocol. Understanding the complex effects of the Northern Ireland Protocol on cross-border trade provides critical insights into the realities of free trade agreements and their consequences on regional economies and political stability.

Review of the Literature

Cross-Border Trade Before Brexit

Historical Context

On June 23, 2016, United Kingdom citizens voted to leave the European Union, under Brexit. The decision barely passed with only 52% of UK voters, reflecting its ongoing controversy and tension (UK Electoral Commission, 2016). In the nearly four years between Parliament's vote and the UK's official withdrawal, questions over the political and economic implications of Brexit dominated the European media sphere. At the forefront of these questions was Brexit's impact on the tense relationship between Northern Ireland and the Republic of Ireland (ROI).

Northern Ireland and the ROI's tense history dates back over a century. In 1921, the Catholics fought to leave British rule, which was majority Protestant (Knispel, 2021), and succeeded in the Irish War of Independence, which lasted from 1919 to 1921. The Irish Free State, which was majority Catholic, minority Protestant, was split into two, with the Catholic majority in the Irish Free State and Protestant majority in Northern Ireland (Roos, 2025). Both parts of Ireland had minorities of the other religion as well. Northern Ireland also remained under British rule while the Republic of Ireland, then called the Irish Free State, did not (Roos, 2025). Tensions over religious differences continued for decades and became known as "The Troubles". This time period resulted in violence, police brutality, and the tragedy known as Bloody Sunday—the 1972 massacre in Derry, Northern Ireland, where British soldiers shot 26 unarmed civilians during a civil rights march (Roos, 2025). Conflict prolonged until the signing of the Good Friday Agreement in 1998, which was a treaty to end the suffering on both sides (BBC, 2023). It laid the foundations for a new government where power was shared amongst both religious groups (BBC, 2023). The new government consisted of a power-sharing arrangement between Unionists and Nationalists.

Economic Context

Before the Brexit referendum in June 2016, Northern Ireland (NI) was a key stakeholder in cross-border trade to the Republic of Ireland (ROI) and to the rest of the United Kingdom (England, Scotland, and Wales). The Irish border was first established in 1920 under the Government of Ireland Act, which divided Ireland into the more commonly known Northern Ireland and the previously titled Southern Ireland (Daly, 2017). This act was begrudgingly accepted by both sides and did not lead to immediate cross-border trade due to state tensions and existing religious conflict (Daly, 2017). As a result, citizens across both sides of the border saw customs posts raising the costs of goods at the border (Daly, 2017). It was not until the first free trade area agreement in 1965 and then later in 1993 when those posts were removed (Daly, 2017). The 1998 Good Friday agreement resulted in the ROI becoming NI's largest and most profitable trading partner by establishing strong relations and trade agreements (O'Brien, 2024). The agreement led to economic prosperity because it increased employment and showed Ireland to be more attractive to Foreign Direct Investment since the fighting had ceased. Currently, Ireland exports ten to twelve percent of its goods to the United Kingdom and seven to eight percent of all imported goods (Intertrade Ireland, 2017). This can be attributed to the assistance of Northern Ireland as a trading hub. Even with a little more than one-third of Ireland's population, Northern Ireland played a major role in trade between Ireland and the UK (Central Statistics Office, 2023). Between 2011 and 2016, two billion euros, or 42.7% of sales, were to the Republic of Ireland (Ward, 2022). In addition, imports of intermediate goods from NI to the Republic of Ireland were higher in most trade sectors than equivalent sectors across the rest of the UK (Intertrade Ireland, 2017). The high proportion of intermediate input trade demonstrates the high connectivity between NI and the Republic of Ireland even before the Northern Ireland Protocol. As seen in Figure 1 from the Central Statistics Office, below, trade between the ROI and NI fluctuated with similar plummets for imports and exports in 2000 and 2007, while peaks can be more noticeably observed in exports in 1998 and 2013. Imports saw few peaks and remained below 2007 imports until 2020, with Brexit (Intertrade Ireland, 2017).

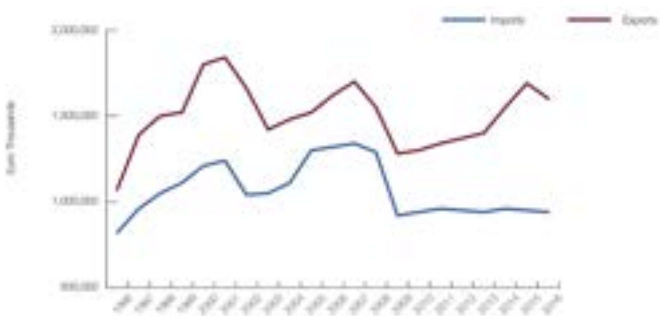


Figure 1: *Irish Trade with Northern Ireland, 1996-2016*
Source: Central Statistics Office (CSO) of Ireland, 2017

A significant portion of cross-border trade results from firms simultaneously trading both through imports and exports (Intertrade Ireland, 2017). Such trade accounted for 60%of exports and over 70%of imports right before the passing of Brexit in 2015 (Intertrade Ireland, 2017). In 1975, 11% of the ROI's good exports were to Northern Ireland, and in 2020, it had fallen to 1.5% (Ward, 2022). Reliance on goods from the ROI has declined steadily and significantly since 1973; however, beginning in 2020, it increased to up to 3.5% (Ward, 2022).

When the UK was a part of the EU, it followed the free trade agreement outlined by membership in the EU (O'Brien, 2024). However, following Brexit, only one restrictive agreement was reached in December 2020, titled the UK-EU Trade and Cooperation Agreement (TCA) (European Commission, n.d.). The agreement outlined arrangements in trade of goods and services and is considered a free trade agreement, but with barriers. Regulations still exist for goods crossing the border and there is still a possibility for imposing tariffs (European Commission, n.d.). This agreement has defined the most recent act of resolving Brexit's negative turmoil and relationships. The series of free trade agreements is important to understand in the context of how agreements like the Northern Ireland Protocol can prove to be incredibly economically beneficial.

Background of the Northern Ireland Protocol and Windsor Framework

Beyond the trade arrangements, the legal framework of Brexit centers largely on the question of sovereignty and the political implications that come with it. The TCA laid the groundwork for resolving trade disputes but did not settle questions about who controls borders and regulations. As Katy Hayward of Queens University Belfast argues, the UK's push for restoring its own sovereignty via Brexit presented imminent questions over Northern Ireland's unique constitutional and identity arrangements (Phinnemore, 2025). She describes sovereignty not as territorial control by a single party, but as a multi-layered and shared concept. Northern Ireland, she notes, operates under several overlapping authorities, including the Good Friday Agreement, EU law, the Northern Ireland Protocol (NIP), and devolved governance. As such, questions over Northern Ireland's identity in trade, politics, and culture loom as large as ever in a post-Brexit environment. It is for this very reason that post-Brexit legal instruments, like the Northern Ireland Protocol and Windsor Framework, tie sovereignty to democratic consent. The periodic votes by the Northern Ireland assembly under the Protocol, for example, give citizens a voice to influence the laws and standards which apply to their respective territory.

In 2019, UK and EU officials negotiated the Northern Ireland Protocol as part of the UK–EU Withdrawal Agreement. The NIP served to avoid a strict border on the island of Ireland while keeping Northern Ireland partially aligned with EU trade rules. It required Northern Ireland to follow EU internal market laws, but created barriers in NI-UK trade, as the UK did not follow any EU customs (Acquah et al., 2025). The goal of the Protocol is to keep trade between the ROI and Northern Ireland open, both in the sense of physical barriers (for national security) and with as few restrictions as possible (Acquah et al., 2025).

Hayward & Komarova (2022) explain the purpose of the Protocol and its origins, noting that the negotiations required significant flexibility, or room for interpretation in how rules would be implemented, from both sides (Hayward & Komarova, 2022). Moreover, they argue the flexibility in the Protocol entails a degree of ambiguity, which, without a stable UK–EU relationship, could worsen the difficulties of solving economic and policy challenges surrounding the Northern Ireland-ROI relationship.

Experts believe the idea that the economic success of the Protocol is largely dependent on political stability. Butler (2022) explores the scope of the Northern Ireland Protocol and its impact on EU-UK relations, while paying particular attention to newly implemented EU customs union and regulatory procedures (Butler, 2022). Butler analyzes the types of goods traded across borders in connection with the prolonged use of the EU customs union observed in the Protocol. In his view, the Northern Ireland Protocol is only a temporary solution to the problems facing post-Brexit negotiations. Butler concludes that lapses in the Protocol reveal a significant potential for legal challenges and years-long battles in the court system. Unlike more optimistic predictions from researchers like Teague (2021), who anticipated the Protocol would create competitive economic advantages for Northern Ireland and the ROI, Butler focuses on its legal vulnerabilities (Teague, 2021).

In addition to the Protocol's political precariousness between the UK and EU, some experts have more narrowly explored the Protocol's impact on the relationship between the UK and the ROI. Political science researchers from the University of Bristol and Queen's University Belfast have argued that, because of the Protocol, the UK government has shifted from "cooperative governance" under the Good Friday Agreement to a unilateral approach they deem "muscular unionism" (Phinnemore & Hayward, 2021). This change represents a move away from the consistent attempt at easing tensions following the Good Friday Agreement toward prioritizing British sovereignty and the UK government's authority to make decisions about Northern Ireland independently. The authors are critical of the UK's new approach and argue it has strained trust among EU partners and Northern Ireland's institutions.

While new legal doctrines have stirred political tensions, they've also impacted the economic outcomes of trade. Peixoto (2024) analyzes UK-EU trade flows and impacts on the energy sector. She reports that trade has declined, particularly among small exporters. Further, new customs, checks, and value-added taxes (VATs) have strained trade between the UK and EU members, including Ireland. In regards to the energy sector, she argues that Brexit has increased costs and inefficiencies. The energy sector relies on highly integrated cross-border infrastructure and trade procedures, which are complicated by the new barriers and customs.

Notably, the Protocol has not come without amendments. The 2023 Windsor Framework revised significant portions of the Northern Ireland Protocol with the aim of easing friction among the UK, EU, and ROI. Murray & Robb (2023) explain the Agreement's key provisions. They outline the process by which "green lane" goods intended solely for Northern Ireland face fewer checks, while "red lane" goods at risk of entering the EU Single Market face stricter regulations. Additionally, they explain the reduced application of EU regulations, particularly over VAT, medicines, food, plants, and pets. Ultimately, the authors conclude that the Framework marks a political and economic reset, which reduces but does not eliminate trade frictions.

While existing studies focus on legal structures and political implications, there is less literature that quantifies the role of the protocol in trade growth between Northern Ireland and the ROI. For this reason, we seek to bridge the gap between legal context and empirical trade outcomes, explaining how trade between Northern Ireland and the ROI is evolving and will continue to evolve in the future.

Trade Developments Attributed to the NIP (2015-2023)

Between 2015 and 2023, Northern Ireland and the ROI saw substantial shifts in trade flows, not only in the total amount, but also in direction and composition of firms. These shifts are attributed to the policy developments associated with Brexit and the Northern Ireland Protocol (Central Statistics Office, 2023).

Cross-border trade in goods between Northern Ireland and the ROI was valued at 2.8 billion euros, with a gradual increase year over year until 2020, when a sharp increase was observed. By 2022, total cross-border trade in goods reached 10.2 billion euros, accounting for nearly a 3.6-

fold increase from 2015 levels. The exchange of goods has since leveled off with cross-border trade valued at 10.1 billion euros in 2023 (InterTradeIreland, 2023). There were significant immediate effects of the implementation of the Northern Ireland Protocol. In 2021, exports from the ROI to Northern Ireland rose to 3.7 billion euros from about 2.4 billion in 2019, an almost 50% increase. Imports from Northern Ireland into the ROI also increased over the same period, from 2.4 billion to almost 4.0 billion euros (Central Statistics Office, 2023).

Structural changes to the trading environment, particularly with the Northern Ireland Protocol, have encouraged Northern Ireland firms to increase their trade with the ROI (Duparc-Portier & Figus, 2021). Specifically, sectors such as dairy and chemicals were observed to have strong economic growth and cross-border trade (Herr, 2023). However, increased trading costs have led to variations in the composition of firms. Large Irish firms have had a significant advantage in exporting to Northern Ireland, with 80% of firms continuing to trade. Despite substantial disadvantages, such as limited access to capital, there has been a 24% increase in micro firms that now export to Northern Ireland from 2021 to 2022, compared to just an increase of 6% for large firms (InterTradeIreland, 2023). While larger firms hold an economic and strategic advantage, as access to capital is more accessible and operational costs are lower, smaller firms are beginning to adapt to the trade restrictions with the UK and finding alternatives to enter the EU. Firms are reorganizing their markets and adjusting supply chains to account, which confirms asymmetric trade flow changes early in the post-Brexit era, noting Northern Ireland's growing share of Irish imports (Flynn et al., 2021).

The manufacturing sector within Northern Ireland also reacted to Brexit and the Northern Ireland Protocol. Sales of manufacturing firms to the ROI increased from 10% in 2015 to 12.6% in 2022, with an average increase of 400,000 euros per firm (Acquah et al., 2025). Using determinants of trade, including distance and size of the partner economy, levels of cross-border trade between the ROI and Northern Ireland were higher than anticipated, suggesting high levels of trade integration. Due to its large economy and relatively close proximity, Great Britain is Northern Ireland's largest trading partner. However, data underestimates the trading relationship as exports from Northern Ireland are highly concentrated in the ROI market, even more so post-Brexit, as an increase in trade barriers is in effect with Great Britain (Kren & Lawless, 2023).

Minimizing cross-border trade disruptions is paramount, in particular to Northern Ireland, who rely heavily on the ROI market. The Northern Ireland Protocol has eased trading tensions between the two and balanced the two economic regimes that Northern Ireland currently observes. It simultaneously continues to maintain strong European Union trading regulations and economic development (Araujo, 2024).

Expectations for the Protocol at the time of Implementation

The Northern Ireland Protocol was designed to answer the question of Northern Ireland-ROI trade post-Brexit, and much research conducted before the Protocol's implementation predicted how it would impact both countries. This research should be critically examined before being accepted, though, as it did not account for situations that occurred after its publication (the most substantive of which was the COVID-19 pandemic).

Economists predicted ports in Northern Ireland would deal with increased activity as they became used to sending goods to Britain over ports in other parts of the UK from ROI, and vice versa (Teague, 2021). This would be due to Northern Ireland's goods following the regulations of the EU and UK by default, instead of only for specific goods intended for the other specific countries. Teague (2021) expected the rivalry to lead to increased trade between NI and the ROI, as well as necessitate similar economic regulations in the future between the two countries (Teague, 2021).

It was also predicted that Northern Ireland and ROI would adopt similar economic regulations going forward (Teague, 2021). Both the EU and UK are large customer clients to Northern Ireland and the ROI, and though Northern Ireland manufacturing would have an advantage due to being involved with both parties, it would have a more difficult time accounting for changes in EU regulations in the future. As the ROI was its most important EU trading partner, Teague predicted NI would copy every way the ROI enforces these new rules.

However, others predicted that Northern Ireland would not only benefit from the Protocol but would also have a harder time trading with all EU countries under the Northern Protocol (Araujo, 2024). Northern Ireland, dealing with the regulations of both sides, may have twice as many tariffs, fines, and uncertainty to deal with for imports and exports. This could reduce the number of companies based in the EU, including the ROI, that want to trade with Northern Ireland companies. Araujo (2024) predicted it might lead to stronger domestic markets, but not stronger trading ties with the ROI (Araujo, 2024).

Though some literature exists on how trade will change between Northern Ireland and the ROI, most of it was either written prior to Brexit taking effect or early into the transition and is therefore simply a prediction. These predictions can still be considered when considering future trends, but Brexit has existed long enough for trends to have solidified. At the same time, Brexit is the most researched factor impacting trade between Northern Ireland and the ROI. The changing views on Irish Unification, the COVID-19 pandemic, and increasing globalization of society have also impacted trade over the time period we are examining. We aim to contribute to the literature to understand how trade between NI and ROI has changed and consider the Northern Protocol's impact.

Methodology

This analysis examines trade between Northern Ireland and the Republic of Ireland (ROI) to better understand the relationship between the two states under both Brexit and the Northern Ireland Protocol. Our research will focus specifically on cross-border trade between 2015 and 2023. To effectively understand economic growth between the two states, we use a mixed methods approach, integrating quantitative trade data with qualitative policy assessment. Our analysis is structured into three phases: (1) quantitative trends in cross-border trade between 2015 and 2023, (2) policy-linked shifts and attribution to the Northern Ireland Protocol, and (3) alternative factors that may have impacted the trading relationship.

The first section of analysis will establish a data-driven baseline of trade activity between Northern Ireland and the ROI before Brexit. By analyzing cross-border trends, we aim to answer the "to what extent" component by quantifying the growth and trajectory of Northern Ireland-ROI trade. We are utilizing data from domestic government agencies in Ireland and the United Kingdom (UK) between 2015 and 2023. This ensures that substantial data is collected from both pre-Brexit, post-Brexit, and post-Northern Ireland Protocol periods. Data will illustrate the annual value of imports and exports to serve as the primary evidence of the overall growth trend. We are analyzing the specific sectors of goods crossing the border and highlight which sectors are most sensitive to the new trading regulations under both Brexit and the Northern Ireland Protocol. Ultimately, this section will explain the "green lane" goods system established under the Windsor Framework to link sectoral shifts with the Protocol.

The second section of research examines policy changes, both in international agreements and domestic economic regulations. This includes emphasizing changes in trade policy in the UK post-Brexit and the reaction from other economic organizations like the OECD. For instance, if Northern Ireland-ROI trade shows robust growth while ROI-Great Britain trade slows, this difference would strongly correlate with unique circumstances under Northern Ireland Protocol agreements rather than other driving factors. In the second section, we describe trends to isolate the effect of the protocol by comparing the Northern Ireland and ROI trade relationship against other relevant trade flows.

The third section will emphasize alternative factors that may contribute to trends in cross-border trade, including the COVID-19 pandemic, post-Brexit relationships, and global economic growth independent of the Protocol. The impact of the Northern Ireland Protocol is explicitly weighed against other variables to assess whether trade growth can be confidently attributed to the Protocol after accounting for outside factors. We specifically analyze key variables such as global inflation and COVID-19 pandemic shocks regarding the timing of supply chain disruptions and lockdown periods, and the effect on cross-border trade. This acknowledges that the COVID-19 pandemic's negative economic effects on trade coincided with the introduction of the Northern Ireland Protocol.

Combined, these three sections will allow for an evidence-based conclusion regarding the drivers of cross-border trade growth. We gather both quantitative data from government reports and qualitative policy assessments of the changes in cross-border trade relationships.
Ultimately, our research aims to determine not just if trade expanded, but how much of the expansion can be attributed to the unique trading arrangements established under the Northern Ireland Protocol.

Results and Findings

To assess the impact of the Northern Ireland Protocol on cross-border trade between Northern Ireland and the ROI, we analyzed the trends in total trade volume, sectoral shifts, and post-Brexit trade inflection points. Thus, this section will provide an overview of cross-border trade growth, shifts in key industries, and both the regulatory context and external factors behind said adjustments.

Overview of Cross-Border Trade Before and After Brexit

Prior to the 2016 Brexit referendum and the eventual implementation of the Northern Ireland Protocol, Northern Ireland and the ROI experienced steady but modest annual growth in cross-border trade. Pre-Brexit trade consisted of frictionless movement of goods and dense supply chains, which had been expanding since the 1998 Good Friday Agreement (InterTradeIreland, 2017). While its population accounts for less than 3% of the total UK population, Northern Ireland accounted for roughly 10-12% of total Irish exports to the UK and 7-8% of imports (InterTradeIreland, 2017). Figure 1 illustrates the pre-Brexit ROI trade relationship with Northern Ireland. The graph highlights the post-Good Friday Agreement growth in the late 1990s and early 2000s, declining trade during the global financial crisis (2007-2009), and a gradual recovery thereafter.

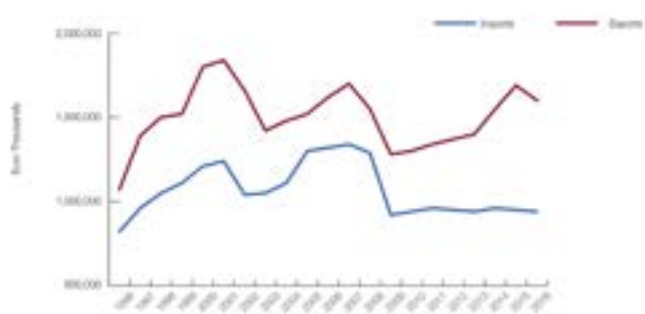


Figure 1: *Irish Trade with Northern Ireland, 1996-2016*
Source: Central Statistics Office (CSO) of Ireland, 2017

Following the formal implementation of the Northern Ireland Protocol in 2021, Northern Ireland and the ROI experienced significant growth in cross-border trade. In the first year of the Protocol's operation, Northern Ireland exports to the ROI increased by 65%, while ROI exports to Northern Ireland increased by 54% (Birnie & Brownlow, 2022). By 2023, total trade volume reached 14.3 billion euros, a 26% increase from 2022 (Birnie & Brownlow, 2022). Trade in goods, specifically, reached 11.3 billion euros, a 30% increase, while trade in services reached 3.0 billion euros, a 12% increase (InterTradeIreland, 2024). Additionally, by 2023, the value of trade from Northern Ireland to the ROI was 10 billion euros, while the value of trade from the ROI to Northern Ireland was 4.3 billion euros (InterTradeIreland, 2017). For comparison, in 2016, Northern Ireland’s net goods trade surplus with the Republic of Ireland was roughly just 580 million euros (O’Donovan et al., 2017). While post-Protocol economic expansion is clear, we must provide further analysis to understand the context behind this expansion and its future implications.

Industry Breakdown and Trade Links

Among all goods and services traded between Northern Ireland and the ROI, the agriculture and food industries dominate cross-border trade. Specifically, milk and cream products are the single largest import category for the ROI from Northern Ireland, totaling 23.4% of total imports for import-only firms and 33.1% for two-way traders in 2015 (InterTradeIreland, 2017). Northern Ireland historically lacks the processing capacity for raw milk and many other dairy products, which results in milk tankers crossing into the ROI approximately 33,000 times annually for processing (InterTradeIreland, 2017). Overall, of the 2.2 billion liters of milk Northern Ireland produces annually, roughly 30% is processed in the ROI (InterTradeIreland, 2017).

In the livestock industry, Northern Ireland exports 400,000 lambs per year (50% of its total stock) to the ROI for processing, and the ROI exports 400,000 pigs to Northern Ireland for processing (Curran & Gough, 2020). While pre-Brexit economic analysis predicted catastrophic disruptions across the agri-food industry specifically, the Protocol’s regulations have allowed for a continued seamless movement across borders (Curran & Gough, 2020). Table 1 displays the key industries in pre-Brexit cross-border trade between Northern Ireland and the ROI and the share of inputs in cross-border trade. Dairy and meat are underrepresented because they are legally considered final goods, while metals, minerals, and plastics are highly integrated in cross-border trade, with trade consisting primarily of unfinished products used for the construction of finished goods.

Sector	NI to ROI imports (intermediates %)	ROI to NI exports (intermediates %)	Sector Share of Total Trade
Dairy	1%	3%	9%
Meat and Fish	0%	0%	8.3%
Metals	91%	86%	4.6%
Minerals	98%	82%	5.2%
Chemicals/ Pharmaceuticals	31%	64%	2.3%
Machinery/Electrical	40%	31%	6.8%
Plastics/Rubber	88%	72%	5.8%
Wood Products	82%	68%	6.1%

Table 1: *Portion of Trade in Key Sectors (2015)*
Source: Adapted from InterTradeIreland 2017

Brexit and the subsequent creation of the Northern Ireland protocol created dramatic shifts across specific industries. The surges in trade between Northern Ireland and the ROI after 2021 came primarily in the agri-food industry. In 2022, Irish dairy exports totaled 6.8 billion euros, a 33% year-on-year increase (O'Sullivan, 2023). Additionally, meat and livestock exports rose to 4 billion euros, a 15% increase (O'Sullivan, 2023).

While some industries increased cross-border trade following the protocol, others suffered heavily. Chemicals and pharmaceuticals, as well as machinery and electrical goods, heavily rely on inputs from Great Britain, and as a result, face significant challenges in a post-Brexit environment (Birnie & Brownlow, 2022). Table 2 summarizes both the industry-specific and overall outcomes following the Protocol's implementation.

Sector	Performance Indicator	Post-Protocol Change
Diary	Total Exports (2022)	33% increase (€6.8 billion)
Meat and Livestock	Total Exports (2022)	15 % increase (€4 billion)
Chemicals and Pharmaceuticals	Cross-Border Trade	Lack of Quantitative Data (overall challenges due to reliance on GB inputs)
Machinery and Electrical	Cross-Border Trade	Lack of Quantitative Data (overall challenges due to reliance on GB inputs)
Overall Cross-Border Trade (2020-2021)	NI exports to ROI	65% increase
Overall Cross-Border Trade (2020-2021)	ROI exports to NI	54% increase

Table 2: *Summary of Post-Protocol Performance (2021-2023)*
Source: InterTradeIreland 2017, O’Sullivan, 2023, and Brownlow, 2022

Policy-Linked Shifts and Attribution to the Protocol

This section examines how the trade relationships between ROI-UK and Northern Ireland-UK have changed over the past decade and what factors (including but not limited to the Northern Ireland Protocol) may have impacted that trade. It then considers what these trends signal about trade between ROI and Northern Ireland, and how all three areas are connected economically.

The UK is an important trading partner for Northern Ireland, exporting over $31 million to Northern Ireland in 2022 (OECD, 2023). Though the amount of trade measured in euros has increased, this is partly due to inflation over the last decade. We focused on examining what percentage of Northern Ireland’s exports and imports were traded with the UK and ROI, to see if the countries are making up a larger or smaller percentage of each other’s total trade. That meant we could not determine changes in ROI-Northern Ireland trade if it decreased due to people preferring domestic products but could determine if consumers were purchasing more or less from particular countries. Almost a quarter of Northern Ireland’s imports came from the UK in 2015 (Flynn et al., 2021). However, by February 2021, only 12% of imports came from the UK. Similarly, 12.5% of Irish exports were to the UK in 2015, but that decreased to 8% in 2021 (Flynn et al., 2021). This indicates less trade between Northern Ireland

and the UK, which could be a consequence of increased Northern Ireland-ROI trade, or be caused by Brexit policy changes, which might have made trade between Northern Ireland and the UK more burdensome.

A baseline regression analysis performed by The Economic and Social Research Institute comparing changes in ROI-UK and ROI-Northern Ireland imports and exports found the change in exports was not significant, but the change in imports was (Flynn et al., 2023). This does not prove the increase in trade between Northern Ireland and ROI exists as consumers switch away from trading with the UK to trading with the ROI, but it is evidence supporting the theory, or at least that this is happening for some sectors.

Northern Ireland relies on the UK even more than does the ROI. In particular, 59% of Northern Ireland's imports and 69% of its exports came from the UK in 2015 (Bergin et al., 2025). Similarly to ROI, these percentages had decreased by 2021 to 54% of imports and 59% of exports. Some sectors are more affected than others, with service imports from the UK falling 15%.

Post-Brexit, trade between the UK and ROI was subject to increased regulation, due to UK goods becoming non-EU goods upon entering the EU. The Northern Ireland Protocol, by keeping Northern Ireland aligned with EU single market rules, proved critical in preserving supply chains across many key industries, avoiding tariffs ranging from 40-70% on agri-food and other products (InterTradeIreland, 2018). Moreover, the 2023 Windsor Framework introduced "green lane" regulations, which significantly reduced the bureaucracy required for trade and replaced complex documents with simple declarations under the Northern Ireland Retail Movement Scheme (Murray & Robb, 2023). The UK appears to have fewer plans to keep trade between itself and ROI frictionless, which could lead to firms switching from using ports in Wales and Britain to using ports in Northern Ireland when transporting goods between ROI and the UK (Teague, 2021), increasing Northern Ireland's trade with both regions.

Alternatively, policies protecting Northern Ireland within the EU could cause it to move away from trading with the UK. Customs intermediaries have found Northern Ireland-UK trade more frustrating post-Brexit (HM Revenue & Customs, 2025). The decreased trade could be due to these extra difficulties, in which case trade would continue to decrease as easier options are discovered. Confusion with new customs is another factor, although the effects of this will likely decrease with time and increased understanding of the new policies. This contrasts with the positive impacts Northern Ireland experienced after the UK joined the EU, including a large increase in international trade and investment, employment, and standard of living (Colfer & Diamond, 2022). Keeping trade with the EU strong may therefore be a priority of Northern Ireland, potentially over trade with the UK, to keep experiencing these benefits.

Policy changes in Northern Ireland have largely been focused on its trade with the ROI. One outcome of this is Northern Ireland acting as a middleman for UK-ROI trade. However, trade with the UK has also become more difficult and could lead to Northern Ireland leaning towards its EU trading partners. Regardless, the three countries heavily influence each other's international trade, and all the relationships must be considered.

Alternative Factors

While the Northern Ireland Protocol has played a role in shaping economic trends within the United Kingdom and the ROI, there are alternative factors that may have also influenced the previously mentioned export growth between NI and ROI (Birnie, 2022). The factors found to be most influential were the effects of the COVID-19 pandemic, the post-Brexit relationship of the UK and EU, and global economic growth independent of the Protocol.

The COVID-19 pandemic led to a drastic global economic downturn. The pandemic halted trade and raised unemployment rates. By one measure, global growth decreased by 5% (World Bank, 2020). Borders that were once open for trade, travel, and prosperity were closed, and countries went into lockdown. The UK faced devastating economic consequences as a result of the lockdown. From January to December 2020, UK exports and imports were 17% and 14.3% lower, respectively, compared to the same period in 2019 (Du & Shepotylo, 2021). However, this stagnation of trade cannot be attributed to just the COVID-19 pandemic, as growth in the UK has slowed since 2017 (Du & Shepotylo, 2021). Since the UK's exports make up almost a third of the nation's GDP, the COVID-19 worldwide decline in demand led the UK's GDP to drop by 9.9% in 2020 alone (Du & Shepotylo, 2021). The value of goods exports fell from 468.3 billion USD to 399.6 billion USD, the most dramatic difference across the G7 (Du & Shepotylo, 2021). Widespread lockdown and shutdown to mitigate the spread of the disease were financially devastating.

In addition to the pandemic, the Brexit referendum had negative implications on the economic trends between 2015 and 2023. With COVID-19 and Brexit both occurring in 2020, their effects are difficult to disconnect. The pandemic caused global economic shutdown and border closures, and Brexit also introduced new trade border barriers. Even before the UK left the EU, conversations surrounding Brexit and economic uncertainty led to trade loss (Du & Shepotylo, 2021). Furthermore, the post-Brexit reevaluation of the UK and EU's trade relationship placed UK businesses in a poor position as all past trade agreements had to be renegotiated (Gupta et al., 2023). Specifically, the loss of a free trade agreement means the option to implement tariffs and other trade barriers (Gupta et al., 2023). As a result, trade drastically fell between the UK and the EU (Gupta et al., 2023). UK to EU trade declined by 16% and trade from EU to UK by 24% following Brexit (Ward, 2022). The economic climate of trade and market activity was uncertain, leaving producers unsure what to expect. International companies fled from the UK because of limited profits and high costs due to its status as a non-EU nation, despite some industries having flourished since Brexit, specifically the agricultural sector (Gupta et al., 2023). In sum, the effects of Brexit have led to uncertainty and feelings of concern, leading to economic decline.

Lastly, features of natural economic trends like inflation, currency value, and global economic growth are prominent alternative factors that have impacted the Northern Ireland protocol's influence. From 2015 to 2020, right before the COVID-19 outbreak, consumer price inflation steadily increased monthly until peaking in the middle of 2017 to 2.7% and then steadily decreased (Office for National Statistics, n.d.). Between 2020 and 2023, inflation rates peaked in October 2022 at 9.6% (Office for National Statistics, n.d.). A key reason for this dramatic increase was restored consumer demand following the pandemic (United States Trade Commission, n.d.). Similarly, world economic growth flourished, with world GDP increasing in 2021 by 6% (World Bank Group, 2020). Lastly, regular fluctuation and currency rates lead to difficulty in establishing a direct correlation between growth under the Northern Ireland Protocol and trade between the NI and ROI (Breinlich et al., 2021). Ireland's currency is the euro, whereas Northern Ireland follows the British pound, as the UK, even when part of the EU, did not use the euro (Breinlich et al., 2021). The difference in currency rates obstructs measures to observe growth or trace its drivers.

Conclusion

Cross-border trade between Northern Ireland and the ROI expanded significantly from 2015 to 2023, with a substantial increase in growth following the implementation of the Northern Ireland Protocol in January 2021. While pre-Brexit growth was modest, post-Protocol relations saw exports from Northern Ireland to the ROI increase by 65% and exports for the ROI to Northern Ireland increase by 54% in 2021 alone. Previously thriving industries like dairy and livestock thrived following the protocol, while industries more dependent on Great Britain, like chemicals, pharmaceuticals, machinery, and electronics, suffered. However, external factors, including but not limited to inflation, post-pandemic recovery, and broader UK-EU trade restructuring, complicate direct attribution of changes in cross-border trade to the Protocol.

Discussion

The Northern Ireland Bridge and ROI Gateway

Following Brexit, Northern Ireland became a unique and influential bridge between the UK, a non-EU member state, and the ROI, an EU member state. Northern Ireland, through the Northern Ireland Protocol, was able to remain aligned with the EU's single market of goods and services. The Protocol, therefore, eliminated what could have been a challenging, highly regulated trade border between the ROI and the rest of the UK.

Cross-border trade between Northern Ireland and the ROI existed before the Protocol, but not to the same extent. Before the Protocol, cross-border growth was minimal and stable, with Northern Ireland accounting for 10-12% of total Irish exports to the UK and 7-8% of imports (InterTradeIreland, 2017). After the protocol's implementation, however, trade data reveals the dramatic impact of Northern Ireland's new positioning. In the first year of the Protocol's implementation, Northern Ireland exports to the ROI surged by 65%, while ROI exports to Northern Ireland increased by 54% (World Trade Organization, 2023). By 2023, total trade volume reached 14.3 billion euros, representing a 26% increase from 2022 levels (World Trade Organization, 2023). Most notable of this trade expansion, though, is the shift in trade balances between Northern Ireland and the ROI. By 2023, Northern Ireland exported 10 billion euros' worth of goods to the ROI while importing just 4.3 billion euros' worth in return (InterTradeIreland, 2017). This 5.7-billion-euro trade surplus signals that trade between Northern Ireland and the ROI hasn't just expanded in overall volume, but also signals that Northern Ireland is strategically using the ROI as a gateway to access the broader EU market. While goods from Northern Ireland to the ROI face no customs checks or tariffs due to Northern Ireland's alignment with EU market rules, goods from Great Britain to Northern Ireland now face new customs and checks (Acquah et al., 2025). As a result, Northern Irish businesses can export domestic goods and inputs into the EU market via the ROI, but face new friction when sourcing inputs from Great Britain.

This phenomenon explains the differences in trade volume across sectors following the Protocol. Industries in Northern Ireland that can easily swap their input sources from Great Britain to the ROI, such as the agricultural and food sectors, have taken advantage of the Protocol and therefore increased trade significantly with the ROI. That said, industries which cannot easily swap their input sources from Great Britain to the ROI, such as chemicals, pharmaceuticals, machinery, and electrical goods, have suffered from an increase in customs and regulations in the Irish Sea Border (Campbell, 2025). While these industries have a presence in the ROI, they lack the equivalent scale and resources compared to mainland British industries. This means that Northern Irish companies cannot easily swap suppliers and bear the costs of the new customs procedures without gaining tangible benefits from easier EU market access.

With this in mind, the benefits of the post-Protocol gateway system are largely dependent on the infrastructure and processing capacity that the ROI provides. For example, Northern Ireland produces roughly 2.2 billion liters of milk per year, but lacks the processing capacity for all of it (InterTradeIreland, 2017). As a result, roughly 30% of this production crosses into the ROI for processing through an estimated 33,000 trips per year by tankers (InterTradeIreland, 2017). Across key industries, both Ireland and Northern Ireland provide processing infrastructure that the other lacks. Once these products are processed in the ROI, they are free to enter EU markets without regulation. To summarize, Northern Ireland strategically sends raw materials to be processed and finalized in the ROI before being sold in EU markets as ROI-origin products.

This new process of trade manifests differently across various sectors. Irish dairy exports totaled 6.8 billion euros in 2022, marking a 33% year-over-year increase

(Curran & Gough, 2020). Meat and livestock exports reached 4 billion euros, a 15% year-over-year increase (Curran & Gough, 2020). These figures are not only representative of Northern Ireland-ROI trade, but also the role of the ROI in processing Northern Ireland's products for sale in EU markets. Curran & Gough (2020) predicted the Protocol would solve disruptions in the agri-food industry by creating frictionless cross-border movement between Northern Ireland and the ROI. Our findings show that not only did the Protocol solve disruptions, but it stimulated growth in these industries by preserving Northern Ireland's cost-free access to EU markets.

Beyond the agricultural and food sectors, certain manufacturing sectors in which the majority of cross-border trade consists of unfinished products used as inputs for further manufacturing have experienced significant post-Protocol growth. Such sectors include metals, where 91% of Northern Ireland to ROI imports are intermediate goods and 86% of ROI to Northern Ireland exports are intermediate goods; minerals, where 98% of Northern Ireland to ROI imports and 82% of ROI to Northern Ireland exports are intermediates; and plastics, where 88% of Northern Ireland to ROI imports and 72% of ROI to Northern Ireland exports are intermediate goods (InterTradeIreland, 2017). In a post-Protocol environment, Northern Ireland manufacturing materials cross into the ROI where they're transformed into finished products to be sold in the EU market without customs barriers. If Northern Ireland attempted to export these materials directly to another EU country, they would face custom checks and regulations. By routing through the ROI first, they avoid these barriers to trade altogether. Our findings complement Kren & Lawless (2023)'s concept of high trade integration, which describes how cross-border trade is higher than expected based on geography and market size alone. This phenomenon, we argue, is a result of the post-Protocol process where Northern Ireland's manufacturing industry uses the ROI as a door into EU supply chains and markets.

Furthermore, Hayward & Komarova (2022) argued the Protocol's design required "significant flexibility," which, as the analysis shows, has created clear economic advantages. A key insight from the analysis, though, is that Northern Ireland can operate as a bridge not only because of its regulatory position, but also because of the productive capacity of the ROI. Without the ROI's processing capabilities for key industries, manufacturing of intermediate goods, and distribution networks to sell products in EU markets, the Protocol would still change trade dynamics as captured by the data but fall short of the magnitude of the outcomes shown by the data.

How the UK is Losing Out

Brexit gave Great Britain more control over its trade policies, but also cost the country many of the benefits of EU membership. While Britain completely lost EU status, Northern Ireland kept many of the privileges through the Northern Protocol, particularly to trade with the ROI. Already, we have seen trade between the ROI and Britain decrease (Flynn et al., 2021), while Northern Ireland and the ROI's trade have been flourishing (Flynn et al., 2021). Britain becoming a less desirable trading partner due to the complexities of trading with EU countries as a non-EU country could weaken Britain's economy and global influence.

Northern Ireland's trade with the ROI increasing at the same time its trade with the UK is decreasing could indicate citizens will switch to importing many goods from ROI over Britain. However, some goods experienced an overall decrease in imports to Northern Ireland between the ROI and Britain, like in the pharmaceutical and machinery industries. These goods may be imported from other EU countries, but Britain's geographical proximity to Northern Ireland would make it a preferred trading partner. If the UK makes strategic changes to the Northern Protocol aimed at decreasing the current high customer confusion over trading under the Protocol (HM Revenue & Customs, 2025) and many differing regulations between Northern Ireland and Britain, it could recover some trade in those industries for Britain. This could mitigate the longer-term impact of Britain losing out on trade with Northern Ireland.

Northern Ireland could also stand as an example of how trade will change between Britain and all EU countries. They would follow in the ROI's footsteps and choose to use Northern Ireland as an intermediary. Though this does not mean trade with Britain would completely stop, it would have fewer international exports and be more dependent on Northern Ireland. The UK would still have lots of international trade, but Great Britain, which contains a large part of the UK's workforce and production, would be handicapped.

Further changes to the Northern Ireland Protocol are likely, given that the 2023 Windsor Agreement already changed large portions of the protocol. However, most efforts to ease the trade between the UK and EU countries are likely to use Northern Ireland as a middleman, meaning the rest of the UK would have to send goods through Northern Ireland and through additional checks.

Future Implications

The significant trade increase observed between Northern Ireland and Great Britain post-Protocol underscores a critical stage for Northern Ireland's economic future, yet this trajectory is filled with challenges that threaten its sustainability. Prior to Brexit, the movement of goods between Great Britain and Northern Ireland was purely domestic matter, and without border formalities. The Protocol, by creating a regulatory border in the Irish Sea, fundamentally altered the political dynamic, making trade with its largest market an international transaction for the first time. Within this new reality, Northern Ireland's unique access to the EU single market presents an influential comparative advantage, potentially creating a stable hub for manufacturing and distribution for EU-bound goods from Great Britain. This could also attract foreign direct investment, fostering long-term growth in sectors that can navigate the unique situation of Northern Ireland. However, this promising economic future is dependent upon resolving the continued political and administrative barriers that slow the movement of goods across the border. Strong opposition to the Protocol and the Windsor Framework from Unionists within Northern Ireland creates uncertainty and act as a political threat to the economic system. The lengthy approval process for the Windsor Framework's 'Green Lane' itself hinders the movement of goods across the Irish Sea and acts as a major administrative barrier, especially for smaller businesses.

The very mechanism that allows for special access also holds significant risks. A coalition of political and business groups have launched legal challenges against the Windsor Framework (McKeever & Moffett, 2024). They are challenging the legitimacy of the agreement, as well as specific regulations within it. This creates a state of legal and political uncertainty that may deter long-term economic investment (Phinnemore, 2024). Furthermore, the implementation of the Framework, particularly the red and green lane system, introduces significant administrative burdens and higher costs for businesses and consumers. Small and medium-sized companies, especially, face a complex legal and economic landscape involving custom declarations, rule or origin certificates, and checks for goods where the EU is the final destination. These procedures involve specialized technology and legal expertise that may not be currently on hand and will cause increased overhead. For many firms, these higher costs may reduce the profitability gained from EU market access, potentially hindering the very growth the Protocol has encouraged. The future of cross-border trade hinges not on access to dual markets, but on the practical, day-to-day ability of businesses to manage the increase in bureaucratic and financial burdens.

Limitations

As undergraduate students, academic commitments and the three-month timeframe of the semester limited the scope of our research. We were constrained to meeting twice per week as a group, so much of our research was conducted independently. This made combining ideas and findings somewhat difficult.

With more time, we could have further explored and explained the impact of confounding variables and other geopolitical and economic actors. We addressed several confounding factors in our results and findings, noting the impacts of the COVID-19 pandemic, inflationary pressures, and other factors that may have influenced our findings regarding the Northern Ireland Protocol and its impacts.

Additionally, while we did successfully incorporate data across multiple sources, we were unable to review all the literature in relation to this topic. Given the recentness of Brexit and the Northern Ireland Protocol, finding accurate and detailed information was difficult. While there is some literature on the short-term impacts of the Protocol, quantifying its long-term impacts was very difficult given the lack of projection data and reporting. Due to this lack of data, we were unable to run a regression analysis or quantitatively determine causation between the Protocol and cross-border trade. Thus, we favored a primarily qualitative approach to our analysis. While we did employ significant macroeconomic indicators like changes in trade volumes following the Protocol, finding sectoral-specific changes was quite difficult. As a result, our analysis focused on changes in the highest volume industries, for which data was readily available.

Furthermore, the 2023 Windsor Framework amended significant elements of the original Protocol, which will certainly have impacts on cross-border trade and overall trade volume. Given the even more recent nature of the Windsor Framework, accounting for these changes in our research was difficult. Overall, though, we believe our findings are valuable and offer important insights on the Northern Ireland Protocol and its impacts on cross-border trade between Northern Ireland and the ROI.

Conclusion

Trade between Northern Ireland and the ROI has long been impacted by the history of violence between the two regions. Originally, trade was limited by risk of violence at the border, but eventually, the ROI and Northern Ireland formed a strong trade relationship. ROI and the UK, both being members of the EU, assisted the formation of a strong trade relationship, due to EU policies aiming to make trade between member countries as free as possible. The UK’s decision to leave the EU in early 2020 (Brexit) raised the concern of setting up hard border checks between the ROI and Northern Ireland, which have historically been targets of violence. This led to the creation of the Northern Ireland Protocol, minimizing necessary regulations between the ROI and Northern Ireland. Our research concluded that between 2015 and 2023, there was a significant increase in cross-border trade, specifically after Brexit came into effect. Industries more reliant on Great Britain did not experience the same increase.

Our research suggested that increased cross-border trade was due to Northern Ireland relying on the ROI to maintain easy trade access with the EU. By using the ROI as a gateway to other EU member countries, it is predicted that the relationship will continue to grow, specifically within ROI manufacturing sectors that source raw materials made in Northern Ireland. Paired with decreased trade with the UK due to different regulations, Northern Ireland’s strengthened economic ties with the ROI could lead to strengthened political ties., Our research is also significant for outlining the industries likely to grow or fall in the future in Northern Ireland, depending on their reliance on Britain or the ROI.

The Northern Ireland Protocol has been amended since its enactment, and our research aimed to show how it has succeeded in protecting Northern Ireland’s economy and how it has failed. Future changes that address sectors more closely tied to Britain rather than the ROI could support those industries, some of which have struggled with the impacts of Brexit.

References

Acquah, R., Di Ubaldo, M., Gasiorek, M., & Reilly, B. (2025). Northern Ireland's trade in goods in an era of Brexit uncertainty: Firm-level evidence. Department of Economics, University of Sussex Business School. https://www.uktpo.org/wp-content/uploads/2025/03/NI_BREXIT_Uncertainty_UKTPO_WP.pdf

Araujo, B. M. (2024). Protocol on Ireland/Northern Ireland and the Trade and Cooperation Agreement: Silos and symbiosis. *Common Market Law Review, 61*(3), 727–766. https://doi.org/10.54648/cola2024048BBC Newsround. (2023, April 10). *Good Friday Agreement: What does it mean for NI after 25 years?* https://www.bbc.co.uk/newsround/14118775

Bergin, A., McGuinness, S., & Banahan, C. (2025). *Economic overview of Ireland and Northern Ireland*. Economic and Social Research Institute. https://www.esri.ie/publications/economic-overview-of-ireland-and-northern-ireland

Birnie, E., & Brownlow, G. (2022, April 28). What has been the economic impact of the Northern Ireland Protocol? Economics Observatory. https://www.economicsobservatory.com/what-has-been-the-economic-impact-of-the-northern-ireland-protocol

Breinlich, H., Leromain, E., Novy, D., & Sampson, T. (2021). The Brexit vote, inflation and U.K. living standards. *International Economic Review, 63*(1), 63–93. https://doi.org/10.1111/iere.12541

Butler, Graham. (2022). Chapter 8: The EU Customs Union, free movement of goods, and enforcement mechanisms in the protocol on Northern Ireland: A legal appraisal. In Adam Łazowski & Adam Cygan (Eds.), *Research handbook on legal aspects of Brexit* (1st ed., pp. 175-197).

Campbell, J. (2025, August 27). *Brexit: NI sea border for food "in place until 2027."* BBC News https://www.bbc.com/news/articles/ckgj9ly7pdmo

Central Statistics Office (2023). https://www.cso.ie/en/

Colfer, B., & Diamond, P. (2022). Borders and identities in NI after Brexit: Remaking Irish–UK relations. *Comparative European Politics, 20*. https://doi.org/10.1057/s41295-022-00295-4

Curran, K., & Gough, A. (2020, November 23). *Key issues facing the agri-food industry on the Island of Ireland.* Trade Unwrapped. https://tradeunwrapped.uk/read/key-issues-facing-the-agri-food-industry-on-the-island-of-ireland

Daly, M. (2017). *Brexit and the Irish border: Historical context. A Royal Irish Academy – British Academy Brexit Policy Discussion Paper*. https://www.thebritishacademy.ac.uk/documents/95/BrexitandtheIrishBorderHistoricalContext_0.pdf Du, J., & Shepotylo, O. (2021). UK trade in the time of COVID-19: A review. *World Economy, 45*(5), 1409–1446. https://doi.org/10.1111/twec.13220

Duparc-Portier, G., & Figus, G. (2021). The impact of the new Northern Ireland protocol: Can Northern Ireland enjoy the best of both worlds? *Regional Studies, 56*(8), 1404–1417. https://doi.org/10.1080/00343404.2021.1994547

European Commission. (n.d.). *The EU–UK Trade and Cooperation Agreement*. https://commission.europa.eu/strategy-and-policy/relations-united-kingdom/eu-uk-trade-and-cooperation-agreement_en

Flynn, E., Kren, J., & Lawless, M. (2021). Initial impact of Brexit on Ireland-UK trade flows (ESRI Paper No. 714). Economic and Social Research Institute. https://www.esri.ie/system/files/publications/WP714_5.pdf

Flynn, E., Fren, J., & Lawless, M. (2023). *Initial impact of Brexit on Ireland–UK trade flows*. Economic and Social Research Institute. https://www.esri.ie/publications/initial-impact-of-brexit-on-ireland-uk-trade-flows

Gupta, R., Hasan, M. M., Islam, S. Z., Yasmin, T., & Uddin, J. (2023). Evaluating the Brexit and COVID-19's influence on the UK economy: A data analysis. *PLOS ONE, 18*(6), e0287342. https://doi.org/10.1371/journal.pone.0287342

Hayward, K., & Komarova, M. (2022). The Protocol on Ireland/Northern Ireland: Past, present, and future precariousness. *Global Policy, 13*(3), 402-413. https://doi.org/10.1111/1758-5899.13079

Herr, L. (2023). Cross-border trade on the island of Ireland in the wake of Brexit (Lehigh University Working Paper). Lehigh University

HM Revenue & Customs. (2025, July 15). *Qualitative research with customs intermediaries to better understand the Northern Ireland intermediary market (2022)*. GOV.UK. https://www.gov.uk/government/publications/research-into-intermediating-trade-with-northern-ireland-2022/qualitative-research-with-customs-intermediaries-to-better-understand-the-northern-ireland-intermediary-market-2022#executive-summary

InterTradeIreland. (2017). *Cross-border trade & supply chain linkages report*. https://intertradeireland.com/assets/news/Cross-Border-Trade-and-Linkages-Report-1.pdf

InterTradeIreland. (2023). *Cross-border trade statistics*. https://docs.google.com/document/d/1ZQowuPAFVjVqhs5hCdj6xft4VOR4qQK8Du7h8obpjf0/edit?tab=t.0

InterTradeIreland. (2024). *Trade statistics.* https://intertradeireland.com/insights/trade-statistics

Knispel, S. (2021, October 30). *100 years on: The partition of Ireland explained—Why was Ireland divided?* University of Rochester News Center. https://www.rochester.edu/newscenter/partition-of-ireland-explained-477342/

Kren, J., & Lawless, M. (2023). Structure of international goods trade for Ireland and Northern Ireland (ESRI Survey and Statistical Report Series No. 117). The Economic and Social Research Institute. https://doi.org/10.26504/sustat117

McKeever, G., & Moffett, L. (2024). *The Windsor Framework: A new paradigm for the post-Brexit Irish border? Northern Ireland Legal Quarterly, 75*(3). https://doi.org/10.53386/nilq.v75i3.1152

Murray, C. R. G., & Robb, N. (2023). *From the Protocol to the Windsor Framework. Northern Ireland Legal Quarterly, 74*(3), 395–414. https://doi.org/10.53386/nilq.v74i3.108

O'Sullivan, K. (2023, October 25). Irish dairy moving to a 'value not volume' model. Irish Examiner.

https://www.irishexaminer.com/farming/arid-41255503.html
OECD. (2023). *International trade by commodity statistics, Volume 2023 Issue 2: Finland, Greece, Iceland, Portugal, Sweden, United Kingdom*. https://doi.org/10.1787/8c98f18f-en
Office for National Statistics. (n.d.). *Inflation and price indices.* https://www.ons.gov.uk/economy/inflationandpriceindices
O'Brien, C. (2024). Trade laws between Northern Ireland and the Republic of Ireland post Brexit. *Ohio Northern University International Law Journal, 2.* https://digitalcommons.onu.edu/cgi/viewcontent.cgi?params=/context/ilj/article/1024/&path_info=Trade_Laws_Between_Northern_Ireland_and_the_Republic_of_Ireland_Post_Brexit.pdf
Peixoto, M. (2024). *Post-Brexit UK-EU economic relations: Challenges in trade and the energy sector* (Master's dissertation, Universidade do Minho, Escola de Economia e Gestão). RepositóriUM. https://repositorium.uminho.pt/server/api/core/bitstreams/f99171b1-8382-4290-ae66-637732e94ded/content
Phinnemore, D., & Hayward, K. (2021). The UK government's Northern Ireland policy after Brexit: A retreat to unilateralism and muscular unionism. *British Politics, 16*(3), 431–450. https://www.tandfonline.com/doi/full/10.1080/13501763.2023.2210186
Phinnemore, D. (2024). Implementing the Protocol and Windsor Framework. In C. Davies, & H. Kassim (Eds.), UK-EU: what next?. 24-26. https://media.ukandeu.ac.uk/wp-content/uploads/2024/07/UK-EU-What-next.pdf
Phinnemore, D. (2025). The Northern Ireland question. In The Brexit files: From referendum to reset. 30-32. UK in a Changing Europe Initiative. https://ukandeu.ac.uk/reports/the-brexit-files-from-referendum-to-reset/
O'Donovan, D., Duffy, S., McGuinness, G., & Walsh, K. (2017, July). *Ireland and the UK - tax and customs links.* Irish Government Economic & Evaluation Service. https://www.revenue.ie/en/corporate/documents/research/ireland-uk-tax-and-customs-links.pdf
Roos, D. (2025, May 28). *How the Troubles began in Northern Ireland.* History.com. https://www.history.com/articles/the-troubles-northern-ireland
Teague, P. (2021). *Brexit and the political economy of Ireland* (1st ed.). Routledge. https://www.routledge.com/Brexit-and-the-Political-Economy-of-Ireland-Creating-a-New-Economic-Settlement/Teague/p/book/9780367720636
UK Electoral Commission. (2016). *Report: 23 June 2016 referendum on the UK's membership of the European Union* https://www.electoralcommission.org.uk/research-reports-and-data/our-reports-and-data-past-elections-and-referendums/report-23-june-2016-referendum-uks-membership-european-unionUnited States International Trade Commission. (n.d.). *The 2021 commodity price surge: Causes and impacts on trade flows*. https://www.usitc.gov/research_and_analysis/tradeshifts/2021/special_topic
Ward, M. (2022). *Statistics on UK trade with Ireland*. https://researchbriefings.files.parliament.uk/documents/CBP-8173/CBP-8173.pdf
World Bank. (2020). *World Bank open data*. https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
World Trade Organization. (n.d.). *Global trade outlook and statistics*. https://www.wto.org/english/res_e/booksp_e/trade_outlook23_e.pdf

The Sleepless State: Uyghur Oppression in Xinjiang Since 2014

Amra Kelly, Alan Martin, Julia Ellis, Kayla Vo, Michaela Norbey

Our research examines how China's technological surveillance infrastructure facilitates systemic oppression and cultural erasure of the Uyghur population in the Xinjiang Uyghur Autonomous Region (XUAR) since 2014. We utilize a qualitative approach, investigating the relationship between surveillance, state control, and the erosion of Uyghur life and identity. By examining human rights reports and independent and government-associated surveillance companies' data, we analyze technologies deployed for surveillance. These technologies gather social data and supply law enforcement officers with actionable intelligence, indicating that the Chinese state is pursuing social control by obtaining intimate knowledge of Chinese and Uyghur behavior. We corroborate these findings through a variety of sources, including information that revealed the oppressive tactics of the Chinese government and how these strategies have been used on domestic and international civilians. In this analysis, we found that the Uyghur population is being directly targeted at a disproportionate level and that post-2014 surveillance expansions have detrimentally influenced the intensity of Uyghur oppression in Xinjiang.

Introduction

Beginning in 2014, the Chinese government's approach to security and surveillance in the Xinjiang Uyghur Autonomous Region (XUAR) took a new and intensified form. Uyghurs, a Muslim ethnic group indigenous to Xinjiang, have long maintained cultural and religious traditions distinct from China's Han majority. Following a series of violent incidents attributed to Uyghur separatists, China reintroduced the "Strike Hard" campaign. This effort intensified policing and surveillance and marked the state's turn towards digital governance. This period also saw the integration of new technologies into everyday security practices as Xinjiang became the epicenter of one of the most comprehensive and technologically advanced systems of state surveillance in the world. Pre-2014 policies relied on conventional policing and political reeducation, while post-2014 strategies combined this with extreme data collection, predictive policing, and biometric surveillance.

In examining Xinjiang, we focus on the region not only as a site of intense securitization but also a technological testing ground for Chinese surveillance. Xinjiang's demographics are unique due to its high proportion of Uyghur individuals. Beyond its demographics, Xinjiang is vital to the Chinese economy due to its strategic border location, abundant natural resources, and function as a key corridor in China's regional and global trade networks. Because of this, state-linked technology firms have redefined their partnerships with the Chinese government by producing an unreplicated security infrastructure. While other regions in China host smaller-scale versions of these systems, Xinjiang's extensive surveillance regime allows the state to monitor and control the Uyghur population both within and beyond the region. Our research situates Xinjiang's surveillance architecture within a broader examination of how technology mediates state power and ethnic governance. Xinjiang represents a regional system of control and a blueprint for governance that is built on the integration of technological innovation with ethnic oppression.

This research situates Xinjiang's surveillance technologies within broader questions about how technology mediates state power and ethnic governance. Xinjiang's surveillance system represents more than an intensification of authoritarian control; it marks a transformation in the nature of state power itself. Algorithmic governance enables preemptive repression: entire populations are categorized as potential threats based on ethnic identity, religious practice, and behavioral patterns that machine learning models flag as deviant. Xinjiang functions as both a regional system of control and a potential blueprint for governance elsewhere, built on the fusion of technological innovation with ethnic oppression.

Understanding Xinjiang's surveillance infrastructure matters for several reasons. The technologies deployed there are increasingly finding their way into other countries, raising urgent questions about how authoritarian technological practices spread across borders. The Xinjiang case also demonstrates how artificial intelligence and big data can be weaponized for ethnic persecution, a lesson that becomes more relevant as democracies implement similar technologies in the name of public safety. Documentation has emerged, including leaked files, that offers rare insight into how digital authoritarianism operates in practice, informing both human rights advocacy and scholarly understanding of contemporary authoritarian governance. Most importantly, as accusations of genocide and crimes against humanity have mounted regarding the treatment of Uyghurs, the technological infrastructure that enables mass detention and social control demands scrutiny both for accountability and for preventing similar systems from existing elsewhere.

Review of the Literature

In order to analyze the implications of Chinese surveillance technology, we have examined existing scholarly literature surrounding technological infrastructure, international legal frameworks, the effects on religious and cultural identity and quality of life, and the global implications of these technologies.

Technological Infrastructure

The literature surrounding the technologies China uses to surveil its citizens is largely focused on their political implications. The crux of the research is often analyses of human rights violations, international implications, and discriminatory use of technologies. However, authors Leibold (2019), Briglia (2021), Liyanage (2024), Liu & Zhao (2021), and Chin & Lin (2024) examine the actual mechanisms by which China is building their "smart authoritarian world" (Liyanage, 2024).

Leibold (2019) and Briglia (2021) detail the genesis of Chinese surveillance dating back decades. During the 1990s, when technological surveillance was less widespread, the primary mode of observation was physical interaction. This involved state agents being deployed to neighborhoods for compulsory home visits and interrogations or mandatory reporting. Both authors include that these methods are still employed, but they are more commonly triggered by more developed layers of surveillance (Briglia, 2021; Liyanage, 2024).

Liyanage's study points to the Skynet program, initiated in 2005, as the true beginning of advanced technological surveillance (Liyanage, 2024). The program involved a five-layered system of ground, air, and mobile surveillance technologies, which functioned constantly and pervasively throughout the state. The system was then upgraded to the Sharp Eyes program in 2015, when China began implementing artificial intelligence (AI). Since then, AI has been implemented in all areas of observation, including in facial recognition technology (FRT). Liyanage emphasizes the Chinese government's use of AI, cloud computing, and surveillance infrastructures in building a system that can track dozens of faces in a crowd in milliseconds. This intuitive system—designed to mimic the adaptational capability of human brains—has synthesized data from the entire Chinese population. Liyanage (2024) and Chin & Lin (2024) agree that the most concerning element of this system is the forcible collection of biometric data. The biometric data collection process originated much before the outbreak of Covid-19, but Liu & Zhao (2021) reports that this process was perfected during the pandemic, as China worked to separate and categorize its population via compulsory apps installed on all citizens' phones (Liu & Zhao, 2021). Collection of this data occurs beyond massive health crises, however, as the Chinese state has been collecting biometric data from its incarcerated citizens and compelling app installations for decades (Liyanage, 2024). All of these individuals' data is, as argued by Liyanage and Chin & Lin, likely encoded in a massive AI-monitored database (Liyanage, 2024; Chin & Lin, 2024).

The above authors examine the expansive and intuitive technologies tracking Chinese citizens. Liyanage and Chin & Lin also critique the international trade of technologies between China, the United States (U.S.), and other states that have been enabling these insurrections. However, most of the information is collected from witness testimony, leaked documents, or released data from China's technology companies. Thus far, this information has been illegally released or, if legally given, only consists of data deemed acceptable for the public to view. It stands to reason, then, that there is a considerable amount of data which remains inaccessible to the public. This paper aims to examine these discrepancies through analysis of objectives and executive orders from the Chinese government, the technologies developed by China's most renowned innovating companies, and the pervasive use of Chinese technology within China and globally to oppress Uyghurs.

International Legal Frameworks

The inadequacy of legal frameworks and international definitions of genocide are central concerns across multiple analyses of legal frameworks. Finnegan (2020) demonstrates how China's policies towards Uyghurs constitute cultural genocide under Raphael Lemkin's original definition, coined in 1944, which argues that genocide is both a physical destruction and deliberate eradication of a group's institutions (Irvin-Erickson, 2016). However, his definition falls outside of international criminal law's narrow definition, arguing that the case of Uyghurs requires expanding genocide's legal definition to include cultural elimination. Similarly, Towadi et al. (2020) examines how China's actions violate multiple human rights conventions, despite its ratification of these very agreements, highlighting the gap between legal obligation and enforcement mechanisms. Both sources reveal how existing international law fails to adequately address systemic cultural elimination, even when state policies target ethnic and religious minorities. While these legal analyses provide essential frameworks for understanding the Uyghur crisis, they focus primarily on definitional conflicts and debates, as well as normative arguments for legal reform, rather than examining the technological mechanisms that enable repression. Both sources rely on documenting policy outcomes without examining the surveillance infrastructure that makes mass detention and cultural oppression feasible. Our research seeks to investigate how surveillance technologies and the regulations that enable their usage function as tools of systemic oppression, bridging the gap between abstract legal frameworks and concrete technological surveillance implementation.

In terms of corporate complicity and surveillance technologies, Smith (2021) provides a critical analysis of how Chinese technology corporations enable state surveillance and subsequent human rights violations. Companies such as Hikvision and Huawei assist in providing surveillance technologies to the Chinese government. This exploration of corporate accountability reveals insufficiencies in international legal frameworks that make it difficult to hold corporations accountable for their actions under authoritarian regimes. Smith advocates for new international legislation targeting foreign corporations involved in human rights abuses, contending that current approaches, such as the Global Magnitsky Act and various European Union (EU) and United Nations (UN) mechanisms, remain insufficient in creating corporate accountability (Smith, 2021). While Smith's legal analysis of accountability is valuable, it approaches the development of surveillance technologies merely as examples of corporate wrongdoing without examining how these systems operate to enable oppression. Smith (2021)'s exclusive focus on legal solutions overlooks the technological changes and advancements that continue to occur and that our research addresses. Our research seeks to extend this work by focusing primarily on the creation and deployment of surveillance technologies since 2014, investigating not only which corporations are involved, but also how their technologies create the infrastructure enabling systemic oppression.

Religious and Cultural Implications for the Uyghur Population

Existing literature surrounding the contemporary struggles of Uyghurs largely agrees that surveillance in Xinjiang is used as a tool for religious and cultural oppression. Between 2014 and 2017, multiple initiatives have been spearheaded to surveil Uyghurs, including a local ordinance centered on "de-extremification" (Milward & Peterson, 2020, pg. 5). The de-extremification ordinance is geared toward ending perceived radical behavior and ideology, regulating religious activities, and targeting Uyghurs' mobile devices via state-connected hacker groups (Millward & Peterson, 2020).

Much of this data collection feeds into a surveillance app known as IJOP, or the Integrated Joint Operations Platform. Literature focuses on IJOP's role in mass, hyper-specific surveillance as well as its role in reporting non-violent behavior to authorities as suspicious (Human Rights Watch, 2019). This Human Rights Watch (HRW) report found that the IJOP system performs three main functions. These include gathering personal data, reporting suspicious behavior, and initiating investigations into individuals flagged by the system (Human Rights Watch 2019). While this report describes IJOP's purpose, as well as the people and behavior it targets, it relies heavily on qualitative research methods that lack numerical evidence.

In contrast to HRW's analysis of IJOP's surveillance functions, the International Consortium of Investigative Journalists (ICIJ) investigates the human effects of said functions. ICIJ received classified documents from exiled Uyghurs, which at the time of this publication are inaccessible, that link the intelligence gathered through IJOP to detainees within the Xinjiang "re-education" camps (International Consortium of Investigative Journalists, 2019). These documents do not examine IJOP but rather elaborates on how increased surveillance directly results in increased identity self-censorship. Together, these sources examine and explain the scope and mechanisms of IJOP but fail to show how IJOP and other surveillance systems operate together. They also fail to examine the community-level impacts that these integrated systems have on Uyghurs. Our analysis fills these gaps by examining the consequences of these expansive technologies on the Uyghur population and expanding on these author's conclusions through exploration of integrated technological and policy infrastructures.

Surveillance Impacts on Quality of Life for the Uyghur Population

Existing scholarship on Uyghur quality of life demonstrates that state-mandated oppression operates across several dimensions. Quality of life encompasses psychological and social well-being, family and domestic stability, and economic dignity—all of which have been systematically targeted since China's expansion of surveillance technologies.

Oztig & Karluk (2024) employ surveys and focus groups to document the severe reduction of social interaction and trust among Uyghurs due to constant monitoring. Drawing on testimonies from those within the Uyghur diaspora, they report that approximately 90% of participants experienced reduced communication with family and community members (Oztig & Karluk, 2024). Similarly, Kilic (2024) emphasizes how extensive surveillance generates self-censorship, anxiety, and a pervasive sense of dystopian fear. Taken together, these works demonstrate how surveillance technologies function as tools of psychological discipline—restructuring how Uyghurs interact, speak, and think—and how this constant monitoring erodes communal cohesion and embeds persistent fear of the state.

Grose (2020) introduces the term "authoritarian reflectiveness" to describe policies that extend surveillance into the private sphere through programs such as the "Three News Campaign." Initiatives like home inspections, beautification projects, and architectural standardization transform Uyghur homes into extensions of state power. The erasure of Uyghur domestic aesthetics and the imposition of Han cultural ideals collapse the boundary between public and private life, turning the family into an instrument of state control (Grose, 2020).

State intrusions into Uyghur homes extend further to the regulation of Uyghur bodies. Zenz (2020a) examines how surveillance technologies enable reproductive monitoring through digital record systems that ensure compliance with birth control mandates and mandatory health checks, specifically within the Uyghur population (Zenz, 2020a; Grose, 2020). Zenz (2020a) also documents coercive measures, such as forced sterilizations and punitive detentions, against those who resist. Together, these studies show how surveillance and policy work in tandem to monitor, discipline, and restructure Uyghur life at the most intimate level.

Tynen (2020) frames the Chinese Communist Party's (CCP) "development" campaigns in Xinjiang within a settler-colonial logic, where forced demolitions and dispossession are justified through modernization rhetoric. By employing surveillance mapping, data systems, and labor tracking technologies, the state converts Uyghur homes into controllable sites. Li (2020) extends this settler-colonial framework into the labor sphere, showing how the CCP's surveillance infrastructure also compels "structurally forced consent," within state-directed labor systems. Other scholars focus more broadly on economic disadvantages, documented wage disparities, restricted employment choices, and limited access to managerial or professional positions for Uyghurs—

independent of direct surveillance mechanisms (Guo & Attané, 2019; Zenz, 2023).

These studies demonstrate that surveillance technologies operate not only as tools of psychological and social control, but also as instruments of economic and material repression. While the literature addresses social, psychological, and domestic costs of surveillance, fewer studies directly link these technologies to material well-being. Scholars have not fully explored how constant surveillance limits Uyghur access to education, employment opportunities, and social mobility. To address this gap, our research will examine how state surveillance technologies shape economic mobility in Xinjiang.

Global Implications of China's Increased Surveillance Apparatuses

Current literature agrees that Chinese technology companies, which are often backed by the government, have become increasingly interested in investment and technological integration within other nations' governments. Cave et al. (2019) found that several countries have already begun to implement technology developed by high-profile Chinese tech companies, such as Zimbabwe, Venezuela, and Belarus. In these countries, governments have used technology to expand control over their populations by restricting citizens' privacy, leading to infringements on individual rights. Cave et al. (2019) found that in the case of Venezuela, the government developed a nationwide identification system with the help of the Chinese technology company, ZTE. They also reported that the government had collected data ranging from a citizen's birthdate to political affiliation, with a data collection site that ZTE built and managed alone. As this type of involvement in the private lives of citizens becomes increasingly widespread, the abuses of private information by Chinese tech companies, and government involvement in those abuses, stand to become normalized. This could damage the efforts of other countries to hold China accountable for its use of surveillance technology in targeting its own citizens.

The Chinese government has classified any form of organized resistance by Uyghurs as terroristic in order to justify its aggressive pursuit of mass surveillance, detention, and cultural oppression under the guise of counterterrorism. This form of diplomatic dialogue has continued throughout China's policies on security and safety. Andersen et al. (2018) found that Chinese surveillance technology is primarily used to spy and collect data on Uyghurs in China. Other countries employed similar language regarding terroristic activities when addressing the justification for installing Chinese-developed surveillance technology in Venezuela in 2019 (Cave et al., 2019). In addition, China has focused not only on states across the world but also on its immediate neighbors when seeking to implement its surveillance technology to quell its own concerns over security. Andersen et al. (2017) found that Afghanistan and Pakistan were the primary targets of an alliance to form a collective attack on Uyghur resistance groups, with the hope that a shared anti-Uyghur stance would evolve throughout Central Asia. It has been difficult to gain international support for this type of ideology, notably within the EU, which has pushed back on China's treatment of Uyghurs (Andersen et al., 2017). However, Stanzel (2017) found that EU nations are divided when it comes to forming a unified policy on China's human rights abuses or leaving it to each individual nation. Economic factors, such as trade negotiations and foreign aid, play a major role in how aggressively countries decide to condemn China, a stalemate that China has benefited from in past years.

In our own research, we anticipate China seeking to implement its surveillance technology in more nations. We seek to analyze contexts where China has been unable to seamlessly integrate its technology into society, and where there has been civilian pushback on integration. Current literature focuses on China's installation of its surveillance technology and how citizens of those areas have been willing to submit to a heavier surveillance presence. Our research will expand on the ways China has counteracted these failures through a more aggressive foreign policy and how technology has aided the oppression of Uyghurs since 2014.

Existing literature provides a crucial foundation for understanding Chinese surveillance technologies and their impact on Uyghurs. However, significant gaps remain that our research aims to address. Scholars have documented the technological infrastructure enabling surveillance and examined the effects on Uyghur religious identity, psychological wellbeing, and family life. Furthermore, legal analyses have exposed the inadequacies in international law that fail to address cultural genocide and corporate complicity. Research on global implications reveals China's expanding influence across the world in nations such as Venezuela and Pakistan. However, several critical gaps remain within existing scholarship. First, while surveillance systems are well-documented, few studies examine how these technologies have compounded effects at the community level. Second, existing literature rarely connects surveillance mechanisms directly to socioeconomic and material wellbeing, focusing primarily on psychological and social dimensions of quality of life. Third, existing scholarship focuses on where surveillance has succeeded internationally but disregards contexts where implementation has failed or faced resistance. Our research seeks to address these gaps by analyzing how surveillance and policy systems shape Uyghur communities. By bridging technological analysis with ground-level impacts and comparative international contexts, our research provides a comprehensive understanding of surveillance as a tool of systematic oppression and its implications for human rights accountability.

Methodology

This study employs a qualitative approach to examine the relationship between Chinese surveillance technologies and their impact on Uyghur communities in Xinjiang since 2014, the year marking the initial widespread implementation of these technologies. We utilize qualitative methods for the analysis of our variables due to the lack of available quantitative data on surveillance applications of

Uyghurs in China. Our independent variable is the implementation and evolution of surveillance systems including FRT, the IJOP, biometric databases, mobile tracking applications, and related infrastructure deployed since 2014. Our dependent variables were multidimensional indicators of quality of life and systemic oppression among the Uyghur population. This includes community and familial engagement, psychological well-being, conditions within the private sphere, and economic mobility. We chose to measure these factors through government records indicating the scope and capabilities of applicable systems, as well as geopolitical and socioeconomic data analysis.

Our data collection integrates primary sources such as firsthand testimonies from Uyghurs who have experienced these systems, examples of external implementation of Chinese surveillance technology, and technical documentation from Chinese surveillance corporations. Our secondary sources include academic literature on international trade data on exports and EU and UN legal frameworks that accounted for gaps in international law. Our research uses qualitative discourse analysis of policy documents to establish connections and their consequences on Uyghur wellbeing. We also conduct a comparative analysis of international cases to demonstrate how the accumulation of data trains their systems to better operate on other populations. Our analysis was concentrated in the Global South, where Chinese surveillance technology has been implemented. Our research examines successful integration. For the purpose of this analysis, success is defined in cases where this technology has yielded alternative datasets used to advance Chinese surveillance technology. We seek to provide the concrete data and systemic analysis that current qualitatively-focused research lacks, while maintaining ethical protocols, such as data-use integrity and adherence to anonymity in firsthand accounts, to protect vulnerable populations.

Results and Findings

Technological Infrastructure

Surveillance has been China's primary tool for social control since its advent in 1949. Liyanage (2024) references handwritten records documenting a range of data points such as whether a woman was using birth control to an individual's political affiliations (Liyanage, 2024). At its beginning, massive surveillance was an effort entirely composed of manual labor; state officials collected any and all data, and were often deployed to communities for long periods of time with the directive to observe and report. According to Leibold (2019), this instilled such a high level of social distrust that there remains a level of social fragility in Chinese society today, particularly in Xinjiang (Leibold, 2019). Neighbors avoid sharing personal information, and family members go so far as to ensure they're unaware of intimate information to avoid incriminating themselves or their relatives when compulsory home visits are conducted (Liyanage, 2024). As the Chinese state progressed, however, a single problem with their surveillance system became pervasive, rendering its social control initiative nearly futile: Liyanage terms this the "bottleneck" problem (Liyange, 2024). At the time, there was no feasible method of collecting the amount of data required, as well as analyzing it and effectuating that analysis, with the resources available. Thus, the information that *was* collected would build into a "bottleneck," as officials realized that there was too much information and no way to use it.

Today, however, the PRC has largely solved this problem and even reversed it, according to Maya Wang with the HRW (Wang, 2019). Wang reports that officials have been overworked as a result of the sheer quantity of facts and analyses drawn from modern surveillance reports. This is a result of what we have deemed China's three-tiered surveillance method. The first layer is a pervasive implementation of Closed-Circuit Television (CCTV) cameras often equipped with AI software for cognitive surveillance. These cameras are located in both exterior and interior public spaces, in traffic cameras, in deployed drones, and on the bodies of police officers. The second layer is the use of AI-driven, deep learning, and comparative data storage and analysis. The third layer is the centralization of all collected data into a few communicating databases. This data is then analyzed, and the conclusions drawn from the data are synthesized allowing the systematization of common communication methods. This makes efficient and timely enforcement of any investigation deemed necessary by the algorithm possible. Most important, however, is the imbalance with which these technologies have been initiated. Nearly every new surveillance method, social organization and management tactic, and mode of social control is first released and maintained in the province of Xinjiang. In order to understand the magnitude of this oppression and its effects on Uyghurs in the long term, we must first examine the infrastructure and tools used to implement it.

The installation of 20 million CCTV cameras in 2005 hallmarked the beginning of the Skynet program. Blanketing China in countrywide, around-the-clock monitoring, the CCP effectively installed eyes everywhere. This solved the first facet of the "bottleneck" problem, providing a mode by which to collect the amount of data required to achieve total surveillance. It didn't, however, have the ability to truly use the information that they were collecting on their citizens. This would require the ability to examine and utilize all of that surveillance information in a manner that was actionable for both law and enforcement and law makers in China (Liyanage, 2024).

Liyanage (2024) credits the following Chinese technological companies with making that possible: AuthenMetric, Hikvision, Huawei, Megvii, Alibaba, Baidu, SenseTime, Tencent, iFlyTek, and Yitu (Liyange, 2024). Examining the products that the most active of these—AuthenMetric, Hikvision, Huawei, and Megvii—advertise confirms the relevance of Liyanage's asserted infrastructural technologies.

AuthenMetric's home site (Facial Recognition Access Control, ID Verification, Facial Recognition Algorithm - *AuthenMetric Zhongke Aosen*, n.d.) advertises their Orui Series, consisting of multiple versions of the binocular—double-lensed with two meter zoom capacity—multispectral cameras that are capable of capturing multiple, specific wavelength bands beyond human visual capacity (Facial Recognition Access Control, ID Verification, Facial Recognition Algorithm - *AuthenMetric Zhongke Aosen*, n.d.). These wavelength bands are able to detect body heat and possess night vision capabilities, enabling the cameras to identify individuals. This series is boasted alongside the Oxin Series, composed of complementary interfaceable softwares and algorithms for AI analysis of images captured during and after recording. Liyanage's (2024) analysis explains that these technologies make AuthenMetric instrumental in face detection, comparison, verification, and anti-spoofing, which prevent individuals from presenting counterfeit identities (Liyange, 2024). Their DeepEyes Binocular Depth Learning software—designed particularly for anti-spoofing—uses Deep Learning (DL) AI to record the faces of individuals, analyzing attributes such as their approximate age, gender, identifying skin condition, mood or emotional state, and more. AuthenMetric's DL AI systems are also capable of vehicle detection and analysis, and optical character recognition—the translation of a text image into machine-readable text. This technology is routinely used to confirm individuals' identities by capturing identifying data through facial recognition technologies and comparing that data to similar data, or similar faces, held within their databases. All of this is done in milliseconds, producing a beyond-human capacity for crowd management and surveillance.

Another technology company, Megvii, advertises Face Recognition Access Control terminals boasting a 99.5% recognition accuracy rate in hard/low light conditions, with a consistent recognition speed of 200 milliseconds (Megvii, n.d.). Its Intelligent Internet Protocol (IP) cameras—with a range of options for indoor and outdoor conditions—include face recognition, capture of visible and infrared light, and the capability to perceive both structured and unstructured data. Megvii's AI algorithms are also based on DL models, are trained on big data—enormous datasets consisting of more than 10 billion faces which are used for pattern recognition and model training—and are powered by their DL MegEngine design. It also offers what is roughly translated as the Blacklist Facial Dynamic Surveillance System. Primed for face detection, tracking, recognition, clustering, attribute estimation, liveness detection, and key-point (eyes, ears, nose, etc.) detection, Megvii is most well-known for its machine vision and AI facial recognition systems. The PRC's use of these systems allows for rapid data gathering and analysis in complicated and quickly changing environments.

Hikvision's utility for the Chinese government is found primarily in their camera quality, boasting multidimensional perception including X-ray, visible light, infrared ray, millimeter, sound, thermal variation, and radar perception (Hikvision, n.d.). Hikvision also does profound work in image-stabilization, Ultra-HD, and high-definition video processing even in low-light conditions. It is credited with the Intelligent Security Camera, a multi-eye system employing infrared, starlight, full color, smart, and intelligent image capture. In addition, it uses multi-lens cameras with panoramic and zoom capabilities, Network Video Recorders, and DeepMind Series analysis. These supply its implemented AI software's with the modules needed for image processing. In essence, its cameras have the capacity for low-light, stabilized video capture of multidimensional data, and application of AI analysis in real time and post-recording. This can be used for in-depth and fail-safe image capturing in non-conducive environments like extreme low light or environmentally impacted surroundings. The advancement of the image capture in these cameras allows the AI algorithms to function at the same level no matter the context of the footage, meaning that Chinese citizens will find no cover from surveillance clarity in the dark of night or even during storms.

Lastly, Huawei is reportedly focused on camera production with integrated AI networks that capture human figures, motion, and behavior based on behavior-trained trajectories (*iF Design - HoloSens SDC*, n.d.). Their HoloSens intelligent video and data analysis lead the market in AI-based video analysis for the purposes of detecting events and procuring structured data like license plates. This AI is deployed via the company's HoloSens Intelligent Vision Software Defined Camera, which is equipped with the necessary AI processor and recording modules to allow the algorithm to function on a similar level to human perception. Huawei also produces a Cloud Graph Engine Service, which is a cloud-based database designed to store and analyze datasets and their relationships. It is a valuable tool for quantifying and analyzing social networking and behavioral data. In essence, Huawei's technology is integral for the quantification of social action, which would allow for behavioral prediction and management.

In order to fully address their "bottleneck problem," this kind of surveillance requires a user-friendly interface and an abundance of data to ensure that comprehensive management can be executed effectively. HRW was instrumental in examining how the Chinese government used its IJOP to achieve this. The IJOP is a centralized database and interactive map that has access to any and all surveillance data that has been collected either manually or via CCTV units and subjected to AI analysis. The IJOP contains information ranging from someone's gait and hip extension to the license plate on their car and the last time it was driven and where. Some of this data, known as biometric data, is inaccessible except through manual collection. The CCP's Strike Hard Campaign is largely credited with the state's ability to collect this data, particularly from citizens of Xinjiang, compulsively (Wang, 2019). The campaign claimed that the data was being used for anti-terrorism efforts, and provided Xinjiang authorities with the opportunity to analyze and store data points like eye color, DNA information, wingspan, blood type, and more in the IJOP program (Wang, 2019). The massive database and surveillance program is used as the central command system for all of the Chinese government's social control efforts. Formatted as an interactive app, the IJOP is an easily accessible mode of everyday surveillance for the officials using it. It includes facial recognition and confirmation technology, allowing officials to match a person's ID to their face, and alerts officials to behaviors the algorithm deems suspicious. A master in detail orientation, it guides officers through investigations and response to these suspicions, working to ensure not a single unidentified or unlocated individual is left.

The IJOP is also capable of collecting its own information through geolocation and Wifi Sniffing processes (Wang, 2019). This geolocation process ensures that anytime an official is active on the program, their location is logged and the fastest route for law enforcement to reach them is mapped immediately. Wifi Sniffing is a function that scans the surrounding areas, collecting unique identifying information of networks within range of the operating device. HRW extrapolates that this program probably serves the purpose of "War Driving" which maps the networks in the area (Human Rights Watch, 2019). The IJOP also centralizes communication for officials, allowing them to make contact via voice message, phone calls, and emails through the AcroPhone software unified communications system.

Based on the results of HRW, it is likely that routine use of the IJOP starts by utilizing the search function, which allows officials to retrieve an individual's data by entering their name, license plate, building address, ID numbers, and/or household numbers. Once the individual's data is accessed, IJOP will facilitate a number of possible investigations. These are enumerated in Figure 1, which lists the multiple screens that HRW was able to reverse engineer and either screenshot, read source code for, or both. These screens guide the officials through a number of surveillance and data collection steps using a simple conditional confirmation model, essentially an "if yes, then…" model. The simplicity of the model suggests that the IJOP may be significantly less advanced than the Chinese government would have its citizens believe. The conditions ("if yes") and following procedures ("then…") are listed below in tentative chronological order.

Figure 1: *Page Breakdown of Reverse Engineered IJOP*

Screen Number	*Condition*	*Procedure*
1	Information is collected from an individual.	Select the condition in which the information is being collected, such as: - During a home visit - On the street - In a re-education camp - Etc. Includes an option for classifying which of the 36 person types an individual is, which range from "Returned from abroad" to reasons pertaining to the individual selling their belongings and moving residences (Wang, 2019).
2	The individual has done or neglected to do something that triggers a mission in the IJOP database.	The official is directed to investigate the individual, particularly if they have been deemed to be suspicious.
3	There is a vehicle that is registered to this individual.	Officials are prompted to collect data such as license plate information, likely for the purposes of supplying AI equipped surveillance cameras with identifying information.
4	The individual has moved into the locale within which the officer is working.	The official is prompted to investigate this individual.
5	The individual has moved out of the locale within which the officer is working.	The official is prompted to investigate this individual.
6	The individual listed has moved into a locale, and the officer has been prompted to collect information on the individual.	Officials are prompted to collect specific move dates, motivations for the relocation, and any temporary addresses associated with the individual in the meantime. Also prompts for the details of individuals related to that individual.
7	Mirrors screen 6, but applies to individuals who have moved out of a locale.	Mirrors screen 6.

8	The individual traveled abroad.	Provides officials with information concerning where they traveled, their motivations for traveling, and their travel "trajectory" (Wang, 2019).
9	The individual traveled abroad.	Prompt is unclear, but is related to the above investigations (per HRW).
10	The individual falls under code 913: Individuals with problematic relationships - involving someone whose location is unknown, someone who is blacklisted, etc.	Officials are alerted of this classification and prompted with information collection missions for these individuals.
11	The individual is classified under code 913.	Officials are prompted to record that individual's foreign relationships and what software they use to contact those relationships (software includes WhatsApp and similar platforms).
12	The individual is associated with an Embassy Alert (Wang, 2019).	The purpose of Embassy Alerts is unclear, but Human Rights Watch (2019) extrapolates that it may be or may not be associated with foreign nationals.
13	The individual is coded as 913.	Prompts the official to collect information on the other individuals in the problematic relationships.
14	The individual used electricity.	Informs the official of the amount of electricity used by that individual and the dates and times it was used in order to monitor for unusual use.
15	The individual is associated with a phone number that officials have lost track of.	The official is prompted to collect information regarding that phone number.
16	The individual is associated with a vehicle that has gone off-grid.	The official is informed of the last known location of the vehicle and prompted to investigate (available conclusions include vehicles being in for maintenance, left unused, etc.).
17	This individual's registered vehicle has been filled with gas by someone other than this individual.	The official is alerted to the nature, duration, and frequency of gas-station visits and prompted to investigate.
18	The individual did not match with their ID at a security checkpoint.	The official is informed of the specifics of the event and prompted to investigate.
19	The individual has been using a phone that is not registered to them.	The official is informed of the specifics of the event and is prompted to investigate.
20	The individual has been categorized as problematic due to characteristics ranging from being related to someone with an unknown location to someone who recently obtained a new phone number.	The official is prompted to investigate and given a set of interview parameters and/or questions.
21	The individual is associated with having driven a vehicle that is not registered to them. - This screen may also simply alert the need for more information regarding the vehicle mismatch listed above.	The official is prompted to investigate.
22	The officer is provided with the last date and time the individual passed through a security checkpoint.	The official is provided with the date and time that the individual last passed through a checkpoint and with the ID information that they presented at that time. There are three courses of action available: (1) Information collection, (2) Detain for interrogation, (3) Immediate Arrest.
23	The individual is traveling/associated/interviewed with another/multiple other individuals.	The official is directed to collect information on these individuals as well.
24	Information regarding vehicle registration is provided including alerts to "flagged cars" (Wang, 2019).	The "flagged cars" (Wang, 2019) can include used vehicles or vehicles owned by individuals that have been blacklisted/placed on a watchlist.
25	The individual has a phone registered to them.	The official is prompted to scan the individual's phone.
26	The individual is driving with another or multiple others.	The official is prompted to collect these individuals' information (Wang, 2019).

Lastly, in order to ensure that the algorithms being deployed are well-trained for active and post-surveillance analysis, an inordinate amount of data is required to practice on. This is referred to above as "big data." The question must be asked, then, if the above listed companies are actively developing their algorithms, where are they acquiring the data to train their algorithms on? A connection has been made between the Chinese government and these companies, supporting the argument that the most successful Chinese technology developers have data contracts with the CCP (Beraja et al., 2020). These contracts typically outline conditions as follows: should the company, such as Hikvision, agree to develop technology on behalf of the state, the state will provide funding and will make data donations, supplying the company with big data on its citizens. This data is then utilized in training the AI algorithms to detect and confirm variables like faces or license plates. This process is what makes results like those of the company Cloudwalk possible;

Cloudwalk focuses nearly exclusively on closed-loop—zero human involvement—AI systems that learn rapidly. These systems are designed for complex analysis and decision-making processes—which can be used for physiological and object detection, vocal recognition, language processing, optical character recognition, automated feature generation, machine learning, and video structuring analysis. It should also be noted that Cloudwalk is partnered with the Shanghai Centre for Brain Science and Brain Inspired Technology, which works to produce AI models with human-tier cognition and awareness. This, in combination with the Chinese Government's data donations, fosters the ability for Chinese surveillance to learn and predict the behaviors of its citizens, subjecting them to a country-wide, sleepless law enforcement entity and behavioral analyst.

International Legal Frameworks

The examination of legal frameworks reveals a key disconnect between international law's conceptual definitions and its capacity to address technologically-enabled systematic oppression. The Uyghur community has been subjected to policies that constitute cultural genocide under Lemkin's framework, which defines genocide as the deliberate destruction of a group's cultural, social, and polictical identity (Irvin-Erickson, 2016). However, it falls outside of international criminal law's narrow definition, which requires extensive proof of intent to physically destroy a group (Finnegan, 2020). This legal gap becomes particularly evident when examining the comprehensive nature of China's policies, which include mass detention, forced assimilation programs, restrictions on religious practice, and systemic targeting of intellectuals and children. The inability extends beyond definitional issues to include enforcement mechanisms. China's treatment of Uyghurs violates several human rights conventions through forced detention, religious oppression, and cultural elimination, despite China's ratification of these very agreements (Towadi et al., 2020). While China employs national sovereignty as justification, its sovereignty cannot override its human rights obligations under international law. These findings highlight how existing international law lacks the structural capacity to intervene when surveillance infrastructure eliminates cultural oppression at such a large scale. This creates a regulatory power vacuum where technological regulation operates with little power despite clear violations of established conventions. Analysis of the IJOP demonstrates how this legal vacuum enables authorities to label individuals as suspicious based on non-violent behaviors, subsequently targeting them for detention without legal protection (Human Rights Watch, 2019).

The corporate lens of surveillance-enabled repression exposes additional gaps in accountability mechanisms that enable systematic human rights abuses. Chinese technology corporations, including Hikvision and Huawei, provide surveillance apparatuses and social media monitoring technologies that directly enable mass detention and cultural oppression (Smith, 2021). Corporate complicity in oppression reveals large gaps in international legal frameworks that make it difficult to hold corporations accountable under authoritarian regimes such as China. Current approaches fail to address the interaction of state violence and corporate compliance, as laws such as the Global Magnitsky Act, which punishes individuals and entities involved in human rights abuses and corruption, and various EU and UN mechanisms remain insufficient in addressing corporate complicity. These legal mechanisms were not designed to address cases where private corporations provide technological infrastructure for state-led oppression (Smith, 2021).

Major Chinese technology companies have expanded into Western markets while also providing surveillance tools to government agencies that breach privacy and human rights, with China even exporting its surveillance technologies to other countries' governing systems (Cave et al., 2019). These findings suggest that surveillance technologies have created a new legal category of human rights violations that existing legal frameworks fail to address, one where private sector innovation directly allows state-led cultural elimination without alerting existing accountability mechanisms. The combination of these inadequacies creates a surveillance accountability gap, where technological systems operate beyond the reach of international law, despite allowing documented human rights violations. Scholars advocate for expansion of genocide's legal definition to include cultural elimination alongside physical destruction, highlighting that while political realities make the International Criminal Court's prosecution of China unlikely, the Uyghur case demonstrates the necessity for such change (Finnegan, 2020). Similarly, scholars argue that states must develop new legislation to address foreign corporations involved in human rights abuses, as current approaches prove ineffective and corporate codes of conduct must prioritize ethics over profit (Smith, 2021).

Islamic law perspectives reinforce these concerns, emphasizing Quranic principles of religious tolerance and diversity and demonstrating that China's practices contradict both international and Islamic jurisprudence (Towadi et al., 2020). However, these findings indicate a key problem: legal frameworks evolve slowly through legal consensus, while surveillance technologies advance rapidly. Between 2014 and the present, China's surveillance methods breached privacy boundaries as surveillance technologies outpaced legal frameworks and their ability to constrain their use (Briglia, 2021). This creates conditions for systemic oppression that can be implemented through technical means without violating international legal protections or corporate accountability measures. This gap persists even as evidence mounts that China's policies meet the criteria for cultural genocide under a broader understanding of international responsibility and accountability.

Religious and Cultural Implications on the Uyghur Population

Our analysis of documented human rights data indicates that China's expansion of surveillance techniques in the XUAR has created a system of subjugation through forced assimilation and targeted religious oppression. Abusive surveillance techniques and technologies expanded with the reintroduction of the Strike Hard Campaign Against Violent Terrorism in 2014. Strike Hard campaigns have been taking place intermittently since the 1990s and feature mass arrests, house searches, executions, and greater religious restrictions on Uyghurs and other minority groups (Millward & Peterson, 2020). Following the reintroduction of Strike Hard, the number of arrests in Xinjiang increased dramatically. Authorities in Xinjiang rationalize this stringent enforcement under the guise of maintaining stability within the region and to "strike at" those the government classifies as extremists or terrorists (Human Rights Watch, 2018).

However, the CCP's legal definitions for what is considered extremism or terrorism are vague and overlapping. Extremism is codified under two separate legal definitions in Xinjiang through the Xinjiang Religious Affairs Regulation (XRAR) and the XUAR Regulation on De-extremification (XRD). XRAR describes "religious extremism" as "the distortion of religious teachings and the promotion of extremism, as well as other extremes of thought, speech and behavior such as the promotion of violence, social hatred and anti-humanity" (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2022, p. 6, unofficial translation). Meanwhile, XRD defines extremism as "propositions and conduct using distortion of religious teachings or other means to incite hatred or discrimination and advocate violence" (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2022, p. 6, unofficial translation). Together, these overlapping definitions lack specific thresholds for what constitutes extremism. This ambiguity allows authorities to label individuals as extremist for ordinary cultural or religious practices.

Complementary to these definitions, The Xinjiang Implementing Measures for CCP's Counterterrorism Law defines terrorism broadly as "propositions and actions that create social panic, endanger public safety, attack persons or property, or coerce national organs or international organizations, through methods such as violence, destruction intimidation, so as to achieve their political, ideological, or other objectives" with "terrorist activities" including "disrupting the social order and other serious social harm" (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2022, p. 5, unofficial translation). The vague language in this definition and a lack of clarification on terms such as "social harm" provide authorities with a dangerously broad scope for enforcement.

The CCP's policies regarding Uyghurs and "anti-terrorism" efforts intensified in 2017 with the appointment of the new Party Secretary for the XUAR Committee of the CCP, Chen Quanguo. Chen oversaw a significant expansion in law enforcement infrastructure with the growth of 100,000 new officers and thousands of "Convenience Police Stations" to set up grid policing during his first year in office (Milward & Peterson, 2020). Grid policing is a system that allows the government to monitor regions and large populations at a local level. While grid policing is not exclusive to Xinjiang, its implementation there is much harsher when compared to the rest of the country. Neighborhood districts are usually split into smaller grids of about 4,000-5,000 people for monitoring purposes, but in the XUAR, a grid has around 200 to 400 people, or 70 to 100 families (Qu, 2021).

The IJOP employs a predictive algorithm that flags and sorts individuals in Xinjiang for punishment through means such as surveillance, imprisonment, or indoctrination based on their likelihood for extremism (Milward & Peterson, 2020, p. 5). However, the signs of extremism include personal lifestyle choices such as abstaining from drinking/smoking, maintaining a beard, and declining to participate in cultural and social events. The algorithm excessively and disproportionately flags and targets Uyghurs—a direct reflection of surveillance technologies and grid policing working in tandem.

Along with these grid policing tactics, Chinese authorities also passed discriminatory de-extremification regulations in 2017. Extremification in the Chinese legal context is defined as "speech and actions under the influence of extremism, that spread radical religious ideology, and reject and interfere with normal production and livelihood" (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2022, unofficial translation). Under the new de-extremification regulations, practices associated with Islam, including praying, fasting, beard growth, veiling, alcohol avoidance, and owning religious or cultural texts, could now be seen as extremist (Amnesty International, 2021). The new regulations effectively banned expressions of Islamic faith and, in conjunction with Chen's mass surveillance, contributed to widespread religious repression and suppression. This has manifested in Uyghurs who have now left China and still feel reluctant to publicly engage in religious activity and practices due to fear of retribution and detainment (Amnesty International, 2021).

Data from a HRW report further connects common religious practices such as consuming Islamic content, including wedding songs and Quran readings, with potential terrorism designations by a police surveillance system named iTap (Human Rights Watch, 2023). The system was specifically built for the police department in Urumqi, the capital of Xinjiang. The software involuntarily collects massive amounts of data on residents, including internet use, financial accounts, location, and vehicle registration. Research from the 2023 HRW report found that iTap received data from two surveillance apps—Jingwang Weishi and Feng Cai—that Xinjiang police forcibly installed on phones (Human Rights Watch, 2023).

Authorities in Xinjiang use a master list, which in 2018, consisted of roughly 50,000 multimedia files classifying individuals as "violent and terrorist" in order to identify them for police interrogation (Human Rights Watch, 2023). Search results from Jingwang Weishi were included in a massive database of over 1,600 data tables that include both violent and non-violent multimedia files. An investigation of these files found that in only nine months, Jingwang Weishi secretly conducted almost 11 million searches on 1.2 million phones to find evidence of "violent and terrorist" behavior in

Urumqi and found 11,000 matches on over 1,000 files. HRW found that 57% of the 1,000 files were common religious materials like chapters from the Quran, with only 13% of the files including or calling for violence (Human Rights Watch 2023). This database was leaked to the U.S.-based media organization, *The Intercept*, in 2019, which provided corroborating evidence to validate the HRW report. Jingwang Weishi was able to create this "evidence" of "violent and terrorist" motivations as each file in the list matched an MD5 hash. This is the file's unique signature used by authorities to match files with items on people's phones (Human Rights Watch 2023).

Individuals identified as "violent and terrorist" or "extremist" through surveillance programs like Jingwang Weishi were subsequently detained in internment camps under the same de-extremification framework. First-hand accounts from former Chinese internment camp internees reveal that the government collected an extraneous amount of biometric information, including blood samples, iris scans, fingerprints, and voice recordings (Amnesty International, 2021). After undergoing biometric data collection and medical exams, almost all detainees were taken to internment camps. These camps were created with the expressed goal of "deradicalization" or "re-education" and are formally referred to by the government as "Vocational Education and Training Centers" or VETC facilities (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2022, p. 9). Former internees report that they were subjected to Mandarin language training and forced renunciations of Islam and Uyghur culture in the VETC facilities (Milward & Peterson, 2020, p. 6). The cultural and religious suppression facilitated within the camps point to broader patterns of oppression faced by Uyghurs. In addition to the cultural erasure faced in the internment camps, Uyghurs who have left China reported that Turkic Muslim cultural material including books and artifacts have been effectively banned and are being destroyed and replaced with Chinese cultural items in private homes (Amnesty International, 2021). As of 2017, authorities in Xinjiang have also mandated speaking Mandarin Chinese in communal spaces as well as in all of pre-school through early middle school and have been progressively closing schools offering Uyghur or Kazakh language instruction altogether (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2022, p. 29). These linguistic restrictions coupled with the surveillance technologies being used to monitor the populace is contributing to further Uyghur cultural suppression. Collectively, our findings reveal how the augmentation of surveillance technologies in Xinjiang are actively reshaping the cultural and religious life of Uyghurs.

Surveillance Impacts on Quality of Life for the Uyghur Population

The development of surveillance technologies in Xinjiang not only demonstrates the increasing sophistication of state control but also its capacity to redefine an individual's quality of life. This section examines how these technologies disrupt psychological and social well-being, privacy, and economic mobility—revealing how dimensions of life beyond mere survival have been systematically altered among Xinjiang's Uyghur community.

Surveillance apparatuses in China have functioned as tools of psychological discipline by restructuring how Uyghurs think and interact with each other. In interviews with former and present Uyghur citizens of Xinjiang, respondents shared their tangible awareness of different technologies as well as the deep impact they have had on their psychological well-being. In one survey with 469 responses, 81.4% reported witnessing police control of their homes and workplaces, and 70.1% reported CCTV cameras in their residences, with many describing self-censorship as a subsequent consequence (Oztig & Karluk, 2024). Similarly, participants in both Oztig & Karluk (2024)'s survey and Kilic's (2024) study of seven Uyghur participants living in Xinjiang reported immense anxiety under surveillance. Although these surveys cannot capture the full diversity of Uyghur experiences, they still reveal recurring patterns. These Uyghur respondents explicitly expressed their fear of state control and detention, which manifested in how they carefully monitored their speech, censored sensitive topics, avoided normal activities, conducted activities in the dark to maintain privacy, and spoke only positively about the CCP and their own state of mind in any context where monitoring felt possible. Furthermore, 33.2% of respondents reported dreams in which Chinese police took them away due to phone or internet-related activities, as the awareness of surveillance frequently intruded into their subconscious, even controlling their mental state in their sleep (Oztig & Karluk, 2024).

This psychological conditioning inevitably extends into social life, where fear replaces Uyghur communal cohesion. 90.2% of respondents indicated that surveillance had damaged their social relations and severely disrupted their cultural practices (Oztig & Karluk, 2024). Visits surpassing 15 minutes are subject to automated surveillance alerts and require authorization from local security units. One participant recalled an instance where a relative was detained and sent to a camp simply for exceeding the time limit (Oztig & Karluk, 2024). Four out of seven participants in Kilic's interviews described a *complete* severance of family and friendship ties out of fear (Kilic, 2024). Uyghurs with family abroad were deemed "problematic" and subjected to tighter surveillance, cutting off transnational family networks entirely (Kilic, 2024). Treated as a security risk, these individuals are now subjected to increased home visits, inspections, and potential detainment after receiving messages from family abroad. This severance occurred both because the state penalized overseas contact and because families themselves restricted communication out of fear of triggering further surveillance flags as well as endangering their loved ones. The strain of this control transformed into broader social alienation within China, as 92.8% of respondents reported that the high-tech pressure had eroded any sense of equality with Han Chinese citizens (Oztig & Karluk, 2024). Many have turned inward in resistance—refusing to use Chinese words, avoiding Chinese food, and raising their children to maintain a purely Uyghur sense of belonging. One respondent concluded, "In our family, in our language, and in our hearts and souls, China and Chineseness no longer exist" (Oztig & Karluk, 2024). This demonstrated how some participants responded to surveillance by actively rejecting markers of Chinese identity to strengthen inner Uyghur cultural identification.

Psychological domination alone cannot sustain obedience; the CCP reinforces mental control through the tangible upending of Uyghur private life. In 2017, President Xi Jinping launched beautification campaigns in Uyghur-majority regions of Xinjiang, aiming to reshape domestic spaces so that state-prescribed behaviors and ethnic Han cultural norms would be internalized—a strategy scholars call "authoritarian reflectiveness" (Grose, 2020). Traditionally, Uyghur homes were adorned with Uyghur art, religious markers such as mehrab arches facing Mecca, and furnishings like the supa—central to communal hospitality and ritual gatherings. State-led housing projects replaced these flexible arrangements with compartmentalized rooms assigned to singular functions and standardized furniture such as tables and sofas. Families unable to renovate were encouraged or coerced into moving into high-rise apartment units with standardized designs meant to symbolize socioeconomic success. These state-led housing projects placed Uyghur residents in settings where state monitoring became more centralized and easier to conduct (Grose, 2020; Kobi, 2023). Government cadres conducted regular "chats" and inspections, often every 10-15 days, to digitally monitor compliance to beauty and civilized living, and families were further incentivized to maintain a "good" status through rewards such as public recognition or material goods (Kobi, 2023). Noncompliance often resulted in public shaming, ostracism, or punitive measures. By the end of 2018, Xi Jinping had announced a plan to construct 300,000 affordable housing complexes across the region, underscoring the urgency of the policy. Housing reforms transformed Uyghur homes into ideological spaces where architecture and daily routines became instruments of assimilation and control, reinforcing state surveillance and extending the reach of authoritarian oversight into domestic life (Grose, 2020).

These intrusions into the private sphere extended into reproduction, as Xinjiang's "family planning initiatives" turned Uyghur women's bodies into instruments of demographic control under state surveillance. Drawing on Adrian Zenz's (2020a, 2020b) compilation of leaked government documents, satellite imagery, official statistics, and local Uyghur testimonies, the available evidence demonstrates that the CCP framed Uyghur population growth as a threat to national security—linking birth rates to religious extremism, ethnic segregation, and social instability. This demographic anxiety was paired with targeted efforts to reshape Xinjiang's ethnic composition through large-scale demographic engineering. Between 2015 and 2018, although 860,000 Han residents left Xinjiang, more than 2 million new Han migrants were brought in by the Chinese government, overwhelmingly concentrated in Han-majority areas (Zenz, 2020a, 2020b). In several counties, the Han population growth rates were up to 8x higher than those of neighboring Uyghur regions. State programs, including recruitment drives and incentive packages administered through the Xinjiang Production and Construction Corps, offered incoming settlers free land, housing, guaranteed employment, medical benefits, and monthly subsidies. Population records during this period also revealed a two-million-person gap between registered and resident populations, primarily in Han-dominated regions, suggesting statistical manipulation that further obscures the scale of engineered demographic change. Together, these patterns indicate a coordinated strategy aimed at reducing the relative share of Uyghurs and increasing the Han presence in Xinjiang (Zenz, 2020a, 2020b).

The CCP also intensified birth-prevention initiatives targeting Uyghur families themselves. Before 2015, Uyghurs, previously subject to minority exemptions in family-planning laws, could exceed birth limits by paying fines. After 2017, birth control laws were equalized for Han and minority populations in ways that enabled far stricter and retroactively enforced controls on Uyghur families. Uyghur women were detained, forcibly sterilized, or fitted with IUDS, while Han families faced standard fines or counseling (Zenz, 2020a, 2020b). Under the new "Special Campaigns" initiative, past births that had been legal when they occurred were reclassified as violations. Natural population growth in Xinjiang declined dramatically as growth rates fell by 84% in the two largest Uyghur prefectures between 2015 and 2018 (Statistics Bureau of the Xinjiang Uyghur Autonomous Region [XUAR Statistics Bureau], 2019). Carrying out the policy involved intensive reproductive monitoring, including quarterly IUD checks, monthly home visits, and bi-monthly pregnancy tests. The Person Information System (PIS) compiled this data, cross-referenced medical records, and flagged suspected noncompliance. Enforcement followed these assessments: fines for Uyghur families increased to three to eight times annual income, and refusal to comply often resulted in extrajudicial internment. Testimonies indicated that women in camps were sometimes injected with drugs to suppress menstruation or induce infertility (Zenz, 2020a, 2020b). Between 2019 and 2020, the XUAR Health commission allocated 120-140 million RMB—$16.7-19.5 million in U.S. dollars—for birth control surgeries in four southern minority prefectures, alongside 733-750 million RMB—$102-105 million in U.S. dollars—in cash rewards for IUD placements and sterilizations. By combining invasive monitoring technologies with coercive domestic and reproductive controls, the CCP ensured that even the biological aspects of Uyghur daily existence were systematically surveilled and regulated to suppress resistance and enforce state authority.

Before the rise of mass surveillance in 2014, Uyghurs in Xinjiang were already constrained by structural economic inequalities prior to the widespread deployment of digital surveillance. Decades of hiring discrimination and wage gaps limited Uyghur individuals' access to stable and high-paying work. Fieldwork sampling 1,600 citizens in Urumqi between 2004 and 2008 found that Uyghurs earned 31% less than Han overall and 52% less in the non-state sector—although wages equalized in state jobs—and tended to migrate longer distances, often driven by family pressure or the absence of local employment (Hopper & Webber, 2009; Howell & Fan, 2011; Zang, 2011). These patterns indicated that market and social discrimination, rather than direct state coercion, primarily shaped economic outcomes during this period (Zang, 2011). Uyghurs were also underrepresented among employers and in public-sector roles, despite evidence that highly skilled or professional Uyghur migrants could sometimes out-earn their Han counterparts, suggesting that mobility offered uneven but meaningful potential for advancement (Howell & Fan, 2011). Guo & Attané (2019) show that Uyghurs became increasingly concentrated in the primary sectoragriculture—forestry, animal husbandry, and fishing—while remaining sharply underrepresented in the secondary and tertiary sectors central to economic modernization. Limited access to high school and tertiary education—10.9% Uyghurs compared to 21.1% among Han—further restricted movement into higher-income occupations, heightening vulnerability to state labor interventions. Despite persistent wage discrimination and labor market segmentation, mobility remained a critical survival strategy. Many Uyghurs engaged in seasonal work, short-term migration, or regional movement within Xinjiang to supplement household income and mitigate village-level poverty.

After 2014, China's development of advanced surveillance technologies in Xinjiang turned long-standing economic inequalities into a system of comprehensive repression—primarily by dismantling the possibility of mobility itself. Platforms like the IJOP, grid policing, biometric checkpoints, mandatory phone monitoring, neighborhood informant networks, and dense camera coverage allowed authorities to integrate household data, travel histories, employment records, family backgrounds, and political assessments into algorithmic security profiles (Byler, 2018). Everyday Uyghur mobility became redefined as inherently dangerous. Routine activities like visiting relatives, staying overnight away from home, or returning from travel abroad triggered automated suspicion flags, and many travel returnees were sent directly to re-education camps (Zenz, 2019). By 2017, most Uyghurs required government permission to leave their township, and domestic travel could lead to detention for "illegal movement" (Tynen, 2020). As China's surveillance apparatuses expanded, it also fused with existing bureaucratic tools to prevent access to economic opportunities—most notably the hukou system. Hukou is China's household registration system—a state policy and population management tool that determines where a person is legally allowed to live and which services they can access, including schooling, healthcare, welfare benefits, and formal-sector employment (Solinger, 1999; Kramer, 2020). Because most Uyghurs hold rural hukou tied to impoverished southern prefectures, they were already excluded from the urban benefits and higher-wage labor markets concentrated in northern Xinjiang. Once hukou data was integrated into the IJOP and the PIS, these older inequalities became security triggers: relocation attempts prompted police scrutiny, as non-local hukou automatically flagged "suspicious mobility," and Uyghurs without local registration or "stable employment" were frequently detained or forcibly returned to rural areas (Kramer, 2020). In this environment, hukou no longer functioned simply as a bureaucratic barrier but as one component of the broader surveillance apparatus that confined Uyghurs to specific spaces and prevented access to the economic opportunities that surveillance now tightly controlled.

Police checkpoints across city roads and rail stations—equipped with required facial recognition scans and phone inspections—effectively immobilized Uyghur residents within tightly policed zones, systematically evicting them from urban centers and the higher-wage labor markets concentrated there. This immobilization had measurable economic consequences: national migrant data from 2013–2017 show that Uyghur migrants faced the steepest penalties among 13 minority groups, with 47% lower odds of entering professional or managerial jobs and only 4.11% reaching prosperous coastal provinces where income disadvantages would fall by nearly 50% (Li, 2020). As voluntary migration collapsed under the expanding security regime, mobility itself became suspicious unless it occurred through state-approved channels (Tynen, 2020). This reframing of movement pushed Uyghurs into state-assigned labor programs or low-wage factory work marketed as "poverty alleviation" (Tynen, 2020). Building on this, Zenz (2019, 2023) documents how Xinjiang's labor system operates through three interconnected pathways that move Uyghurs into state-controlled factory work—ranging from internment-based forced labor to village-level labor mobilization. The first, and most coercive, transfers detainees from re-education camps into factories embedded within camps, industrial parks, or satellite workshops near their home areas. The second channels rural Uyghurs through centralized training pipelines and tightly monitored labor transfer, tracked through government databases and household-level surveillance to ensure that every eligible person is placed into state-assigned work. The third operates at the village level, where cadres establish local factories and childcare centers specifically to remove practical obstacles to full-time labor, and then conduct continual home visits, data collection, and compliance checks to ensure that anyone classified as "surplus labor"—a state term for adults not in formal employment, especially women performing domestic labor—is moved into uninterrupted wage labor (Zenz, 2019, 2023). Under this system, even the elderly and students were coerced into seasonal agricultural labor to fulfill state quotas, and refusal to participate was reclassified as ideological extremism (Zenz, 2021). The state's surveillance infrastructure enables real-time tracking of attendance, productivity, and compliance—making non-participation punishable and turning employment into an extension of political policing. County-level studies confirm this pattern as areas with the densest surveillance networks show the lowest voluntary migration rates and the highest state-directed labor placements (Tynen, 2020). Rather than fostering economic advancement, these programs replace informal livelihood strategies with tightly controlled, low-wage labor. The CCP's surveillance infrastructure transformed existing inequality into a system of total economic dependency and coercion.

Global Implications of China's Increased Surveillance Apparatuses

China's development of increasingly advanced methods of surveillance domestically is contextualized by its use of this technology abroad. Most importantly, nations that have overlooked China's actions have allowed it to practice developing and implementing surveillance technology. A key part of understanding how China has been able to influence other countries is through its Belt and Road Initiative (BRI). Launched in 2013, the project aimed to link China and other East Asian countries to Europe through various infrastructure projects, a large portion of which included technological investment (Jones & Purett, 2023). Many developing countries signed onto this initiative as they saw this as an economic and political opportunity to align with a global superpower, enabling China to begin setting up projects in these nations. Nations across five continents have all signed on to this initiative (Green Finance & Development Center, 2025). Some of the most notable of these nations are those in the global south due to China's heavy surveillance presence in the area (Cave et al., 2018). As China builds up their technological infrastructure in these nations, these nations serve as what we have come to see as "testing grounds." Through the installation of these technologies and data collection process, China harvests information from different social demographics in order to train their systems on all types of social categories, like race or ethnicity. This development has a direct connection to China's ability to separate Uyghurs through surveillance methods, which makes them more vulnerable to police stops and detention (Li, 2020).

One example of where China has focused its implementation of new surveillance technology is Zimbabwe. In 2018, the country accepted a partnership with China through the BRI to incorporate CloudWalk, a Chinese technology company that produces a variety of surveillance technologies, into domestic systems (Cave et al., 2018). The company is most well-known for its sophisticated facial recognition cameras, which it describes as useful in "accessing control scenarios such as communities, parks, hospitals, schools …" (CloudWalk, 2020). These cameras, which have been purchased and installed in communities across Zimbabwe, are able to report on a variety of factors that have enabled the Zimbabwean government to profile its citizens based on their physical appearance. As aforementioned, it was found by Oztig & Karluk (2024) that over 70% of Uyghur respondents from a 469 data pool saw cameras, such as these, in their residences (Oztig & Karluk, 2024). This enhanced presence is the result of the successful application of these cameras in Zimbabwean communities. The application of this technology can be determined by the output of information that has been sent back to China, rather than by the amount of data the Zimbabwean government has collected. Travers (2024) found through a Zimbabwean data protection professional that data collected in Zimbabwe was being used to explicitly train AI surveillance technologies to recognize individuals of African origin (Travers, 2024). In application, Zimbabwe has effectively served as one of the primary testing grounds for facial recognition capabilities and has allowed China to train its AI to more accurately track its citizens based on their physical appearance.

China's use of foreign nations as testing grounds for its surveillance technology, particularly nations that have faced political instability, demonstrates how China has capitalized on their weaknesses to more aggressively test the capabilities of its surveillance technologies. A commonality among the nations China has approached is their lack of democratic freedom and high levels of civil and human rights abuses. Freedom House (2025) found Zimbabwe's relative freedom to be below 30 on a 100-point scale. This is accompanied by the level of internet freedom, which sits below the 50-point mark. These scales are determined by a questionnaire that considers the amount of political rights and civil liberties actually enjoyed by each country's citizens, rather than what is "guaranteed" by their government (Freedom House, 2025). For comparison, the U.S. ranks at 84/100 for relative freedom and 73/100 for internet freedom as a free democracy (Freedom House, 2025). In all instances, China's technology has only exacerbated instability in these nations, as it boosts the government's ability to monitor and pursue citizens it views as threats. For example, Venezuela, another country in the global south targeted by China because of its low level of freedom, implemented the Fatherland Card, a database that Venezuelans sign up for to receive access to government social programs in exchange for access to certain private information (Fenney, 2018). In a report done by Berwick, they found this to include such factors as political party membership and whether a person voted (Berwick, 2018). This database, created and monitored by a Chinese tech company ZTE, is only one example of how Chinese technology companies have utilized centralized data storage coupled with surveillance technology to monitor perceived "threats." HRW found that in 2019, China had implemented a similar system, the IJOP, in its own regions, which led to investigations of those they saw as "problematic" (Human Rights Watch, 2019).

China's development of its infrastructural technology in other countries is aided by the international community's combative policy on China. As referenced above, China began pursuing Uyghurs post-9/11 as they believed them to be threats to national security (Andersen, 2018). China's belief developed into a desire to collaborate with its neighbors to create a unitary strategy to assess and neutralize national security threats. Anderson et al. (2017) found that China hosted Afghanistan and Pakistan for a conference called the China-Afghanistan-Pakistan Foreign Minister's Dialogue (2018). The conference focused on strengthening multilateral relationships and those with the East at large, with a stress on collaborative counter terrorism work on China's part. This increased collaboration has raised some concerns in the wider international community, particularly the EU, as they saw China's pursuit to eradicate any Uyghur organization as too oppressive to constitute the measures as national security protection. In the same year, a group of EU countries drafted a statement in the Human Rights Council to address human rights violations in China. After being vetoed first by Hungary, citing that the EU already had too many contradicting policies on China, and more likely to protect their economic partnerships, the EU remained inactive on a clear and unitary China policy (Venne, 2021). According to the European Council on Foreign Relations, as of 2020, only two of the members of the EU placed a united stance on China as one of their top five priorities. The lack of coordination between EU countries has permitted China to continue to make deals with individual nations, furthering the implementation of their technology internationally and preventing human rights abuses from being addressed. As of 2025, 17 member countries of the EU have already signed on to the BRI, and the potential for the expansion of their projects only grows as China continues to offer more funding (Green Finance & Development Center, 2025). This continuation of an alliance with China to gain access to Chinese technology and infrastructure, but an uncombative stance on human rights abuses continues to enable China to abuse the privacy and human rights of citizens across the world. From our findings we have seen how China's use of testing ground countries to train their own systems has allowed it to advance past the point of development and instead to the point where it is now a weapon.

Discussion

Technological Infrastructure

The Chinese strategy for state surveillance has long been understood as invasive and ubiquitous, but examination of the evolution of their surveillance technologies yields a far more dystopian understanding of Chinese citizens' lack of privacy. These technologies, focused and tested in Xinjiang, are layered in a model designed to extract as much information from the citizens of China as possible. The CCP has been selective about the kinds of technologies it implements and what they purpose each of them with. No expense has been spared, and no generalizations have been made in the execution of their surveillance model. It's referred to as a three-tiered model above, and those three tiers are the crux of their pervasive data-gathering system.

The first tier points to infrastructural efforts to have eyes on citizens at all times. Programs like Skynet and Sharpeyes were the genesis of this goal, and developments such as the blocking and gating of Uyghur neighborhoods pushed this goal from surveillance to control. Facial recognition cameras have been designed for specific purposes and locations like neighborhood entryway gates, office lobbies, and traffic management systems. Strategies like these reveal the CCP's desire not only to surveil its citizens at all times but in all places, and, to an extreme extent, to engage the most sophisticated technologies for all facets of its citizens' daily routines. The physical locations of their installed cameras and the kinds of cameras and algorithms deployed are indicative of a far more intrusive goal for their data collection. The CCP is working to understand their citizens' habits in a predictive manner, which requires them to be able to examine each citizen's daily trajectory at every moment.

The second tier is identified as the use of DL AI in data storage and analysis. The most cardinal facet of this tier is the manner in which China has layered AI algorithms. They've done so in a mode which ensures multi-level analysis of all data points collected, both during surveillance and after storing the data. In essence, the first tier provides massive data collection, and the second tier is designed to reduce the habits observed in the everyday lives of citizens to points in a plan. The lives of citizens of the CCP are distilled into patterns and monitored by these DL algorithms in order to detect shifts in behavior and otherwise concerning activities, as they are defined by the Chinese Government. It has been posited previously that this is in an attempt to anticipate the needs of Chinese citizens in the same manner that a democratic state does, but without utilizing democratic methods such as voting or peoples' representation. This hypothesis, however, isn't supported by the implementation of surveillance technologies and algorithms in Xinjiang, specifically. The third tier points to specific implementation methods that refute this theory.

If the technologies had been implemented evenly throughout the state and the data derived from it had been used to anticipate systematic needs such as traffic improvements and public transportation maintenance, the goal of mimicking a democratic society would have been a reasonable conclusion to draw. However, the third tier betrays the use of these systems to systematically bar Uyghurs from leaving their neighborhoods or province, to detain them and violate their rights via forced medication and coercion, and points to a desire to anticipate citizens' movements rather than their needs. This is demonstrated by the implementation of the IJOP system. Officers are instructed to collect as much data as possible on citizens and to conduct investigations based not on criminal activity but on everyday activity, like visiting a family member or a friend, or simply leaving the house through the garage door rather than the front door. This is not need-anticipation. This is targeted oppression of a specific population through invasively gathering personal information and using it to predict movements and entrap individuals. The mass use of IJOP in the arrests of Uyghurs and imprisonment of them in political re-education camps makes this an indisputable fact.

Fundamentally, this three-tiered system is designed to penetrate every inch of Chinese citizens' and, specifically, Uyghurs' lives. It is designed to provide zero respite for those it watches. Further, the information gathered is then analyzed for patterns and predictions so that the CCP can not only predict where its citizens go before they go there, but also immediately identify a break in routine. Tools like this are not used to aid citizens, they are used to control them. They are used to ensure that even the smallest indication of resistance or unrest is eradicated before it is effectuated. This is not a political effort to supply citizens with a voice, it is targeted surveillance and invasion of privacy, and it is pervasively indicated by the CCP's development of surveillance technology.

International Legal Frameworks

The findings carry significant implications for understanding how international law responds to modern forms of state-led oppression. The persistence of mass detention, forced assimilation, religious oppression, and cultural elimination despite China's ratification of multiple human rights conventions exposes the enforcement vacuum within international law. Rather than signaling isolated abuses, these patterns illustrate how existing legal structures enable systematic violations when states strategically exploit gaps between norms and enforcement. The invocation of sovereignty as justification for these violations reflects how state actors can exploit the conflict between sovereignty and human rights obligations. This dynamic becomes even more consequential when paired with advanced surveillance technologies, which allow states to present their actions as administrative or security-based while circumventing substantive human rights protections. The result is a form of repression operating within legal boundaries while still violating international human rights law.

The corporate dimension of surveillance-enabled oppression introduces complexity that existing legal frameworks fail to address. The findings demonstrate that Chinese technology corporations enable systemic human rights abuses by providing the infrastructure that makes mass surveillance and cultural oppression possible. However, the central challenge highlighted by the findings is not only the existence of corporate involvement but also the inability of current international mechanisms to regulate private-sector contributions to state violence. This corporate complicity presents a challenge for international law, which typically focuses on state actors rather than the private sector that provides the tools for oppression. Because corporate participation occurs across multiple jurisdictions, accountability becomes fragmented and easily avoided, revealing a structural weakness in international governance rather than a case-specific failure. Current accountability mechanisms, including various EU and UN frameworks, were designed for different contexts that do not apply to situations where private corporations create technological infrastructure that enables state-sponsored oppression. Demonstrated by the findings, corporations can benefit from global market integration while simultaneously supporting authoritarian practices—a duality that existing legal frameworks were not designed to confront. As technology becomes an export commodity, the replication of systemic oppression may expand beyond China's borders.

Examining the mismatch between technology and legal frameworks is also key to understanding the rapid advancement of surveillance technologies. Between 2014 and the present, surveillance capabilities have expanded exponentially, while legal frameworks have remained largely the same. This mismatch illustrates one of the most significant insights of the study: law is fundamentally reactive, while surveillance technology is preemptive, allowing states to institutionalize oppressive systems before regulatory bodies can intervene. The documentation of China's surveillance methods reflects this mismatch. By the time the international community recognized the scope of these surveillance systems, they had already become deeply entrenched in administrative structures and normalized as tools of governance. This pattern suggests that reactive legal frameworks are ineffective in curbing surveillance technology, which grows rapidly and can be deployed and misused before legal precedent is established. Consequently, the findings signal a *broader* risk—that the Uyghur case may function as a model for other governments seeking to integrate surveillance into coercive governance. Without proactive legal frameworks, the pattern of surveillance documented in our research risks becoming a global norm for authoritarian regimes.

The findings collectively suggest the necessity of comprehensive reform across multiple levels of international law. First, the legal definition of genocide demonstrates how cultural elimination plays a key role in modern oppression, raising questions about whether international criminal law can address non-physical forms of destruction. Systemic erasure of cultural identity, language, religious practice, and social structures constitutes a form of destruction that deserves recognition under international criminal law, even when physical destruction is not the primary means. Second, the growing role of private technology companies suggests that existing accountability mechanisms may prove increasingly insufficient as corporate actors share the tools and conditions of oppression. As China continues to disseminate technology globally, it becomes increasingly difficult to monitor and sanction its use. Third, the accelerated development of surveillance technologies underscores the gap between technological advancement and legal response, indicating that future legal challenges will rely on whether or not international frameworks can adapt quickly enough to regulate emerging systems before they become normalized.

Ultimately, significant limitations exist across definitional, enforcement, and accountability mechanisms of international law. These limitations are structural, reflecting legal frameworks designed for previous instances of human rights violation that are ineffective in the present. As a result, documented cases of oppression risk becoming normalized features of authoritarian regimes. The ongoing nature of these violations and their potential for replication globally highlights the broader implications that these structural gaps pose for the future trajectory of international human rights protections.

Religious and Cultural Implications on the Uyghur Population

Our findings provide insights into how pervasive surveillance in the XUAR drives institutional patterns of religious oppression and state-sanctioned identity erosion. The convergence of state policies and intrusive post-2014 surveillance technologies intensified already existing forms of oppression and contributed to more widespread methods of authoritarian control. While existing literature independently analyzes surveillance technologies in Xinjiang and the persecution of Uyghurs, our study assists in linking surveillance policing with patterns of ethnic and faith-based repression. This relationship between state objectives and technological developments helps contextualize the effects of surveillance on Uyghurs both in and out of Xinjiang. These aforementioned effects are reflected through the policies and campaigns tailored to suppress Uyghurs' religious and cultural identity. The new restrictions on religious expression have converted regular religious practice into illegal activity under new authoritarian laws and now institutionally outlaw religious markers associated with Islam through regulations that threaten terrorism classifications on otherwise law-abiding citizens. The expansion of surveillance technologies perpetuates this religious oppression by enabling authorities to identify individuals who engage in prohibited religious or cultural activities and impose subsequent punishment and detainment. This state-sanctioned targeting of minority groups has gradually limited the spiritual autonomy of Uyghurs by scrutinizing public and private expressions of faith. The combined impact of these new laws and technological advancements reveals the pervasive reach the government has in the everyday lives of Uyghurs, inadvertently shaping both their private and public choices and conduct.

Our findings indicate that post-2014 surveillance expansion extends beyond the surveillance technologies themselves by influencing self-censorship through behavior modification and the erasure of cultural identity. Surveillance tactics, including biometric data collection and phone tracking via government-installed applications, have led to cultural identity repression through state-propagated paranoia and fear of persecution. The state facilitates this repression through deterrence. By building an environment where citizens anticipate punishment or corrective action for standard religious and cultural practices, the state reinforces compliance through both the perception and reality of a constant, omnipresent surveillance.

Our analysis reveals that state-sanctioned coercion has led to the erasure of religious agency and practice, threatening Uyghurs' spiritual belief systems in and out of China. The policies and technologies currently in place in the XUAR also undermine Uyghur autonomy and inhibit their long-term cultural preservation and communal identity. These dynamics underscore how surveillance in the XUAR functions not merely as a practical instrument of the state but as a tool that restricts and threatens the Uyghur population's spiritual and cultural agency, eroding their distinct ethnic identity under an unrelenting authoritarian regime.

Surveillance Impacts on Quality of Life for the Uyghur Population

Surveillance in Xinjiang has evolved from a security measure into a multidimensional system of oppression that targets the very foundations of Uyghur quality of life. These technologies are not passive tools of governance but mechanisms of social engineering that erode psychological stability, social trust, domestic autonomy, reproductive freedom, and economic independence. In doing so, the CCP has redefined what oppression looks like: not simple physical coercion, but the systematic constriction of the conditions that allow individuals and communities to live freely and with dignity.

The psychological impacts documented in our findings expose how surveillance operates as a form of internalized governance. Respondents' descriptions of fear, intrusive police presence, self-censorship, and trauma illustrate that compliance is produced not only through the threat of punishment but through the reshaping of how individuals think and speak. This emotional architecture of control highlights a fundamental dynamic of contemporary authoritarianism, which achieves compliance by relying on the cultivated vulnerability that emerges when surveillance permeates routines, thoughts, and even dreams rather than on visible coercion. Traditional human rights frameworks, which focus on material abuses, fail to capture the political role of fear as a tool of governance. More broadly, the technologies deployed by the Chinese government illustrate the social implications of algorithmic surveillance—its ability to dissolve trust, fragment communal bonds, and render populations more governable through enforced isolation.

Surveillance-enabled reproductive controls and demographic engineering exposes how deeply the CCP project reaches into the foundations of Uyghur collective life. By reframing fertility as a matter of security and embedding reproductive data into expansive monitoring systems, the state turns biological continuity itself into a managed and regulated domain. Paired with sustained Han in-migration, these policies reflect not only simply population control but a broader demographic reordering aimed at reshaping who belongs in Xinjiang.

Economically, surveillance transforms long-standing inequalities into mechanisms of dependency. Once mobility was reclassified as a security threat, access to opportunities became contingent on algorithmic assessments rather than personal agency or market conditions. Economic survival now depends on participation in state-directed labor pipelines, where refusal is treated as ideological deviance, collapsing the distinction between work and coercion and turning livelihood itself into a tool of political discipline.

Taken together, these developments illustrate a shift in authoritarian power that undermines the core elements of a free life—security, autonomy, and even the ability to envision one's own future—by attacking the conditions that make life livable. Since 2014, the CCP has shifted from episodic coercion to a model of control woven into the routines and infrastructures of daily existence. In this system, technologies framed as tools of stability become instruments for regulating identity and belonging.

When surveillance shapes domestic life, relationships, and emotional worlds, oppression becomes a routine condition rather than an isolated occurrence. Its persistence obscures its severity, as harm accumulates quietly and continuously. This continuity blurs the line between governance and coercion, enabling the state to reshape

Uyghur identity while maintaining outward narratives of modernization and progress. Ultimately, the Xinjiang surveillance regime reflects a broader shift in state power—comprehensive, anticipatory, and embedded in the technologies that organize everyday life. Recognizing this shift is essential not only for understanding the future of Uyghur well-being but for seeing how easily quality of life can be reengineered through digital governance. As surveillance becomes normalized globally, Xinjiang stands as a warning: authoritarian power can quietly suffocate freedom through unseen forms of control, and we cannot ignore these harms simply because they do not take the form of spectacle—this subtlety is what makes them all the more dangerous.

Global Implications of China's Increased Surveillance Apparatuses

Our findings suggest that Chinese technology companies have been allowed to implement their surveillance systems in other countries without pushback from those countries' domestic political institutions. Furthermore, China has not faced collective international intervention even when these technologies exploit the privacy of citizens, both abroad and within China. These practices reflect how, when there are no regulations surrounding what private information a state is allowed to collect, the use of this information can be weaponized.

International cooperation with China for the installation of their surveillance technology illustrates the lack of control against the excessive collection of private information. The findings showcase the wealth of information gathered as a result of the implementation of systems, from cameras to data storage sites, through the BRI. These systems are able to learn from the different data pools, such as data belonging to citizens of foreign nations, and are able to detect more details about individuals. This, in turn, is being weaponized to separate the populace based on generalizations of ethnicity, religion, political affiliation, and other social categories. The case studies presented in the findings suggest that this practice has already been implemented in China, as they have specifically tracked the movements of Uyghurs in order to separate them from the general public, thereby enabling their cultural and physical erasure.

In understanding how Chinese technology companies have gone unchecked in their technological investment abroad, it is important to understand that they have operated under the guise of global and regional cohesion. This tactic has put China off the radar of many influential actors in the international community. As discussed in the findings, the EU in particular has remained divided, despite the increasing direct measures taken by China to collect private information of citizens of other nations. This was found through the examination of individual nations where China has focused on implementing a variety of its surveillance technology. What could have been an early warning system for the suppressive measures created to target Uyghurs in China was instead diplomatic posturing. The findings indicate that this is a weak point in combating the suppression of Uyghurs, a policy that has continued to be adopted and spread through East Asia. The lack of collective international intervention in stopping China's surveillance technology development and the human rights abuses shown in our research stand to become more widespread in China.

In the findings, an unexpected result was the lack of pushback from the citizens who are the victims of China's surveillance technology. Additionally, the findings demonstrate support by foreign political institutions for China's incorporation of their surveillance technology in their country. In some cases, the public's disagreement with Chinese surveillance technologies was mentioned, yet the overwhelming support for the government and totality of the scope of this technology left little room for citizens to stop the tide. This further shows how surveillance technology remains one of the most potent weapons in enacting oppressive measures. As a weapon hiding in plain sight, there is little Uyghurs can do, especially without the intervention of the international community.

Without the regulation of data collected from surveillance systems by the international community, Chinese surveillance technologies will be able to learn and advance at an unpreventable rate. This development has already enabled China to monitor its own citizens and enforce oppressive measures, as nonintervention, or even the explicit support for continued expansion of surveillance technology, continues, particularly against one of its most vulnerable populations, Uyghurs.

Limitations

While our research provides a comprehensive overview of surveillance of Uyghurs in Xinjiang, there are several limitations that constrain our understanding of their oppression. First, much of our research relies on source data that is either inaccessible to our team due to time constraints that inhibit our ability to find means to access documents or—given the sensitivity of these data points—is inaccessible due to its public availability. Such data includes accurate and current governmental, demographic, and technological information. For instance, we were unable to access comprehensive re-education camp population statistics or internal corporate communications between technology companies and Chinese government agencies that would reveal the extent of their coordination. Furthermore, due to our three-month timeframe and limited access to resources, we could not accomplish an extensive and comprehensive analysis of the issue, necessitating the narrowing of our scope to particular dimensions. Specifically, we prioritized technological surveillance mechanisms, human rights violations, and legal frameworks while giving less attention to economic and environmental dimensions. Because many relevant data sources remain inaccessible and our scope necessarily narrowed, the patterns identified in this project likely underestimate the scale and severity of the surveillance regime's impact.

Second, many studies focus narrowly on one aspect of the crisis, such as legal frameworks, technological mechanisms, or social and psychological effects, but fail to fully integrate how these perspectives operate together. For example, research on corporate complicity relies primarily on legal accountability but rarely examines how companies' technologies function within state surveillance to enforce oppression. Similarly, studies surrounding social and psychological outcomes often fail to explicitly link these issues to technological infrastructure, leaving causal mechanisms challenging to explore. Furthermore, while some scholarship addresses the expansion of Chinese technologies, it largely emphasizes adoption rather than resistance, with research often treating human rights violations as isolated phenomena rather than a broader system of oppression. As a result, the literature remains fragmented, with critical gaps in understanding how legal, technological, and human facets intersect to create and sustain the crisis in Xinjiang. This has several important implications for scholarship and policy, including incomplete causal understanding of corporations enabling surveillance, limited resistance strategies due to the focus on technology adoption, and missed systemic patterns with human rights violations.

Lastly, the language barrier should be acknowledged given its relevance in government documentation, technological development by Chinese companies, and procurement of data from Chinese sources. While our team was determined to preserve the integrity of primary documents, certain mistranslations may be present and may have affected the accuracy of the findings we presented. Despite these limitations, our team worked diligently to preserve the accuracy of all sources used and conclusions drawn.

Conclusion

In addressing how China's development of surveillance technology since 2014 has enabled systemic oppression of Uyghurs, our team reached several conclusions. The apex of Uyghur oppression that we addressed is the evolution of China's surveillance technology. The CCP prioritized the development of technologies that pursue surveillance of a cognitive nature, complete with AI algorithms that gather, analyze, and issue operable intelligence via closed-loop mechanisms. The strategy under which these technologies are layered betrays the Chinese government's desire to not only track its citizens but also map their lifestyles and anticipate their actions. It has been addressed previously that Chinese surveillance technologies are invasive by nature, but very few scholars have addressed the technological system as an interconnected network designed and trained for oppression of a particular religious and ethnic group. The result of this is directly observable in Uyghurs' quality of life. These technologies have been used to limit their migrational and economic mobility, as Uyghurs are excluded from economic opportunities and barred from leaving their province should the CCP deem it necessary. Any number of characteristics can lead to this determination, spanning relationships with convicted criminals to the obtainment of a new phone number. This regulatory practice deeply threatens Uyghurs' psychological and social well-being as their private and domestic spaces are invaded, leaving them without respite from observation by their state. The severe degree to which the CCP monitors Uyghurs has also contributed to identity erosion and religious oppression via intimidation tactics and excessive privacy violations.

The legal frameworks currently in place are unequipped to address the fundamental human rights violations of Uyghurs due to gaps in UN and EU legislation. The need for further research and identification of these gaps in legislative safety is also indicated by the insufficiencies of UN and EU legislation that fail to provide frameworks for addressing these abuses. These institutions are actively exacerbating the abilities of both the CCP and other authoritarian regimes to exploit these loopholes for surveillance and, as some research indicates, genocidal efforts. Lastly, the CCP is actively pursuing data collection across the Global South, proliferating their technologies in numerous other countries in a manner that allows them to collect and utilize datasets gathered from populations other than their own. These goals are largely achieved through pre-established mechanisms such as the BRI. This is an incredibly concerning facet of China's surveillance evolution since 2014, and heralds the need for further monitoring of Chinese global surveillance efforts. As the CCP advances its surveillance mechanisms, legal frameworks, and law enforcement systems, it deepens the infrastructure that facilitates oppression. This makes it essential for global actors to understand the capabilities of these technologies, their impact on civilian populations, and their potential for global use.

References

Amnesty International. (2021, June 10). *"Like we were enemies in a war": China's mass internment, torture, and persecution of Muslims in Xinjiang*. https://www.amnesty.org/en/documents/asa17/4137/2021/en/

Andersen, L. E., & Jiang, Y. (2018). Counterterrorism strategies in China: Domestic and foreign differences in China's engagement in Pakistan, Afghanistan, and Xinjiang. *Will China's root cause model provide regional stability and security?* (pp. 40–50). Danish Institute for International Studies. http://www.jstor.org/stable/resrep21436.11

AuthenMetric. (n.d.). *Face recognition access control, person verification, face algorithm*. http://www.authenmetric.com/

Beraja, M., Yang, D. Y., & Yuchtman, N. (2020). Data-intensive innovation and the state: Evidence from AI firms in China. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3679716

Berwick, A. (2018, November 14). How ZTE helps Venezuela create China-style social control. *Reuters*. https://www.reuters.com/investigates/special-report/venezuela-zte/

Briglia, M. (2021). Big brother Xi: How China's surveillance of the Uyghur population violates international law. *George Washington International Law Review*, *53*(1), 85–118. https://research-ebsco-com.proxy.lib.umich.edu/c/mqk2bj/search/details/tpdqpnwfkz/details

Byler, D. (2018). *Spirit breaking: Uyghur dispossession, culture work and terror capitalism in a Chinese global city* [Doctoral dissertation, University of Washington]. Xinjiang Documentation Project. https://xinjiangdocumentation.sites.olt.ubc.ca/files/2020/12/Darren-Byler-Spirit-Breaking-Uyghur-Dispossession-Culture-Work-and-Terror-Capitalism-in-a-Chinese-Global-City.pdf

Cave, D., Hoffman, S., Joske, A., Ryan, F., & Thomas, E. (2019). *Mapping China's technology giants*. Australian Strategic Policy Institute. http://www.jstor.org/stable/resrep23072

Chin, J., & Lin, L. (2022). *Surveillance state: Inside China’s quest to launch a new era of social control* (First edition). St. Martin’s Press. doi:10.1093/bjc/azac084

CloudWalk Technology Co., Ltd. (n.d.). *Gate controller by video face recognition*. Retrieved October 24, 2025, from https://www.cloudwalk.com/en/product/index2/id/33

Feeney, M. (2018). If you value privacy, resist any form of national ID cards. *CATO Institute*. https://www.cato.org/commentary/you-value-privacy-resist-any-form-national-id-cards

Finnegan, C. (2020). The Uyghur minority in China: A case study of cultural genocide, minority rights and the insufficiency of the international legal framework in preventing state-imposed extinction. *Laws*, *9*(1), 1–20. https://doi.org/10.3390/laws9010001

Freedom House. (2025, February 26). *Freedom in the world research methodology*. Retrieved November 21, 2025, from https://freedomhouse.org/reports/freedom-world/freedom-world-research-methodology

Freedom House. (2025). *United States: Country profile*. Retrieved November 21, 2025, from https://freedomhouse.org/country/united-states

Green Finance & Development Center. (2025). *Countries of the Belt and Road Initiative (BRI)*. Retrieved October 24, 2025, from https://greenfdc.org/countries-of-the-belt-and-road-initiative-bri/

Grose, T. A. (2020). If you don't know how, just learn: Chinese housing and the transformation of Uyghur domestic space. *Ethnic and Racial Studies*, *44*(11), 2052–2073. https://doi.org/10.1080/01419870.2020.1789686

Guo, W., & Attané, I. (2019). Social mobility of Uighur population in mainland China: A comparative perspective. *Journal of Muslim Minority Affairs*, *39*(4), 522–533. https://doi.org/10.1080/13602004.2019.1700588

Hikvision. (n.d.). *Safe city*. Retrieved October 24, 2025, from http://www.hikvision.com/en/solutions/solutions-by-industry/safe-city/

Hopper, B., & Webber, M. (2009). Migration, modernisation and ethnic estrangement: Uyghur migration to Urumqi, Xinjiang Uyghur Autonomous Region, PRC. *Inner Asia*, *11*(2), 173–191. https://brill.com/view/journals/inas/11/2/article-p173_2.xml

Howell, A., & Fan, C. (2011). Migration and inequality in Xinjiang: A survey of Han and Uyghur migrants in Urumqi. *Eurasian Geography and Economics*, *52*(1), 119–139. https://doi.org/10.2747/1539-7216.52.1.119

Human Rights Watch. (2018). *"Eradicating ideological viruses": China's campaign of repression against Xinjiang's Muslims*. https://www.hrw.org/report/2018/09/10/eradicating-ideological-viruses/chinas-campaign-repression-against-xinjiangs

Human Rights Watch. (2019, May 1). *China's algorithms of repression: Reverse engineering a Xinjiang police mass surveillance app*. https://www.hrw.org/report/2019/05/01/chinas-algorithms-repression/reverse-engineering-xinjiang-police-mass

Human Rights Watch. (2023, May 4). *China: Phone search program tramples Uyghur rights*. https://www.hrw.org/news/2023/05/04/china-phone-search-program-tramples-uyghur-rights

International Consortium of Investigative Journalists. (2019, November 24). *Read the China cables documents*. https://www.icij.org/investigations/china-cables/read-the-china-cables-documents/

Irvin-Erickson, D. (2016). *Raphaël Lemkin and the concept of genocide*. University of Pennsylvania Press. https://books.google.com/books?id=7SdDDQAAQBAJ

Jones, K., & Purett, N. (2023, August 15). *The Belt and Road Initiative: China's strategy to bring nations around the world into its orbit*. American Legislative Exchange Council. Retrieved October 24, 2025, from https://alec.org/article/the-belt-and-road-initiative-chinas-strategy-to-bring-nations-around-the-world-into-its-orbit/

Kilic, M. (2024). *Artificial intelligence as an oppression tool: The case of China and Uyghur conflict* [Master's thesis, Università degli Studi di Padova]. Padua Thesis and Dissertation Archive. https://thesis.unipd.it/handle/20.500.12608/82098

Kobi, M. (2023). Building Shanghai in the borderlands: A visual approach to the restructuring of the Uyghur city in Xinjiang. *Visual Studies*, *39*(1–2), 134–161. https://doi.org/10.1080/1472586X.2023.2197419

Kramer, J. (2020). *The function of the Hukou system in post-revolutionary China & its autonomous regions* [Master's thesis, University of San Francisco]. USF Scholarship Repository. https://repository.usfca.edu/thes/1285

Leibold, J. (2019). Surveillance in China's Xinjiang region: Ethnic sorting, coercion, and inducement. *Journal of Contemporary China*, *29*(121), 46–60. https://doi.org/10.1080/10670564.2019.1621529

Liu, J., & Zhao, H. (2021). Privacy lost: Appropriating surveillance technology in China's fight against COVID-19. *Business Horizons*, *64*(6), 743–756. https://doi.org/10.1016/j.bushor.2021.07.004

Li, Z. (2020). Ethnic disparities in labor market outcomes among migrant populations in China: A study of thirteen minority groups and the Han. *Chinese Sociological Review*, *53*(3), 285–311. https://doi.org/10.1080/21620555.2020.1817733

Liyanage, C. (2024). Tyranny of city brain: How China implements artificial intelligence to upgrade its repressive regime. *The Journal of Illiberalism Studies*, *4*(3), 73–97. https://www.illiberalism.org/wp-content/uploads/2025/01/Chamila-Liyanage-Tyrrany-of-City-Brain-1.pdf

Megvii. (n.d.). *Face recognition*. Retrieved October 24, 2024, from https://en.megvii.com/technologies/face_recognition

Millward, J., & Peterson, D. (2020, September). *China's system of oppression in Xinjiang: How it developed and how to curb it*. Brookings Institution. https://www.brookings.edu/wp-content/uploads/2020/09/FP_20200914_china_oppression_xinjiang_millward_peterson.pdf

Office of the United Nations High Commissioner for Human Rights. (2022). *OHCHR assessment of human rights concerns in the Xinjiang Uyghur Autonomous Region, People's Republic of China*. United Nations. https://www.ohchr.org/en/documents/country-reports/ohchr-assessment-human-rights-concerns-xinjiang-uyghur-autonomous-region

Oztig, L. I., & Karluk, A. C. (2024). The impact of China's high-tech repression on Uyghurs: A case study of Uyghur diaspora in Turkiye. *Central Asian Survey*, *43*(4), 504–522. https://doi.org/10.1080/02634937.2024.2343784

Qu, Y. (2021, August 12). *Extending grassroots power and mobilizing the people: How the CCP built a pervasive security system in Xinjiang*. University of British Columbia. https://xdp.adc.arts.ubc.ca/documents/extending-grassroots-power-and-mobilizing-the-people-how-the-ccp-built-a-pervasive-security-system-in-xinjiang.pdf

Smith, R. (2021). Corporate violations of human rights: Addressing the coordinated surveillance persecution of the Uyghur people by the Chinese state and Chinese corporations. *Georgia Journal of International and Comparative Law*, *49*(3), 653–686. https://heinonline.org/HOL/Page?handle=hein.journals/gjicl49&id=653

Solinger, D. (1999). China's floating population: Implications for state and society. In *The paradox of China's post-Mao reforms* (pp. 220–240). Harvard University Press. https://www.researchgate.net/profile/Dorothy-Solinger/publication/267838564_China%27s_Floating_Population_Implications_for_State_and_Society/links/56cc33e408ae1106370d7b74/Chinas-Floating-Population-Implications-for-State-and-Society.pdf

Stanzel, A. (2017). A common EU China policy: The divided, the ruled, and the united. In *China, the EU, and international investment law: Reforming investor-state dispute settlement* (pp. 36–41). European Council on Foreign Relations. http://www.jstor.org/stable/resrep21594.8

Statistics Bureau of the Xinjiang Uyghur Autonomous Region. (2019). *Xinjiang statistical yearbook 2019*. Statistics Bureau of the Xinjiang Uyghur Autonomous Region.

Towadi, M., Kasim, N. M., Rumawi, R., & Tahir, S. A. (2020). An indication of China's policy towards Uighurs and its implications by international law aspects. *Jambura Law Review*, *3*(1), 55–71. https://doi.org/10.33756/jlr.v3i1.7730

Travers, L. (2024). Algorithmic coloniality? The case of Chinese artificial intelligence technology and Zimbabwean surveillance. *Transcience*, *2*(15), 48–82. https://www2.hu-berlin.de/transcience/Vol15_No2_S48_S82.pdf

Tynen, S. (2020). Dispossession and displacement of migrant workers: The impact of state terror and economic development on Uyghurs in urban Xinjiang. *Central Asian Survey*, *39*(3), 303–323. https://doi.org/10.1080/02634937.2020.1743644

Venne, F. (2021, April 19). *China's trojan horse canters through Hungary*. Center for European Policy Analysis. https://cepa.org/article/chinas-trojan-horse-canters-through-hungary/

Wang, M. (2019). *China's algorithms of repression: Reverse engineering a Xinjiang police mass surveillance app*. Human Rights Watch. https://www.hrw.org/report/2019/05/01/chinas-algorithms-repression/reverse-engineering-xinjiang-police-mass

Zang, X. (2011). Uyghur-Han earnings differentials in Urumchi. *The China Journal*, *65*, 141–155. https://doi.org/10.1086/tcj.65.25790561

Zenz, A. (2019). *Beyond the camps: Beijing's long-term scheme of coercive labor, poverty alleviation and social control in Xinjiang*. The Journal of Political Risk. https://www.researchgate.net/publication/343970693_Beyond_the_Camps_Beijing's_Long-Term_Scheme_of_Coercive_Labor_Poverty_Alleviation_and_Social_Control_in_Xinjiang

Zenz, A. (2020a). The Karakax list: Dissecting the anatomy of Beijing's internment drive in Xinjiang. *Journal of Political Risk, 8*(2). www.researchgate.net/publication/343971049_The_Karakax_List_Dissecting_the_Anatomy_of_Beijing's_Internment_Drive_in_Xinjiang

Zenz, A. (2020b). *Sterilizations, IUDs, and mandatory birth control: The CCP's campaign to suppress Uyghur birthrates in Xinjiang.* The Jamestown Foundation. https://jamestown.org/wp-content/uploads/2020/06/Zenz-Internment-Sterilizations-and-IUDs-REVISED-March-17-2021.pdf

Zenz, A. (2021). *Sterilizations, IUDs, and mandatory birth control: The CCP's campaign to suppress Uyghur birthrates in Xinjiang*. The Jamestown Foundation. https://jamestown.org/wp-content/uploads/2020/06/Zenz-Internment-Sterilizations-and-IUDs-REVISED-March-17-2021.pdf

Zenz, A. (2023). Measuring non-internment state-imposed forced labor in Xinjiang and Central Asia: An assessment of ILO measurement guidelines. *Journal of Human Trafficking*, *10*(4), 513–539. https://doi.org/10.1080/23322705.2023.2270366

Parallel Paths? Assessing the Extent to Which Guyana Mirrors the Pre-1979 Venezuelan Oil Economy

Rebecca Davidov, Arjun Patel, Massimiliano Maimone, Michael Park, Renee Drayton

Our research examines the extent to which economic conditions in Guyana mirror conditions in Venezuela leading up to the 1979 global oil crisis. Venezuela's economic and social policy leading up to the 1979 oil crisis aligns with Guyana's current oil growth and economic policy, given that both states rely heavily on oil for national growth. Our research specifically focused on democratization, social policies, economic growth, and the growth of the oil industry in Venezuela from the 1920s to 1979, when there was a major drop in oil production, causing a global energy crisis. Similar variables for Guyana were analyzed from 2015, when there was a major oil discovery, to determine the extent to which its economic state mirrors that of Venezuela before its 1979 oil crisis. We included a comparison of macroeconomic indicators, a comparison of democratic and political institutions, an analysis of the mean oil rents for each country, and a predictor model for the Human Development Index. We concluded that the Guyanese government has taken steps to bolster its institutions and diversify its oil economy, putting Guyana in a better position thus far to avoid Venezuela's pitfalls.

Introduction

Since 2015, Guyana has emerged on the global stage as a major oil exporter following Exxon and its partners' discovery of large offshore oil fields off the Atlantic coast. This represented a major opportunity for economic growth for Guyana. Since the discovery of these reserves, the country has experienced remarkable global domestic product (GDP growth); after COVID-19, Guyana recorded the world's highest GDP growth rate, reaching 47% in 2022. However, an overreliance on the oil sector risks creating a monocultural economy, which could have serious consequences for the state apparatus and other productive sectors. Before the discovery of these offshore fields, the country's economy depended mainly on the export of gold, sugar, and rice. With the growing potential of oil extraction, Guyana has become a petro-state, where stability depends on the continuous flow of oil revenues. According to the Guyana Chronicle (2025), oil revenues contributed to 37% of the 2025 national budget (Guyana Chronicle, 2025).

In this research, we comparatively analyze the case of a neighboring state that has experienced both the highs and lows typical of petro-states: Venezuela. It stands as a striking example of how heavy dependence on a single resource can be extremely risky, leading to institutional weakness, political instability, and economic stagnation. We examine how the "resource curse," a phenomenon in which a country's overreliance on natural resources causes socioeconomic problems, has affected Venezuela, in order to outline how Guyana could act to maximize the benefits of oil and use its natural resources to build a productive and stable national economy.

The literature we examine regarding Venezuela provides valuable insights that can be projected onto the Guyanese case for those seeking to understand the dynamics of Guyana's oil boom and its potential repercussions. Historically, Venezuelan institutions have been characterized by fragility that was exacerbated by increasing oil revenues. Often, the stability and functioning of the state apparatus relied heavily on oil rent-sharing—how oil production profits are distributed among the government and private stakeholders—and cooperation among the most influential actors within the domestic political and economic ecosystem. Guyana is currently reinvesting its oil revenues in projects that involve the construction of modern infrastructure, the strengthening of productive sectors, and a focus on climate change management and welfare development. Fragile institutions, however, could lead to the reemergence in Guyana of the same factors, first and foremost corruption, that characterized the political and socioeconomic deterioration witnessed in Venezuela. Venezuela's experience provides valuable insights into how petrostates suffer from overreliance on oil, and can provide a way to analyze Guyana's political and economic trajectory in the coming years.

The study we present is significant because recent research on Guyana's economic growth has focused primarily on domestic production and trade policies. However, no comparative analysis has yet been conducted with other nations to assess the indicators of vulnerability in an oil-centered economy and the risks that it entails. Through this research, it becomes possible to understand how a rentier state apparatus may appear solid while concealing internal weaknesses that threaten its efficiency and stability. By analyzing economic volatility and stability, degree of oil dependence, quality of governance, and development projections, we explore in what ways Guyana resembles and differs from its neighbor, Venezuela.

Review of the Literature

Venezuelan Economic and Political History Prior to the 1979 Oil Crisis

Political History, Before 1979

Research on Venezuela's political economy prior to 1979 highlights how institutional weakness, combined with a heavy dependence on oil rents and revenues, alongside the mismanagement of monetary policy, contributed to political instability and economic stagnation, despite the country's oil endowment. In particular, Venezuela faced regime change and economic development, which changed its political relationships with other partners (Nogara, 2024). The discovery of oil reserves in 1914 became the most important factor in shaping structural conditions for the breakdown of military authority and creating a reformist state (Karl, 1987).

Venezuela saw a period of democracy from 1945-1948 with the expansion of the party Acción Democrática. However, the oil economy hastened the decline of Venezuela's stagnating agriculture sector, destroyed competitiveness of other important industries, and caused overvalued exchange rates, which changed social class composition (Karl, 1987). Pérez Jiménez, a dictator, took control of the government in 1948 and utilized oil to expand the economy, but disenfranchised and repressed the majority of Venezuelans (Norden, 2021). Economic inequality increased because of the uneven distribution of wealth created by the oil industry, where most Venezuelans saw little improvement in their quality of life (Nogara, 2024). Democratic parties, including Acción Democrática and Partido Socialcristiano, overthrew Jiménez in 1958 and expanded democratic programs in Venezuela, forming a pact called the Puntofijo, which encouraged cooperation among the two major parties and distributed oil rents (Monaldi et al., 2006).

The Puntofijo Pact changed Venezuela's position in the regional landscape. Economically, each political party was granted access to state resources, and the redistribution of oil incomes was highly institutionalized. This system initially resulted in high fiscal surpluses and monetary stability, but the volatility of oil prices in the late 1970s and early 1980s, in tandem with Venezuela's dependence on a singular resource in oil, led to overspending and corruption that brought instability (Monaldi et al., 2006).

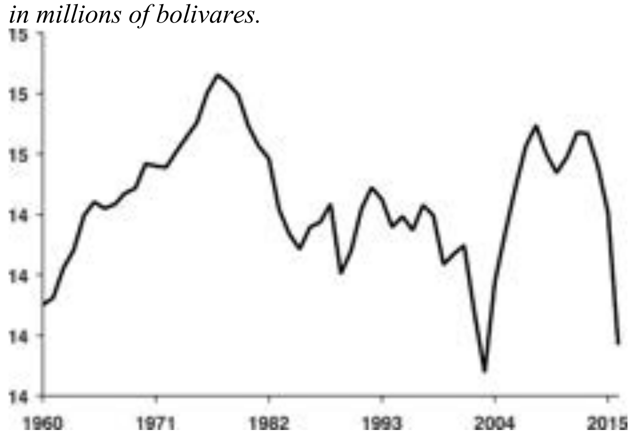
Furthermore, regional partners and foreign companies alike reacted negatively to the pact. Foreign oil corporations threatened to cut ties with Venezuela by transferring their operations to the Middle East (Nogara, 2024). Regionally, rising military dictatorships in the Dominican Republic and Cuba conflicted with Venezuelan democratic principles, resulting in changed regional dynamics (Karl, 1987). Venezuela's oil economy changed its position in the regional landscape: it had newfound political and economic superiority compared to the rest of South and Latin America.

However, in the late 1960s and early 1970s, Venezuelan regional policy shifted. Rafael Caldera, the president from 1969 to 1974, focused on rapprochement with Cuba, focusing on a common interest in countering the spread of leftist guerrilla movements (Karl, 1987). Venezuela participated in regional integration mechanisms and cooperation in the early 1970s, nationalized its oil industry, and created longstanding political agreements with Guyana, Brazil, and Mexico (Nogara, 2024).

Oil Policy, Institutional Evolution, and the Era of Nationalization (1950-2003)

During the 1950s and 1960s, the price of oil exported from Venezuela fell by 60% (Rossi-Guerrero, 1976). Meanwhile, the cost of imported commodities from the U.S. rose by 25% (Rossi-Guerrero, 1976), which impacted the country heavily; in 1986, for example, 46% of Venezuela's imports were purchased from the U.S. (Rodriguez Mendoza et al., 2001). Venezuela's dependence on U.S. imports became increasingly unsustainable. Since the establishment in 1960 of the Organization of the Petroleum Exporting Countries (OPEC)—an organization focused on cooperation between oil producers to maximise profit—the South American power had advocated for raising oil prices, labeling oil as a finite good that the market failed to treat as such due to its extremely low prices (Rossi-Guerrero, 1976). The long-awaited price increase arrived at the beginning of the 1970s, when—starting with Venezuela in 1970—OPEC members decided to unilaterally set oil export prices (Rossi-Guerrero, 1976). This fueled the oil boom and economic growth in Venezuela throughout that decade (Rossi-Guerrero, 1976).

Figure 1: *The log of real GDP per capita; 1997 base, prices in millions of bolivares.*



From Restuccia (2021). The History of Venezuela. In T. Kehoe & J.P. Nicolini (Eds.), *A monetary and fiscal history of Latin America (1960-2017)*, Becker Friedman Institute.

During the 1970s, Venezuela began to nationalize its oil. The newly elected president in 1973, Carlos Andrés Pérez, campaigned on the promise to nationalize the oil sector, arguing that it was "politically impossible for a sovereign country to have its most basic, vital, and important resource in foreign hands" (Rossi-Guerrero, 1976). This process was finalized when the Oil Nationalization Bill was signed into law and took effect on January 1, 1976 (Rossi-Guerrero, 1976; Aray & Vera, 2024). The state then created the national oil company, Petróleos de Venezuela Sociedad Anónima (PDVSA). The company's mandate was to operate autonomously and assume control over all activities related to the petroleum sector—exploration, exploitation, refining, transformation, and marketing (Rossi-Guerrero, 1976). PDVSA was regarded as a global model of a government-owned company. *Time Magazine* described it as "the most gentlemanly nationalization in history" (Rossi-Guerrero, 1976).

The nationalization of oil did not reduce dependence on oil and large oil companies, but rather consolidated the state's control over oil, increasing opportunities for corruption and raising political stakes (Bye, 1979). Presidential control over oil during this time heightened executive autonomy, while the monopolization of parties excluded representation, as earlier outlined (Gauna, 2017). Oil rents, especially when concentrated by the state, undermined inclusive institutions and turned stabilizing arrangements into sources of conflict.

However, the following period saw a decline in oil production. This crisis stemmed from constraints other than nationalization (Aray & Vera, 2024). Most of the decline was attributed to the negative effects of investments made in the previous decade, which had increased royalties and taxes (Aray & Vera, 2024). Part of the decline was also associated with Venezuela's need to comply with OPEC quotas, which required each member to reach an assigned production level. By then, known oil reserves in Venezuela at the time were smaller than those of other members (Aray & Vera, 2024). By the late 1980s and early 1990s, however, production recovered. The discovery of new reserves and expectations of long-term growth in oil demand led to a period of major investment by PDVSA (Aray & Vera, 2024). By 1998, production had doubled since 1985, reaching 3.447 million barrels per day (Aray & Vera, 2024). Between 1996 and 1998, there was a 420 thousand barrels per day increase in Venezuelan oil production, second only to Saudi Arabia, the leading producer, and Iraq (Symonds, 1999).

This resurgence was also driven by the more liberal policies adopted by Presidents Campins and Lusinchi, and ultimately by Pérez's second-term "Apertura Petrolera" (Opening) project, which opened the oil sector up to foreign investment and private companies (Aray & Vera, 2024). During this period, PDVSA was recognized for its virtue, competence, professionalism, and—above all—its autonomy from the state despite being publicly owned (Rossi-Guerrero, 1976; Aray & Vera, 2024). This autonomous management was key to its efficiency and success (Aray & Vera, 2024). Yet this prosperous period served as the prelude to the collapse brought by Venezuela's rejection of a traditional two-party system following Hugo Chávez's election victory in 1998, running as the president of the Fifth Republic Movement. Chávez ran on a platform of stopping corruption, reducing American influence, and redistributing oil wealth into social programs. From that moment, tensions arose between government officials and PDVSA's management over oil control (Aray & Vera, 2024). The company lost its autonomy in 2001 through a hydrocarbons law that placed it under the direct administration of the Ministry of Oil and Mines (Aray & Vera, 2024). From 2003 onward, the company became highly politicized and was completely taken over by the government (Aray & Vera, 2024). Mismanagement and lack of investment led to a collapse that brought severe social consequences to the country, including a drop in income per capita and mass emigration (Aray & Vera, 2024).

Economic History, Before 1979

The discovery of oil deposits and the rapid expansion of oil extraction and production capabilities in the Maracaibo Basin of Venezuela occurred in 1922 and resulted in a booming oil economy (Lopez, 1999). The oil outward growth strategy used by Venezuela from 1920 to 1945 used the abundant natural resources of Venezuela to create public employment to distribute oil income (Lopez, 1999). The second strategy used the inward-oriented model, which prioritized import-substitution industrialization policy—protectionist policy meant to reduce its dependence on imports—and government investment to build upon oil production (Lopez, 1999). In particular, Venezuela experienced annual GDP growth of 6-7% in the 1950s and 1960s, became the second-largest oil-producing state in the world, and helped create OPEC to coordinate production and prices to maximize oil revenues.

However, when the Venezuelan government nationalized the oil industry in an attempt to direct economic benefits of oil production to citizens in the 1970s, the state experienced a corresponding drop in foreign investment, which caused a decrease in the state's ability to produce and export oil (Restuccia, 2018). In recent years, Venezuela's GDP per capita increased by only 2.3% annually, outpaced by countries such as the U.S. as well as by its past decades of growth (Restuccia, 2018). Crucially, this slowing GDP per capita rate was not just due to the lack of oil, which accounted for a large portion of GDP, but that the reduction in the importance of oil was not filled in by other thriving industries (Kulesza et al., 2017). For example, non-oil exports only accounted for 7% of exports in 1981, which led to a long period of economic decline marked by an 18.6% decline in GDP per capita from 1978 to 2001 (Kulesza et al., 2017). Protectionist policies that focused on large manufacturing firms and nationalization of the oil industry also led to rapid urbanization, which is why urban income was more concentrated in high-income regions as Venezuela worked towards official nationalization in the 1970s (Jones, 1982). This sets the stage for comparison to Guyana, a country that has not yet nationalized its oil but is currently facing the effects of finding new oil reserves and must navigate its economy in a way that defends it from the dangers of the resource curse.

Guyanese Economic and Political History and Current Situation

Political History

The literature on Venezuela and Guyana highlights similarities between their oil industries. Before the oil discovery in 2015, Guyana's economy relied mostly on agriculture and farming, along with natural resources of bauxite and gold (Leonard, 2025). In particular, Guyana was heavily reliant on gold, which produced chaotic redistribution systems and weak institutions, similar to Venezuela's oil-dependence in the 20th century (Hilson & Laing, 2017).

Guyana had a relatively weak political and economic infrastructure. In the early 1990s, Guyana held its first free and fair elections with the election of the Indo-Guyanese People's Progressive Party, and embraced modern capitalism (Sohn, 2025). However, Guyana quickly became overextended on foreign debt through loans by the International Monetary Fund and World Bank (Sohn, 2025). This lack of infrastructure and looming debt was a warning signal for the development of the oil industry.

After Exxon and its partners, Hess Corporation and the China National Offshore Oil Company, (CNOOC Nexen), made the first commercial discovery of petroleum offshore Guyana in May 2015, the group drilled 16 offshore wells and reported recoverable oil reserves exceeding 8 billion barrels of oil (boe) equivalent (Looney, 2020). The major oil discovery raised the stakes of resource management, requiring robust institutions to prevent widespread corruption (McDonald & Ügnor, 2021). In particular, Guyana lacked legislation and a regulatory agency regarding oil production, which increased corruption and wealth inequality (Panelli, 2019). This is extremely similar to how the Venezuelan presidents' capture of control over the management of oil rents fueled both fiscal mismanagement and democratic erosion (Gauna, 2017). For Guyana, it becomes important to maintain strong institutions and redistribution processes and prevent mismanagement (Hilson & Laing, 2017; McDonald & Ügnor, 2021).

However, in the present day, the discovery could be a fast track to prosperity. ExxonMobil has approved oil projects of more than $55 billion in Guyana and increased crude oil production to 645 thousand barrels a day, where Guyana realizes $150 billion in revenue and is projected to be a top 20 global oil producer by 2026 (Sohn, 2025). And, if the oil money is invested into local industries, Guyana would be able to transition to a non-oil economy and achieve greener growth in the wake of climate change (Rai, 2022). Guyana faces an energy shortage, which affects business in the region, and oil would be able to power homes and businesses (Sohn, 2025).

There are, though, concerning social and political consequences of the oil discovery. In particular, the Dutch disease phenomenon, which describes a gap between labor industry demand and available skilled workers. Specialized jobs working in the oil industry are outsourced by oil corporations, since local Guyanese workers are not skilled in these occupations in demand (Leonard, 2025). This gap in employment causes government resources to artificially create employment, which typically causes inefficient and corrupt government spending (Sohn, 2025). In addition, oil can be seen as a resource curse, raising concerns of enormous budgeting problems for meeting infrastructure obligations and economic diversification being abandoned because resource extraction is extremely lucrative (Sohn, 2025). Furthermore, the political system has changed. Incumbent David Granger of the People's National Congress lost the snap elections mediated by many international organizations because he lost a vote of no confidence in 2018. His party did not accept the results, but Irfaan Ali of the People's Progressive Party/Civic, a progressive left party, was sworn in as president in 2018, and was reelected in 2025 (Mowla, 2025). His agenda focuses on diversifying the Guyanese economy, managing Guyana's oil resources, and overhauling the country's infrastructure, like the Demrar Harbour Bridge and Eccles to Ogle Highway (Mowla, 2025). By using the oil revenue, he aims to create a more equitable distribution of wealth.

Guyana's Economy in the Present Day

Existing research centers on comparisons between Guyana's economic indicators before and after the discovery of oil; gaps exist in identifying how likely Guyana is to experience an oil crisis similar to that of Venezuela in 1979.

Previous research has relied heavily on quantitative data collection and analysis to quantify the economic development of Guyana that can be attributed to trade liberalization, a migration from isolationist cooperative socialism characterized by the nationalization of trade and industry, and import substitution industrialization in the present day (Modeste, 2019; Glasgow et al., 2025). Both authors suggest the introduction of oil as a primary export in Guyana to be beneficial to Guyana's global trade performance, contributing significantly to GDP growth (DaSilva et al., 2025; Modeste, 2019). In their predictions of the potential positive effects of the expansion of oil exports from Guyana on trade, neither venture to analyze similarities in trade policy, coordination with international trade organizations, or past indicators of the vulnerability of an export economy that exist between Venezuela's economy prior to its 1979 economic collapse and Guyana's current trade.

Furthermore, the discovery of oil along the Guyana-Suriname Basin has caused major changes in Guyana's economy. Specifically, in the first half of 2021, GDP increased by 19.5%, primarily due to the expansion of the oil sector, as non-oil GDP increased by only 3.7% (Ministry of Finance Guyana, 2021). It is worth noting that, at this time, the disparity between GDP and non-oil GDP may be exacerbated due to high floods and underperformance of the agricultural, forestry, and fishing industries (Ministry of Finance Guyana, 2021). However, after COVID-19 and floods subsided, Guyana had the highest real GDP growth rate in the world, at 47% in 2022 (International Monetary Fund, 2025). Here, the oil revenues gained by the government allowed them to invest further in infrastructure, including for climate change adaptation, economic diversification, and welfare systems (International Monetary Fund, 2025). The government's revenue is derived from the Guyana Petroleum Act, which stipulates that it receives 2% of all petroleum produced and sold as a royalty, in addition to 12.5% in profits (Statia, 2022).

Focusing on the key factors that contributed to the political and economic deterioration of Venezuela as a petro-state helps demonstrate the key lessons that Guyana can learn from the Venezuelan case. Guyana faces fragile political systems, suggesting that without durable institutional reforms, Guyana risks repeating the deterioration that Venezuela saw as a result of heavy monoculture economics and fiscal and institutional mismanagement (Pasha, 2025).

Methodology

We utilized both qualitative and quantitative methods to investigate the extent to which economic conditions in Guyana mirror conditions in Venezuela, leading up to the oil crisis of 1979.

Quantitative Methods

For quantitative methods, a Welch Two Sample t-test was conducted using the statistical testing program R to quantify the amount of evidence to suggest that Guyana has recently achieved an average oil rent, as a share of GDP, that is comparable to the average oil rent of Venezuela in the 1970s. We constructed 95% confidence intervals to estimate the true oil rent share of GDP in Guyana as the state increases its capacity for oil extraction and sale and develops a greater economic dependence on oil exports. We used R to run linear regressions of Guyana and Venezuela's indicators, such as GDP per capita, over time, and created graphs to visualize our findings. In order to determine the uniformity of variation within Venezuelan and Guyanese inflation, we used Mann-Whitney U tests, also employing Bartlett's tests to establish volatility. Furthermore, our research group compared growth rates in Venezuela and Guyana's measures by the Human Development Index (HDI) in the first decade after oil discovery.

Qualitative Methods

We used qualitative comparative analysis to evaluate how institutions and economic policies have influenced the management of oil wealth in Venezuela from the late 1950s to the late 1980s and assessed how similar conditions might develop in modern Guyana following its recent oil discoveries. The research draws on a comparison between existing academic literature and historical analysis, providing data and interpretations that allow for thematic synthesis. We defined key variables as institutional stability, referring to the strength and inclusiveness of state institutions in managing oil rents; economic diversification, referring to the development of sectors and exports beyond oil; and fiscal discipline, referring to the state's restraint in oil-related spending. Alongside that, we compared and related these metrics to the collection of socio-political data on Venezuela and analyzed how different economic policies, especially at the oil and financial levels, have impacted the political sphere and public opinion, resulting in democratic backsliding. We examined the variables provided by V-Dem, including the Electoral Democracy Index, the Liberal Democracy Index, and the Political Corruption Index. By comparing Venezuela's institutional decline with Guyana's emerging oil governance, we identified patterns and recommendations to promote stability.

Results and Findings

Quantitative Analysis

Comparison of Macroeconomic Indicators

Figure 2: *Comparison between Venezuela and Guyana Exchange Rates*

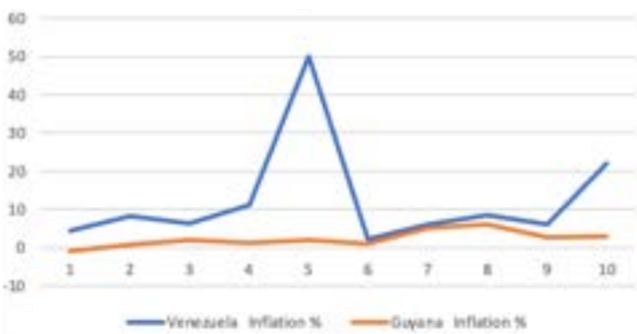
From FRED (n.d.), https://fred.stlouisfed.org/data/FXRATEVEA618NUPN and Market Insider (n.d.), https://markets.businessinsider.com/currencies/usd-gyd.

It is crucial to look at exchange rate data when determining the value and investor appeal of a certain country. Thus, we employed a t-test and a Bartlett's test to determine the mean exchange rate and volatility, respectively. The graphical data shown above in Figure 2 reveal large contrasts between the two economic periods, 1970-1979 for Venezuela, and 2016-2025 for Guyana. To determine whether the exchange rates had a statistically significant difference, we conducted a t-test for mean exchange rate values (USD/sample currency). We distilled a null hypothesis that the two mean exchange rates over the 10-year periods are equal to one another, and an alternative hypothesis that they are not equal. Through this t-test, we found that Venezuela's pre-crisis mean exchange rate (230.72) was significantly larger at all points than Guyana's (199.56), due to a generally weaker currency against the United States Dollar. This t-test found a p-value $< .001$, offering very strong evidence that there is a statistically significant difference between the mean exchange rates between USD and each country's respective currencies. When the alternative hypothesis was modified to be one-sided, finding that the USD/VES exchange rate is greater than the USD/GYD, we still found a p-value $< .001$, granting statistically significant evidence that the Venezuelan currency was weaker pre-crisis relative to the U.S. Dollar compared to the Guyanese currency in their respective timeframes.

We then used Bartlett's test for homogeneity of variance to determine the presence of a statistically significant difference in the volatility of the exchange rates between the two countries. This test assesses the variances of exchange rates, hence measuring the volatility of each of the currencies.

Thus, we distinguished a null hypothesis that the variations of exchange rate are uniform between Venezuela and Guyana, and an alternative hypothesis that the two distributions are not homogeneous. Bartlett's test for homogeneity of variance assumes a null hypothesis and measures the standard deviation, accounting for each individual data point's sample standard deviation, degrees of freedom, and other excess variables. The Bartlett's test revealed strong evidence that Venezuela's exchange rate was significantly more volatile, with Venezuela receiving a variance score of 9.27, nearly 5 times more volatile than that of Guyana's 1.94. The test had a p-value of 0.029, imparting strong evidence against the null hypothesis and in favor of the alternative hypothesis that exchange rate data for Venezuela is more volatile than it is for Guyana.

Figure 3: *Comparison of inflation rates between Venezuela and Guyana*



From: FRED (2024), https://fred.stlouisfed.org/series/FPCPITOTLZGGUY and World Bank Open Data (2024), https://data.worldbank.org/indicator/NY.GDP.DEFL.KD.ZG?locations=VE.

The graphical data in Figure 3 revealed large contrasts in inflation between the two economic periods of interest, 1970-1979 for Venezuela, and 2016-2025 for Guyana. Venezuela's pre-crisis inflation averaged 12.51%, with a standard deviation of 14.26%, with extreme fluctuations from 2.26% to 50.11%. In contrast, Guyana's inflation in the years 2016-2025, despite unprecedented GDP growth, demonstrated remarkable stability, averaging 2.30% (with a standard deviation of 2.06%) within a narrow range of -1.00% to 6.12%. Venezuela's inflation was approximately 5.4 times higher on average.

To test whether the inflation values had comparable magnitudes for the two countries, we used the Mann-Whitney U test and Bartlett's test of homogeneity. The Mann-Whitney U test (also known as the Wilcoxon Rank-Sum test) helped us better understand whether the magnitude of inflation was consistently greater for one country than the other. The purpose of conducting such a test was to compare the distributions of inflation between Venezuela in the 10 years preceding the 1979 crisis and Guyana in the 10 years preceding present day. The U-statistic is based on the number of cases per category, n=10 for both Venezuela (n_1) and Guyana (n_2), and the Rank-Sum of the data (T), which lists each data point of both Venezuela and Guyana in ascending order of inflation value, labels each data as points 1-20, and adds all points for Venezuela and Guyana separately. The following equation demonstrates the calculation for the U statistic:

$$U_1 = n_1 \bullet n_2 + (n_1*(n_1+1))/2 - T_1$$

$$U_2 = n_1 \bullet n_2 + (n_2*(n_2+1))/2 - T_1$$

$$U = \min(U_1, U_2)$$

We distilled a null hypothesis that there is no significant difference between the values of inflation of Guyana and Venezuela, and an alternative hypothesis that there is a difference between the two. The test indicated U = 7, $p < 0.001$. The p-value being less than .05 indicated that there is statistical significance in support of the claim that there is a difference in the distribution of inflation rates between the two countries. This confirmed that Venezuela's inflation pattern differs fundamentally from Guyana's stable inflation profile.

The use of Bartlett's test of homogeneity was to determine if there was a statistically significant difference in the volatility of the inflation rates between the two countries. This test assesses the variances of two distributions, where a significant result indicates differing levels of inflationary stability. Bartlett's test revealed extremely significant differences in inflation volatility ($p < 0.001$). The statistical evidence was very strong that Venezuela's pre-crisis economy was fundamentally more unstable and unpredictable than Guyana's current economy. The extreme volatility in Venezuela's inflation showed the lack of control Venezuela had during the oil crisis, while Guyana has so far maintained a much more stable and predictable economic environment. The variance of Venezuela's inflation rate across the 10 years preceding the oil crisis is approximately 45 times larger than the variation in Guyana's inflation in the 10 years preceding today.

Figure 4: *GDP per capita for Venezuela (1970-1979) and Guyana (2015-2024)*

From FRED (2021), https://fred.stlouisfed.org/series/NYGDPPCAPKDVEN, and FRED (2025), https://fred.stlouisfed.org/series/NYGDPPCAPKDGUY.

The purpose of conducting a regression analysis on the GDP per capita was to determine the difference in how the economies of Guyana and Venezuela had changed during the observed periods, 1970-1979 for Venezuela, 2016-2025 for Guyana. The regression analysis determines the strength of a correlation between two variables—in this case, between years and GDP per capita—and describes the linear equation for the relationship. The graphical data in Figure 4 indicate the growth in GDP per capita among those years, and the regression lines that best correlate with their growth. Each of these regressions is statistically significant, with Venezuela and Guyana's Least Squares Regression Lines reaching p-values of .002 and .001 and correlation coefficients of 0.84 and 0.87, respectively. Both p-values are less than 0.05, indicating that over time, each country experienced a statistically significant change in GDP per capita, and the correlation coefficients are greater than 0.80, indicating that the results of each country adhered very precisely to the linear model shown above. These regression analyses represented the expected GDP per capita growth each year for each of the two countries. The regression coefficients of GDP per capita growth year over year indicated that Guyana faced significantly greater economic growth than Venezuela did, 2667.10 versus 157.54 USD per capita per year, respectively.

Reliance on Oil

The purpose of conducting the directionless Welch Two Sample t-test was to quantify the amount of evidence to suggest that Guyana's mean oil rent, or the economic profits generated from crude oil extraction, as a share of GDP in the decade preceding 2021 resembles that of Venezuela in the decade preceding the 1979 oil crisis. The parameter μ is the true but unknown difference between the mean oil rent as a share of GDP in Venezuela in the decade preceding 1979 and in Guyana over the years 2011-2021. We tested the following null and alternative hypotheses: H_0: $\mu_1 = \mu_2$ and H_a: $\mu_1 \neq \mu_2$. The null hypothesis reflects the assumption that there is no difference between the oil rent Guyana achieved in the next decade preceding 2021 and that of Venezuela in the decade preceding the 1979 oil crisis. The alternative hypothesis suggests that Guyana's oil rent as a share of GDP in the decade under study either exceeded or failed to meet that of Venezuela in the 1970s.

Using data for Guyana's average oil rent over the period 2011 to 2021, we obtained a t-test statistic value of 3.64 and a corresponding p-value of .003. The p-value of .003 provided very strong evidence to suggest that the difference between the mean oil rent of Venezuela in the decade preceding 1979 and the mean oil rent of Guyana from the years 2011-2021 was significantly different. The confidence interval suggested that we can assert with 95% confidence that the difference between the average oil rents of Venezuela and Guyana in their respective periods was between 6.09% and 23.41%, with Venezuela's GDP having a greater reliance on oil sales.

Comparison of Human Development Index Values and Predictive Model

This section focuses on the impact of the oil economy on the Human Development Index (HDI), a metric that measures inequality, education, gross national income, and life expectancy. Our study measured the average HDI growth for Venezuela and created a model to predict the growth rate of HDI for Guyana. First, we conducted an analysis of HDI for Venezuela starting from 1920, when many of the oil reserves were discovered, and ending in 1979 when the oil crisis began. Since HDI calculations only began in 1990, we manually calculated HDI estimates for each decade from 1920-1979, utilizing life expectancy, mean years of schooling, expected years of schooling, and GNI per Capita (PPP) (World Bank, (n.d.); MacroTrends (n.d.); Barro-Lee (n.d.); United Nations Development Programme (n.d.)). The HDI formula and the calculations for the HDI per decade are listed below.

Figure 5: *Human Development Index Calculation*

$$\text{Development Index} = \sqrt[3]{\text{Life Expectancy Index} \cdot \text{Education Index} \cdot \text{Income Index}}$$

$$\text{Life Expectancy Index} = \frac{LE - 20}{85 - 20}$$

$$\text{Education Index} = \frac{MYSI + EYSI}{2}$$

$$\text{Income Index} = \frac{\ln(GNIpc) - \ln(100)}{\ln(20{,}000) - \ln(100)}$$

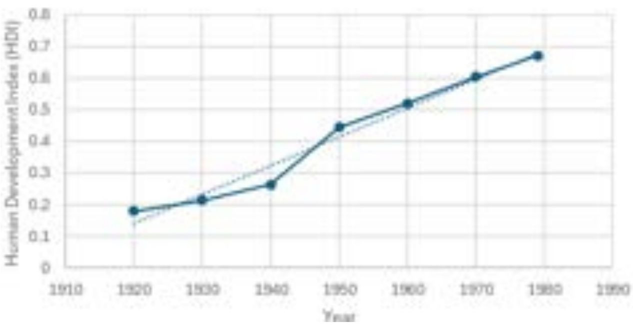
From Sustainable Development Index (n.d.). https://www.sustainabledevelopmentindex.org/methods.

Table 1: *Human Development Index calculations for Venezuela*

Year	Life Expectancy	Mean Years of Schooling	Expected Years of Schooling	GNI per Capita (PPP)	Life Exp. Index (LEI)	Education Index (EI)	Income Index (II)	HDI
1920	30	0.84	2.0	1,903	0.154	0.084	0.445	**0.179**
1930	32	0.98	2.5	2,923	0.185	0.102	0.510	**0.213**
1940	36	1.32	3.0	4,789	0.246	0.127	0.584	**0.264**
1950	54	1.65	7.0	8,462	0.523	0.249	0.670	**0.444**
1960	58	2.44	9.0	12,116	0.585	0.331	0.725	**0.520**
1970	65	3.49	11.0	15,289	0.692	0.422	0.760	**0.605**
1979	68	5.47	12.5	17,135	0.738	0.530	0.777	**0.672**

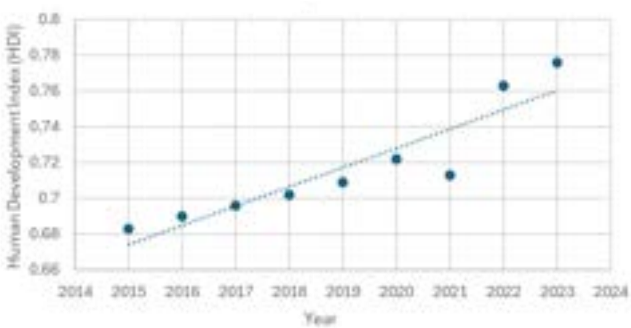
We graphed these HDI numbers on a scatterplot. The average HDI growth rate was 275% from 1920-1979. Since we only had HDI data from Guyana for the first 10 years since the discovery of oil (2015-2025), we decided to make the data proportional and looked at the average HDI growth rate for Venezuela for the first 10 years as a 19% increase. The scatterplot, Figure 6, is below.

Figure 6: *HDI Index for Venezuela, 1920-1979*



We then accumulated data from the HDI index from 2015-2023 for Guyana, and plotted that data on a scatterplot, shown below in Figure 7. The average growth rate for the last eight years for Guyana was a 13.6% increase in the HDI index in the last 10 years.

Figure 7: *HDI Index for Guyana, 2015-2023*



We saw that the percent differences for the first 10 years after oil discovery for Venezuela and Guyana are relatively similar. In particular, the growth rate in HDI was 19% for Venezuela in the first 10 years after oil discovery (1920-1930), and the growth rate in HDI was 13.6% for Guyana in the first eight years after oil discovery (2015-2023). The similarities in HDI growth suggest that Guyana may have a relatively similar trajectory for HDI growth compared to Venezuela, especially due to the new oil wealth and GDP growth that it has invested into health, education, and infrastructure.

Qualitative Analysis

Government Regimes and Institutions

Venezuela's political regimes and institutional arrangements from the 1950s through the 1980s, while initially stable and contributing to steady economic growth, ultimately failed to sustain strong governance during its oil boom and subsequent crisis. The 1958 democratic transition created a party-dominated system that was characterized by centralized parties and weak presidents, leading to efficient cooperation that enabled political and economic stability (Monaldi et al., 2006). The sudden rise of oil revenues after 1973 led to a concentration of fiscal power (Gauna, 2017). This led to highly autonomous presidents presiding over a state-run economy, encouraging high short-term populist spending and weakened institutions (Gauna, 2017). The 1976 nationalization of oil, presented as a step toward sovereignty from foreign oil companies' control over oil extraction in Venezuela, failed to change Venezuela's dependence on foreign influence (Bye, 1979). Nationalization simply solidified dependence through renewed contracts with foreign oil companies that managed operations under state oversight, and legitimized internal elite dominance within Venezuela's political structure (Bye, 1979). Oil rents and state revenues were used to maintain political loyalty and power rather than promote diversification or invest in stronger institutions to manage oil rents.

Venezuela's growth mirrored the deterioration of its institutional foundations. Agnani & Iza (2011) find that while the expansion period between 1950 and 1974 was driven by strong total factor productivity (TFP), which is a measure of the proportion of output growth not explained by inputs such as capital and labor, the years following saw oil rents negatively correlated with both TFP and physical capital accumulation (Agnani & Iza, 2011). The oil boom also induced volatility and political inconsistency, undermining the cooperative policymaking that had previously characterized Venezuela's democracy (Monaldi et al., 2006). As oil prices fell in the 1980s, the fiscal imbalances that came from high short-term populist spending, capital flight, and corruption intensified, while democratic institutions eroded (Gauna, 2017). Social unrest compounded the deterioration in governance, exposing the fragility of Venezuela's resource-dependent economy and its inability to translate resource endowments into sustainable growth.

Guyana's recent trajectory following its discovery of offshore oil in 2015 showed both similarities and differences to Venezuela. Historically dependent on gold exports, Guyana pursued an alternative extraction model that emphasized domestic participation in gold mining (Hilson & Laing, 2017). This provided a degree of diversification and institutional learning before the oil era. According to McDonald & Üngör (2021), Guyana's current oil boom could significantly increase GDP. Still, oil strategy depends on maintaining competitiveness in non-oil sectors and reinvesting oil rents, transforming resource revenues into human and physical capital (McDonald & Üngör, 2021). Guyana's political institutions have demonstrated relative stability since the 1990s, with leadership changes having positive effects on easing tensions and reducing volatility (Pasha, 2025).

Pasha (2025) finds that democratic turnover and leadership changes have historically had positive effects on economic growth by easing inter-ethnic tension between Afro-Guyanese and Indo-Guyanese groups. These tensions have influenced voting patterns and access to state resources, leading to political polarization that has plagued Guyana throughout its different governance frameworks. The implementation of a Natural Resource Fund, Guyana's sovereign wealth fund created to manage oil revenues, represents an institutional effort to prevent political manipulation and promote fiscal transparency regarding oil revenues (Pasha, 2025). Guyana also has the potential to integrate environmental sustainability and social inclusion into its governance, particularly by promoting female participation in the labor market and strengthening non-oil industries (Hilson & Laing, 2017). Guyana's long-term success of these measures will depend on the government's ability to maintain political stability, fiscal transparency, and rent-seeking pressures historically associated with oil wealth (Pasha, 2025). These institutional safeguards differ from Venezuela's approach during its oil boom, which was marred by an absence of fiscal discipline that allowed for oil revenues to be used for political gain. Guyana's challenge lies in ensuring that its current frameworks remain resilient to the same populist dynamics that destabilized Venezuela's economy and governance.

Venezuela-Guyana Comparative Sociopolitical Data Analysis (1970-Present)

We looked at quantitative sociopolitical indicators of Venezuela and Guyana to observe similarities and differences. We drew the data from the V-Dem dataset, analyzing the Electoral Democracy Index, the Liberal Democracy Index, the Clientelism Index, and observing the variable of political corruption. The visualization of these measures gives us important insight into the state apparatus of the two nations beginning from 1970.

Venezuela

Figures 8 and 9 show how Chavez's election led to a degradation of electoral and liberal democracy in Venezuela. Electoral democracy represents the state's capacity to run free and fair elections. Liberal democracy indicates how civil liberties, the rule of law, and checks and balances are respected within the state apparatus. Also interesting to note was that the score for liberal democracy was already low in the democratic era (1958-1999), almost always below 0.60.

Figure 8: *Electoral Democracy Index, Venezuela*

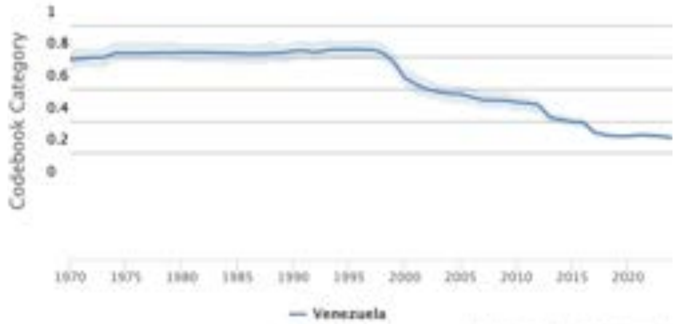
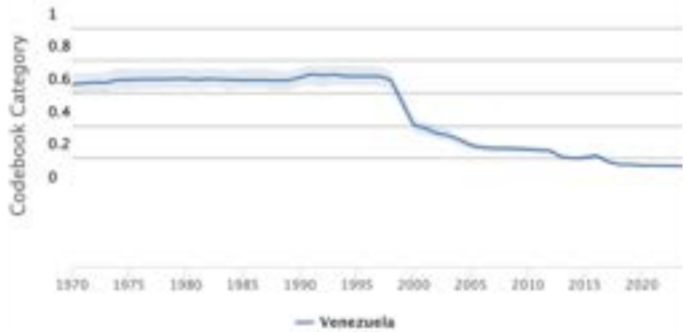
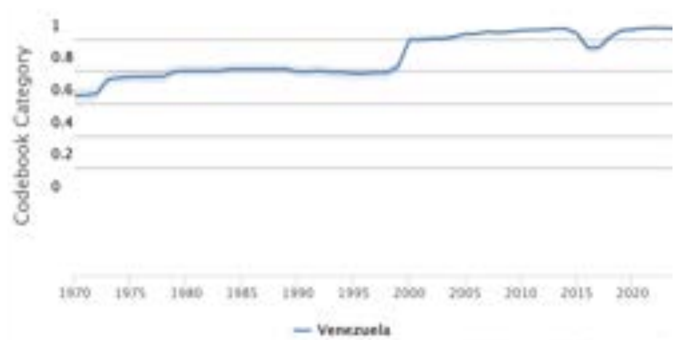


Figure 9: *Liberal Democracy Index, Venezuela*



The shadow of corruption has always been present in Venezuela, especially within the political sphere. It is not a condition that exists only in recent times but can also be found, although at a lower level, as shown in Figure 10, during the era of democracia pactada (pacted democracy), marked by the Puntofijo Pact. The most destabilizing case, which marked the social and political turmoil at the end of the 20th century, was that of President Carlos Andrés Pérez. He was impeached in 1993 by the Supreme Court on charges involving rumors about the disappearance of millions of dollars related to the purchase of a presidential plane and a refrigerator ship (Karl, 1997).

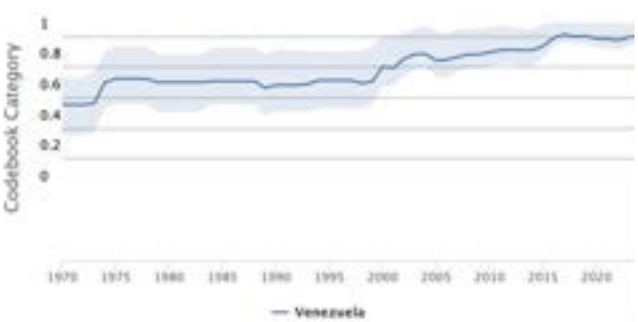
Figure 10: *Political Corruption, Venezuela*



The clientelism index (Figure 11) confirms the political corruption index, showing how clientelism and patronage have characterized the Venezuelan political and economic system since 1970. These two graphs provide insight into why frustration grew among the masses, who increasingly targeted the traditional political and social elites. Clientelism during the democratic era was predominantly "presidential" (Karl, 1997). The 1961 Constitution centralized power around the president, who acted as the "supreme political arbiter" (Karl, 1997). The executive branch had control over the monetary system, tax and tariff policies, extraction rights, and many other powers. Moreover, the president had the authority to appoint ministers, governors, and the heads of state-owned enterprises (Karl, 1997). This was because the democracia pactada was founded on cooperation among the country's elite factions—both political and social. It was a power-sharing system in which, regardless of election outcomes, cabinet positions were distributed between both major parties and certain social and economic policies were implemented regardless of the party or program chosen by the people (Monaldi & Penfold, 2015). Through the pact, the interests of labor unions and business groups were always prioritized, with organizations such as Fedecámaras serving as formal intermediaries that were consistently consulted before policy decisions were made (Monaldi & Penfold, 2015).

The root cause can be found in a poor balance of powers and weak institutions. The vast oil revenues fostered a system in which political leaders often relied on rent-sharing to maintain stability. It was not uncommon for parties to allocate public jobs and political favors, creating a structure based on political loyalty (Karl, 1997).

Figure 11: *Clientelism Index, Venezuela*



For Guyana, shown through Figures 12 and 13, the political corruption and clientelism indices mirror Venezuela's trend during the democratic era (prior to 1999). Fundamentally, the influence of these two variables in Guyanese society is driven by two main factors: institutionalized ethnic dominance and fluid class positions. The government is therefore based on the shifting dominance of an ethnic faction (Edwards, 2017). The main factions are Afro-Guyanese and Indo-Guyanese. The Afro-Guyanese group comprises the bureaucratic elite that administers state capitalism (Edwards, 2017). The Indo-Guyanese ethnicity, on the other hand, is the ruling political faction of present-day Guyana, represented by President Irfaan Ali; previously, it had been in opposition for 23 years prior to 2015 (Edwards, 2017). The competition between the two factions to secure power and channel benefits to their own group creates the conditions for corruption and clientelism, as well as generating distrust and undermining social cohesion in the country (Edwards, 2017).

Figure 12: *Political Corruption, Guyana*

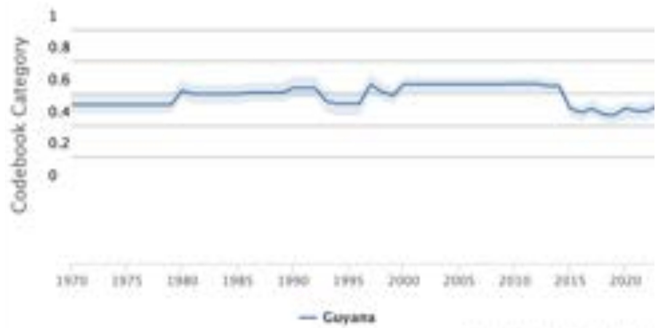
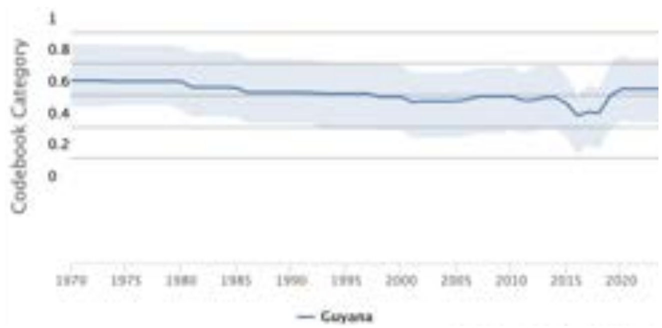


Figure 13: *Clientelism Index, Guyana*



Discussion

Our discussion includes a quantitative and qualitative analysis comparing Venezuela and Guyana. In particular, we included a comparison of macroeconomic indicators, reliance on oil, Human Development Index, government regimes and institutions, and sociopolitical analysis.

Quantitative Analysis

Comparison of Macroeconomic Indicators

In the years preceding Venezuela's oil crisis, a much more volatile Venezuelan economy could be observed than that of Guyana today. Regarding the inflation rate and GDP exchange rate, our tests found that Venezuela experienced much more volatile results year over year than Guyana. This indicates a level of uncertainty in the Venezuelan currency, which exists to a much lesser extent in regard to the Guyanese currency. This led to less international trust in Venezuelan imports (excluding oil), causing Venezuela to rely heavily on non-tradable sectors, ultimately resulting in lower labor productivity (Kulesza et al., 2017). This characterizes the importance of having a stable currency when dealing with the resource curse which we find strong evidence for in our analysis. In Venezuela's case, volatile circumstances prevented the then-developing country from receiving necessary aid and investment from other countries, whereas most developed countries see Guyana as promising, given its stable and resilient economy. Venezuela's inflation rate peaked at 50.11% in 1974, whereas Guyana's inflation rate stayed between -1% and 7% during the full 10-year period examined, which indicates that Venezuela's economy had significantly more variance. Such volatility did not end for Venezuela past 1979, as Venezuela entered a consistent period of hyperinflation during the 1980s and beyond (Roy & Cheatham, 2024).

GDP per capita, before and after the 1979 crisis, also revealed a key difference between the Guyanese and Venezuelan economies. Growth during the pre-crisis period was much slower for Venezuela than it was for Guyana's economy in the past decade. Measured in USD, Venezuela's real growth rate per capita was nearly 17 times lower than that of Guyana's. Despite Venezuela nationalizing its oil and gas industries from 1971-1976, no observable difference in GDP per capita growth rates was observed, whereas when Guyana centralized its economy around oil, it saw significantly greater growth during that period. Thus, not only did Guyana's oil lead to greater economic consumption, it also produced more observable results for the net economy compared to Venezuela.

Reliance on Oil

The findings from our Welch Two Sample t-test and corresponding 95% confidence intervals produced very strong evidence to suggest that Venezuela's average oil rent in the decades prior to 1979 was significantly higher, between six and 23 percentage points higher, than that of Guyana in the decade preceding 2011. This implies that Guyana's economy has yet to achieve the extreme dependence on oil revenues that characterized the Venezuelan economy before economic collapse. Generally, a reduction in the concentration of exports in a small number of primary products promotes the stabilization of export revenues by providing additional sources of income that reduce the impact of individual products' international price falls on an exporting nation's income (Asheghian & Saidi, 1999). Prior to the discovery of oil, Guyana's trade was characterized by the export of a variety of primary products. The nature of Guyana's trade, specifically regarding the historic emphasis on resource extraction and export for numerous commodities, has granted the government valuable experience in pursuing economic policies to create conditions that are favorable to its exporters. Past experience has afforded exporters knowledge in adjusting production to respond to changes in the international prices of commodities, adapting technologies to remain competitive in the international market, and altering marketing strategies to remain profitable despite changes in consumer preferences (Worrell, 2025). This knowledge assists Guyana in continuing to benefit from long-held sources of export income and prevents Guyana from reaching the same level of dependence on oil sales as Venezuela in the 1970s. Additionally, Guyana's trade policy demonstrates cognizance of the dangers of limited trading partners. Although Guyana, like Venezuela prior to its 1979 economic collapse, trades more with the U.S. than any other partner, Guyana's membership in organizations such as the Caribbean Community and the Caribbean Free Trade Association demonstrates a commitment to economic integration that could expand its regional trade relationships (Clegg, 2014). Guyana's focus on preserving income from a variety of exported products and expanding its markets are powerful safeguards against a collapse resembling that of Venezuela in the 1970s.

Comparison of Human Development Index Values and Predictive Model

Our findings highlight the similarities in projected Human Development Index (HDI) growth for Guyana, given the historic growth in the development index for Venezuela. In particular, the HDI index had a growth rate of 19% for Venezuela for the first 10 years since the discovery of oil in 1920. We found that the growth rate for Guyana in the first eight years since the discovery of oil (2015-2023) is similar, at 13.6%. The literature has found large increases in GDP for Venezuela and Guyana; given the increase in HDI, a plausible explanation could be the use of the newfound oil money in funding infrastructure and educational programs (Mowla, 2025; Nogara, 2024). However, the qualitative analysis indicated that infrastructure and political institutions were not particularly strong for Guyana or Venezuela, which made these results somewhat inconclusive. Although HDI increased by similar percentages, the causes may be different, given the qualitative analysis.

Qualitative Analysis

Government Regimes and Institutions

Venezuela's initially stable political and economic institutions deteriorated under the pressures of oil rents, leading to fiscal populism, rentier dependence, and institutional decay. In contrast, Guyana's emerging oil economy demonstrates a more diversified approach, with stronger fiscal mechanisms aimed at preventing the governance failures that caused the collapse in Venezuela.

The findings highlight the role of political institutions and policy frameworks in determining the economic outcomes of oil booms. Venezuela's experiences show how centralized party dominance and fiscal populism transformed a stable democracy into a volatile rentier state. The collapse of cooperative democracy, as described by Monaldi et al. (2006), and the rise of economic presidentialism, defined by Gauna (2017), demonstrate that institutional weakness and mismanagement of resources laid the foundation for Venezuela's economic decline. Guyana's emerging oil economy has developed within a more diversified economy, with a rules-based framework alongside institutional mechanisms designed to avoid the consequences that Venezuela experienced.

The results suggest that while Venezuela's oil wealth fostered short-term stability, it undermined institutional accountability in the long term, especially following the oil boom of the 1970s. The failure of nationalization to reduce foreign dependence (Bye, 1979) and the misuse of oil rents for the consolidation of political power through weak institutions (Gauna, 2017) transformed Venezuela into a state of clientism rather than development. The resulting economic volatility and decline illustrate the dangers of unregulated fiscal centralization (Agnani & Iza, 2011). Guyana, conversely, has internalized some of these lessons. The country's efforts to maintain competitiveness in non-oil sectors and invest in human capital, such as education, training, and building institutional knowledge (McDonald & Ügnör, 2021), demonstrate its awareness of the resource curse mechanisms that destabilized Venezuela. The maintenance of stable political turnover despite ethnic polarization, mainly between Indo-Guyanese and Afro-Guyanese groups (Pasha, 2025), also provides early evidence of institutional awareness.

The literature suggested that Guyana's diversification before the oil boom—primarily through gold and agricultural exports—can act as a structural buffer against the adverse effects of a sector-specific economic boom that crippled Venezuela's economy (Hilson & Laing, 2017). These buffers are different from Venezuela's near-total dependence on oil by the late 1970s, which left the country vulnerable to global price shocks. However, while Guyana's institutional framework is more transparent compared to Venezuela's, its political system bears particular vulnerabilities. Ethnic polarization and competition for state control across ethnic lines remain potential triggers for populist fiscal behavior aimed at gaining political support (Pasha, 2025). This suggests that the existence of institutions, transparent or not, is insufficient for effectively maintaining an oil-centered economy; long-term stability depends on their consistent management.

The comparative analysis highlights that the sustainability of oil-led growth is primarily a political and institutional challenge, which can lead to both positive and negative economic outcomes. Venezuela's historical pattern of populist spending and centralization demonstrates how oil rents can undermine accountability and stability (Monaldi et al., 2006; Gauna, 2017). Guyana's present trajectory shows a more cautious approach, prioritizing reinvestment and diversification (McDonald & Ügnör, 2021; Hilson & Laing, 2017). The comparative evidence reinforces the argument that effective political design, proper management of resources and oil rents, backed by transparent institutions, and ensuring the continued sustainability of such institutions, are key to maintaining a stable Guyanese economy in light of its oil boom.

Venezuela-Guyana Comparative Sociopolitical Data Analysis (1970-Present)

The data extracted from the comparison of various indicators, Liberal and Electoral Democracy Index, Clientelism, and Political Corruption, collected through V-Dem, confirm and highlight how the permanent reliance on rentier politics fueled by a monocultural oil-based economy contributed to the weakening of Venezuelan institutions.

Since the process of state formation, the rise of the oil industry at the beginning of the 20th century made oil not only the sole determinant of state revenues but also a fragile guarantor of the stability of the state apparatus (Karl, 1987; Karl, 1997). The abundance of funds and the use of rents to maintain order weakened the institutions, particularly by preventing the creation of an efficient system of checks and balances and accountability within the executive branch. Already during the democracia pactada, the president was granted special powers, conferred by the 1961 Constitution, over extraction rights and the management of state enterprises (Karl, 1997). This system created precedents for a broad trend of nationalizations, which also functioned as a mechanism of rent-sharing within the state, explaining the high levels of clientelism and political corruption reported by V-Dem even during the democratic period. It can therefore be inferred that the political system established by the Puntofijo Pact in the mid-20th century gradually laid the foundations for democratic decline and the loss of state transparency, fueling public distrust and the emergence of polarizing political figures, as occurred with Chávez's election in 1998. Cooperation among political elites was the cornerstone of the Puntofijo Pact, as was the bipartisan power-sharing system, in which the government programs of Acción Democrática and Partido Socialcristiano often overlapped and were shared (Monaldi & Penfold, 2015).

Limitations

Our research group faced a few limitations in our research. First was time: we only had a semester to create a research question, methodology, and collect data for our results and findings. This hindered our ability to find the best data, alongside being full-time students. Furthermore, there were limitations in collecting quantitative data, especially for the 1920-1979 period for Venezuela, as many of the quantitative variables were not uniformly collected. In particular, the Human Development Index (HDI) collection did not begin until 1990; therefore, we employed backward estimation and linear interpolation data points, which resulted in a substantial portion of our data being estimated. Though we faced some limitations, we believe our analyses are still meaningful and add insight to the growing body of knowledge due to the salient results and discussion.

Conclusion

We concluded that Venezuela's political institutions were systematically weakened by a permanent rentier culture. From the Puntofijo Pact onward, the state's absolute reliance on oil revenues eroded democratic accountability, fostering a system with increased clientelism and political corruption. This created a political environment where power was increasingly centralized, paving the way for authoritarianism. In contrast, Guyana's indicators of clientelism and political corruption remained relatively stable as its economy became increasingly oil-driven, indicating a deviation from the failed model of Venezuela.

We anticipate that both Guyana's political institutions and the diversity of Guyana's economy will act as safeguards against the possibility of conditions in the newly emerged petrostate mirroring conditions in pre-1970 economic collapse Venezuela. Guyana's oil revenues are more likely to promote long-term financial stability, as the country has used oil rents to invest in human capital, in contrast to the Venezuelan government's practice of using oil revenues to preserve political power. Additionally, the diversification of Guyanese exports, when compared to Venezuela's exports in the 1970s, will most likely protect against the economic vulnerability to the volatility of commodity prices on the global market that single-export economies are characterized by. Guyana's government has demonstrated pragmatic governance that has steered it through the petrostate transition and allocated it greater benefits than Venezuela had.

In particular, Guyana's domestic economy, following its oil discovery, was found to grow quickly and be more stable than Venezuela's. Guyana's more resilient economy has made it more attractive to international investment than Venezuela was in the 1970s, which also insulated Guyana's oil and gas industry from the shocks that Venezuela suffered. Guyana must maintain strong, transparent, and autonomous institutions that can ensure stability and distribute oil revenues evenly and efficiently across national economic sectors and effective social programs. These findings can provide insight into the future of Guyana's oil industry and offer lessons for other petro-states. Further research focusing on additional data and alternative models can solidify these results.

References

Agnani, B., & Iza, A. (2011). Growth in an oil abundant economy: The case of Venezuela. *Journal of Applied Economics*, *14*(1), 61–79. https://doi.org/10.1016/S1514-0326(11)60005-6

Aray, H., & Vera, D. (2024). A tale of oil production collapse. *Resources Policy*, 93, 105044-. https://doi.org/10.1016/j.resourpol.2024.105044

Barro Lee. (n.d.). BarroLeeDataSet, https://barrolee.github.io/BarroLeeDataSet/DataLeeLee.html

Bye, V. (1979). Nationalization of oil in Venezuela: re-defined dependence and legitimization of imperialism. *Journal of Peace Research*, *16*(1), 57-78. https://doi.org/10.1177/002234337901600104

Clegg, P. (2014). Guyana, its foreign policy, and the path to development. *The Round Table*, *103*(4), 399–410. https://doi.org/10.1080/00358533.2014.941193

DaSilva-Glasgow, D. & Bollers, E. (2025). Is economic growth induced by oil and gas impacting export diversification: A look at Guyana's exports to CARICOM. *Transition Journal*, *47*, 1-24.

FRED - Federal Reserve Bank of St. Louis. (2021, July 1). *Constant GDP per capita for the Bolivarian Republic of Venezuela*. https://fred.stlouisfed.org/series/NYGDPPCAPKDVEN

FRED - Federal Reserve Bank of St. Louis. (2025, April 16). *Inflation, consumer prices for Guyana.* https://fred.stlouisfed.org/series/FPCPITOTLZGGUY

FRED - Federal Reserve Bank of St. Louis. (2025, November 22). *Constant GDP per capita for Guyana*. https://fred.stlouisfed.org/series/NYGDPPCAPKDGUY

Edwards, D. (2017). Corruption and state capture under two regimes in Guyana: A plural society approach. *Transition*, *44*, 86-124.

Gauna, Anibal F. (2017). Revisiting the issue of democratic deterioration in Venezuela, 1974-1998. *Journal of Politics in Latin America*, *9*(1), 33-58.

Modeste, N. C. (2019). The impact of trade liberalization on export supply and poverty in Guyana: Evidence from cointegration analysis. *The Review of Black Political Economy*, *46*(3), 230-249. https://doi.org/10.1177/0034644619863553

Ministry of Finance. (2021, October 5). *Guyana's economy grew by 14.5 percent in first half of 2021, non-oil economy by 4.8 percent, despite COVID-19 and May/June Floods*. https://finance.gov.gy/guyanas-economy-grew-by-14-5-percent-in-first-half-of-2021-non-oil-economy-by-4-8-percent-despite-covid-19-and-may-june-floods/

International Monetary Fund. (2025, May 7). *Guyana: 2025 Article IV consultation-press release; Staff report; And statement by the Executive Director for Guyana*. https://www.imf.org/en/Publications/CR/Issues/2025/05/07/Guyana-2025-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-566712

Guyana Chronicle. (2025, June 8). *US$10 billion by 2030: What Guyana stands to gain from oil in the future*. https://guyanachronicle.com/2025/06/08/us10-billion-by-2030-what-guyana-stands-to-gain-from-oil-in-the-future/

Hilson, G. & Laing, T. (2017). Guyana gold: A unique resource curse? *Journal of Development Studies*, *53*(2), 229-248. https://doi.org/10.1080/00220388.2016.1160066

Jones, R. C. (1982). Regional income inequalities and government investment in Venezuela. *The Journal of Developing Areas*, *16*(3), 373–390. https://doi.org/10.2307/4191032

Karl, T. L. (1987). Petroleum and political pacts: the transition to democracy in Venezuela. *Latin American Research Review*, *22*(1), 63–94. http://www.jstor.org/stable/2503543

Karl, T. L. (1997). The paradox of plenty: oil booms and petro-states, *University of California Press*, 26, https://doi.org/10.1525/9780520918696

Kulesza, M., Betzelt, S., Evans, T., Hein, E., Herr, H., Mahnkopf, B., Teipen, C., Truger, A., & Wissen, M. (2017). Inflation and hyperinflation in Venezuela (1970s-2016) -a post-Keynesian interpretation. https://www.boeckler.de/pdf/v_2017_11_10_kulesza.pdf

Leonard, C. (2025). Oil exploration in Guyana and its impact: a closer look at the labor sector & the environmental policies. *Ohio Northern University International Law Journal*, *3*(4), https://digitalcommons.onu.edu/cgi/viewcontent.cgi?article=1038&context=ilj

Looney, R. E. (2020). Handbook of Caribbean economies *Abingdon: Routledge*, 1, https://doi.org/10.4324/9780429265105

Lopez, O. (1999). Dutch Disease and Venezuelan industrialisation (1968-1994). *University of London, School of Oriental and African Studies.* https://www.proquest.com/docview/2176892177?%20Theses&fromopenview=true&pq-origsite=gscholar&sourcetype=Dissertations%20

MacroTrends. (n.d.). Venezuela Life Expectancy (1950-2025). https://www.macrotrends.net/global-metrics/countries/ven/venezuela/life-expectancy

McDonald, L. & Üngör, M. (2021). New oil discoveries in Guyana since 2015: Resource curse or resource blessing. *Resources Policy,* 74, 102363.

Monaldi, F., & Penfold, M. (2015). Institutional collapse: The rise and decline of democratic governance in Venezuela, *Penn State University Press,* 285–320.

Monaldi, F., González de Pacheco, R. A., Obuchi, R. & Penfold, M. (2006). Political institutions, policymaking processes, and policy outcomes in Venezuela. *Inter-American Development Bank Research Paper Series*, http://dx.doi.org/10.2139/ssrn.1814756

Mowla, W. (2025, September 8). *What Guyanese President Irfaan Ali is likely to focus on in his second term*. https://www.atlanticcouncil.org/blogs/new-atlanticist/what-guyanese-president-irfaan-ali-is-likely-to-focus-on-in-his-second-term/

Nogara, T. S. (2024). The reorientation of Venezuelan foreign policy during the Punto Fijo era: A focus on South American integration, *Opera*, 36, 133-151.

Norden, D. L. (2021). Venezuela: Coup-proofing from Pérez Jiménez to Maduro. *Oxford Research Encyclopedia of Politics.* https://doi.org/10.1093/acrefore/9780190228637.013.1955

Panelli, L. (2019). Is Guyana a new oil El Dorado? *The Journal of World Energy Law & Business*, *12*(5), 365–368, https://doi.org/10.1093/jwelb/jwz022
Pasha, S. (2025). The impact of political instability on economic growth: The case of Guyana. *Economic Challenges in Early 21st Century Guyana,* 35-65, https://doi.org/10.1007/978-3-031-75019-9_3
Rai, M. (2022, June 8). *Guyana's development hinges on a crude oil opportunity.* London School of Economics Business Review. https://blogs.lse.ac.uk/businessreview/2022/06/08/guyanas-development-hinges-on-a-crude-oil-opportunity/
Restuccia, D. (2018). The monetary and fiscal history of Venezuela ,1960-2016, www.economics.utoronto.ca/public/workingPapers/tecipa-614.pdf.
Restuccia, D. (2021). The history of Venezuela. In T. Kehoe & J.P. Nicolini (Eds.), *A monetary and fiscal history of Latin America (1960-2017)*, Becker Friedman Institute, https://manifold.bfi.uchicago.edu/read/a-monetary-and-fiscal-history-of-latin-america-1960-2017/section/d2c8d793-bd56-4e90-bd22-5d07377b372a.
Rodriguez Mendoza, M., Low, P., Kotschwar, B., & Page, S. (2001). Review of the book Trade rules in the making: Challenge in regional and multilateral negotiations. *Journal of Latin American Studies, 33*(2), 448–449.
Rossi-Guerrero, F. P. (1976). The transition from private to public control in the Venezuelan petroleum industry [symposium presentation]. *Vanderbilt Journal of Transnational Law*, 9, 475–488.
Roy, D., & Cheatham, A. (2024, July 31). *Venezuela: The rise and fall of a petrostate*. Council on Foreign Relations. https://www.cfr.org/backgrounder/venezuela-crisis
Sohn, I. (2025). Guyana in 2025: The confluence of a possible denouement of its centuries-long territorial dispute and its newfound oil wealth. *The Journal of Applied Business and Economics, 27*(1), 121-131. https://proxy.lib.umich.edu/login?url=https://www.proquest.com/scholarly-journals/guyana-2025-confluence-possible-dénouement/docview/3165159696/se-2
Statia, G. (June, 2022). Royalty payments to Guyana government – Guyana revenue authority. (2017). Gra.gov.gy. https://www.gra.gov.gy/royalty-payments-to-guyana-government/
Sustainable Development Index. (n.d). Methods. https://www.sustainabledevelopmentindex.org/methods
Symonds, E. (1999). Review of the book "The oil price crisis of 1998" by Robert Mabro. *The Energy Journal*, *20*(1), 151-.
United Nations Development Programme. (n.d.). Guyana. https://hdr.undp.org/data-center/specific-country-data#/countries/GUY
Market Insider (n.d.). Markets.businessinsider.com. https://markets.businessinsider.com/currencies/usd-gyd
World Bank. (n.d.). Life expectancy at birth, total (years) - Venezuela, RB. https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=VE
World Bank Open Data. (2024). World Bank Open Data. https://data.worldbank.org/indicator/NY.GDP.DEFL.KD.ZG?locations=VE
Worrell, D.L. (2025). Development performance and economic policy in Guyana, 1990-2021.
In DaSilva-Glasgow, D., Khemraj, T., & Thomas, D. (Eds.), *Economic challenges in early 21st century Guyana, 1990-2021* (pp. 203-225). *Springer Nature Switzerland*. https://www.springerprofessional.de/en/economic-challenges-in-early-21st-century-guyana/50507076

China's Export of Surveillance Technologies and Its Role in Political Repression in Iran from 2010 to 2015

Anjana Murthy, Jonathan Peppercorn, Mira Baba, Spencer Lynn

Our research aims to examine the relationship between Iran and China, and the extent to which the partnership between the two countries has facilitated the exchange of surveillance technology and altered the way surveillance is carried out against civilians in Iran. Our research focuses on the knowledge and hardware exchange flowing from China to the Middle East. Utilizing purely qualitative methods, we determine that technologies have been exported from China to the Islamic Republic of Iran. Evidence points to the Chinese government sourcing the surveillance technology from private technology companies. We subsequently establish that the Iranian government utilizes these surveillance methods to enforce politically repressive policies, with surveillance technology enabling the government to identify and arrest dissenters. To support this conclusion, we cite multiple cases in Iran where closed-circuit television camera systems have been used to find citizens who do not adhere to Iran's closely enforced moral policies. Our research concludes that political repression has increased alongside the delivery of Chinese surveillance technology, beginning in 2010. Hence, we establish that political repression in Iran is enabled, to an extent, by the Chinese government's delivery of relevant surveillance systems.

Introduction

In recent times, surveillance intelligence and cyber police operations have rapidly expanded in their technological capabilities. The introduction of artificial intelligence in the realms of cybersecurity, data management, and identification has led to new forms of political repression and population control for authoritarian regimes across the globe. Expansion of artificial intelligence into the realm of political repression poses a serious threat to privacy and human rights. Innovations in identification methods, data tracking, and protest subjugation create obstacles for personal expression, privacy, and political power among vulnerable parties. Political repression, in the terms of this paper, refers to the methods, operations, and systems put in place by a government to restrict opposition and dissent among the country's population. This can take the shape of police force, violence, and physical prevention of political opposition, as well as cyber surveillance, media control, and other forms of technological aids used to prevent the spread of dissenting opinions among citizens. Artificial intelligence refers to the use of computer systems in order to perform tasks that would otherwise require human intelligence, often providing automated abilities that can surpass those of regular human ability. Although artificial intelligence has been lauded for its innovative applications, it poses extensive potential for harm when used in repressive practices. Hence, the possibility of technologically supported regime control persists. In China, its social credit system, a method of quantifying civilian alignment along party lines, works as a constant monitoring and identification tool. China's system and the country's extensive surveillance methods exhibit forms of political repression aided by technology. Furthermore, China's technological exports reach separate authoritarian regimes, such as Iran, providing access to such surveillance methods. Importantly, the role that technological exports have in aiding repression is understudied. This paper aims to increase knowledge on the repercussions of surveillance in order to better inform the international community on how to regulate its use and exportation, as well as to curb the monitoring of citizens through technology. Iran's expansion of its surveillance methods through Chinese technological exports provides insight into the extent of China's role in aiding political repression internationally. We hypothesized that as Chinese exports of surveillance technology to Iran increased, there would be an increase in repression against Iranian citizens, as the Iranian government had more tools at its disposal to expand its security apparatus.

In analyzing the relationship between technological exports and the subsequent impact on repression, China and Iran are of particular interest due to China's reputation as a global exporter and technological manufacturer and Iran's history of political repression. Iran became the second largest importer of Chinese technology from 2005-2008, behind only the United Arab Emirates. In 2009, the Iranian protests, as part of the Green Movement, served as a turning point in the China-Iran relationship (Berman, 2022). As domestic opposition rose and became more visible, the Iranian state's need for advanced surveillance and control technology increased dramatically, leading to an increased frequency of exchange with China. Thus, in the years that followed, firms such as Huawei signed contracts with the Iranian government for the exportation of surveillance technology (Berman, 2022).

Investigating China's role in spreading this machinery is unique because it has less stringent standards on sending technology to countries that perpetrate human rights abuses. This study is meant to observe broad chronological trends of how Iran's political repression evolved as imports of Chinese surveillance technology increased between 2010 to 2025.

This research holds important implications for characterizing the relationship between China and Iran and the evolving patterns of repression in Iran. The investigation shows the importance of investigating the specific mechanisms through which imported technologies are integrated into domestic security practices. Given the global expansion of surveillance, this study suggests that research on export controls and accountability will be increasingly important as domestic repression in Iran evolves.

Review of the Literature

Introduction

In an increasingly digital world, technology has been at the forefront of countries' modern arsenal. Specifically, surveillance technologies have become central weapons for states to monitor, regulate, and suppress dissent. Surveillance technology is broadly defined as organized systems that monitor individuals to gather information for governance. These systems can include closed-circuit television (CCTV), facial recognition, behavioral analysis, and other forms of biopolitical tracking (Dastbaz et al, 2013). Furthermore, this research will refer to political repression as using surveillance technology to track, identify, and combat threats to the current regime (Gohodes, 2023).

China and Iran have been longstanding partners in trade and technology exchanges. Current literature on their relationship primarily focuses on arms sales and military cooperation between the two countries. Relations initially strengthened during the 1980s, when China was searching for a market to export weapons. Iran became a major buyer of Chinese-made weapons, and China was named a pivotal ally of Iran in its war against Iraq. China has also been critical in Iran's efforts to revive its nuclear program, but its efforts stalled after sanctions from the U.S. government in 1997 (Davis et al 2012).

Given the recent advancements in technology, surveillance is a relatively new area in the literature. The strong relationship between the two countries suggests that research into the Iranian purchases of Chinese surveillance technology could prove useful in understanding the extent to which Iran relies on China to control and repress its population.

Types of Technological Exports

In the current literature, there is significant discussion about the types of technologies being exported by China into Iran and the impacts of these technologies. One of the first prominent instances researched was a scandal involving ZTE, a major Chinese telecommunications company, and its solicitation of surveillance technologies to Iran's largest telecommunications firm. Steve Steck, a Pulitzer Prize-winning global investigative reporter from Reuters, revealed details about the transaction of technologies exported by analyzing the contract agreements between the parties. Department of Justice court documents detailing ZTE violations revealed that the technologies sold to Iranian telecommunication firms were surveillance systems with the capability to heavily monitor landline, mobile, and internet communications among users. Investigations by Reuters found that the system was part of a larger contract for networking equipment between ZTE and the government-controlled Telecommunications Co. of Iran (TCI) (Stecklow, 2012). The article also revealed that many human rights groups have observed and documented cases where the Iranian government used ZTE surveillance technologies to track down and arrest critics by monitoring their internet and mobile activity. Steck goes on to explain that Mahmoud Tadjallimeher, a former Iranian telecommunications project manager, expressed that the technologies ZTE provided to Iran had monitoring capabilities that were more advanced than he had ever seen. He also added that its functions could locate users, intercept their voice, text messages, emails, chat conversations, and web access. Iran was obtaining U.S. technologies in a "backdoor" approach from Chinese companies without U.S. knowledge. Steck also notes that while ZTE is publicly traded, its largest shareholder is a Chinese state-owned enterprise, and that TCI is owned by the Iranian government itself (Stecklow, 2012).

Another Chinese company we can look at for its solicitation of surveillance technologies to Iran is a company known as Tiandy. Craig Singleton, the Foundation for Defense of Democracies China program Senior Director and Fellow, writes about a Chinese company selling surveillance technologies to Iran. Private firm Tiandy Technologies Co., based in Tianjin province, advertised its technologies with capabilities to track and interrogate Uyghur Muslims and other ethnic minorities in the Xinjiang province (Singleton, 2022). The article reveals that Tiandy sells these products, which include facial recognition technology, surveillance drones, closed-circuit television, and even emotion-detecting artificial intelligence, to other regimes such as Iran and Russia. Through Tiandy's website and social media, the company has sold its products to Iranian police and military services (Singleton, 2022). These products include, but are not limited to, network video recorders that can digitize store surveillance videos using Tiany-produced microchips (Singleton, 2022). Singleton suggests that Tiandy's actions should meet the criteria for imposing U.S. sanctions on their products due to their clear human rights concerns. It was also noted that Tiandy's owner, who has a vast majority control of the company, is a member of the Chinese Communist Party and serves as the head of Tiandy's party committee in Congress. Singleton emphasizes that Iran has relied on China for its surveillance capabilities for many years and that Tehran was one of the first cities to use Beijing's "social credit" system, which rates its citizens based on behavior and "trustworthiness." According to documents obtained by IPVM, Tiandy supplied Iran's Revolutionary Guard Corps with its technologies and hosts an eight-person office dedicated to Iran-Tiandy relations in Tehran itself. The technologies include networked video recorders and other surveillance devices (Singleton, 2022).

These sources demonstrate insight into the type of technologies exported into Iran by China and what actors within China are exporting the technology. They further reflect the capabilities of the technology being exported to Iran to contribute to the political repression of Iranian citizens. However, current literature does not explain how the level of government involvement in these trades has evolved and what motivations Chinese companies and government agencies have to export surveillance technologies into Iran. Thus, our paper will explore the motivations and specific involvement of government actors in these export agreements.

Effect on Iranian Repression

With regards to the effects of Chinese surveillance technology on Iranian repression techniques, research indicates that Iran's regime uses surveillance technology to neutralize dissent, repress protests, and mirror the Chinese social credit system. The Iranian cyber police maintain the ability to use artificial intelligence for facial recognition and mobile data collection. These capabilities aid in maintaining regime stability (Singleton, 2024). Furthermore, FATA's, Iran's cyber police, main objective is to use surveillance technology to identify current and future threats to the regime in order to ensure robust security measures (Akbarzadeh et al., 2024). The ability of the Iranian cyber police to use Chinese surveillance technology and artificial intelligence advancements to ensure political alignment with the ruling regime demonstrates China's impact on Iranian political repression. Additional Iranian cyber capabilities in repressing political dissent have included data collection on citizens, involving political preferences, online behavior, and other intimate information (Stachón, 2024). Increased intelligence into the political affiliations of Iranian citizens endangers their privacy and physical safety. Surveillance technology breaks down barriers to maintain political privacy, allowing the Iranian regime to target citizens with opposing views.

Further research into artificial intelligence capabilities in this field is needed to fully grasp the extent to which surveillance intelligence is blocking political dissent. However, research exists regarding protest repression involving surveillance technology within Iran. The Chinese technological company Huawei aided in the installation of surveillance equipment within Iran, including technology to monitor, identify, and detain protestors (Singleton, 2022). These findings establish Iran's growing dependency on Chinese surveillance technology in maintaining its authoritarian regime. More insight is needed into the effectiveness of these repressive efforts. One known impact is the elimination of police and security safety concerns when repressing protests. Surveillance technology exports from the company Tiandy offered solutions for population control problems during protests, eliminating the risk of in-person violence and confrontations between protestors and law enforcement (Conduit, 2025). Relying on technology as an aid to political repression strips the power of larger crowds over law enforcement, further undermining protest efforts and strengthening support for the authoritarian regime. Similar to China's cyberspace, Iran has implemented a social credit system, which maintains accounts of Iranian citizens' behavior and trustworthiness. The system features enhanced capabilities for meticulous examination through the use of data processing of locational history, purchase records, internet interactions, and downloaded content (Azbarzadeh et al., 2024). This detailed level of examination provides government access to the private details of almost every Iranian citizen, as the data collection is automated through Iran's implemented surveillance system. The impact is the removal of cybersecurity and online privacy for Iranian citizens. The system also helps the regime maintain its power as it highlights political dissent among the population, pointing police authority to political opponents and civilians with opposing views. Further use of Chinese surveillance technology by the Iranian regime has threatened to enter the global stage, creating the concern of Iranian political surveillance becoming a precursor for international espionage projects (Stachoń, 2024).

The Connection between Chinese and Iranian Repression Techniques

Prior literature has established that China is technologically advanced in its use of digital surveillance technology to monitor its citizens. Zheng Su, Xu Xu, and Xun Cao (2021) demonstrate in their research that China is a surveillance state where totalitarian social control is underway. This mass surveillance by the Chinese government faces little resistance from the broader Chinese population. Over 82% of a sampled representative population indicated that they support mass Closed-Circuit Television (CCTV) surveillance, which is currently used for crowd-tracking in China, and a further 61% supported internet and email monitoring. A majority of citizens, 53%, further supported the mass collection of intelligence on everyone within China's borders. The authors find that privacy concerns are less salient among people who live in authoritarian countries such as China and have even lower expectations about civil liberties. As a result of these findings, China serves as the global example for a surveillance model in the extremity of its methods and support for those public monitoring means from the population.

China began to develop its mass surveillance capabilities beginning in 1998 as part of an internal effort to grow its technological prowess, and the subsequent build-out of internet and CCTV surveillance systems in the 2000s. The overarching project that drove surveillance development and implementation in the country was called "Golden Shield," and upon its introduction, it aimed to centralize existing government surveillance systems (Bernotaite, 2023). To accomplish this, the Chinese government has further collaborated with Chinese technology companies to establish surveillance and social credit systems that punish and reward the online activities of Chinese citizens (Kostka & Antoine, 2018). Other evidence suggests that China is now surveilling beyond policing. The Chinese government now attempts to identify potential political risks and disruptions to the social order before they happen and moves to make preemptive arrests (Clark & Yang, 2022). This approach to security is known as "comprehensive national security" and has become popular under the regime of Xi Jinping.

Most security in China is privatized, meaning the government has contracts with a number of Chinese technology companies to surveil citizens and use computer programs to interpret raw surveillance data (Legarda, 2021). In the 2000s, China was reliant on international companies, such as Bosch or Samsung, for the supply of technology that was then employed in a surveillance context. However, in the

2010s, China transitioned to relying on domestic companies for the production and delivery of such surveillance systems (Perryer, 2019). China’s fiscal structure and other financial laws further incentivize public agencies to purchase these surveillance systems from private companies. This paper will contrast the use of surveillance in China to identify and quash any political opposition with the techniques used by the Iranian government to spy on its own citizens. For instance, certain Iran surveillance systems emulate surveillance techniques used by China (Singleton, 2022).

Existing literature has found that Iran has become increasingly close to China in the years since the Iranian revolution, especially considering its global isolation from the West (Yacoubian, 2019). Since the 1990s, China has made investments in Iran and has facilitated the development of Iran’s nuclear program and oil drilling, among other infrastructure deals. Although the relationship was born out of a shared economic interest, the countries’ leaders have become increasingly aligned as they utilize one another as extensions of power in other regions. China uses Iran to attain influence in the Middle East, and Iran expands beyond the Middle East to receive the backing of the largest, most influential country in East Asia (Yacoubian, 2019). However, the overarching reason for establishing Sino-Iranian relations in the late 20th century was economic (Garver, 2006). This paper seeks to investigate how the exchange of technology stemmed from the wake of the establishment of these ties, and once we establish the transfer of technology or technological information from China to Iran. We will examine the resulting impact.

Conclusion

This examination is critical as emerging technologies allow governments to scale repression to unprecedented levels. Unlike previous measures of repression, such as using conventional military techniques, biometric surveillance, which consists of monitoring like fingerprinting, facial recognition technology, and using other physical markers to surveil individuals, operates invisibly and poses a threat to citizens worldwide as their data is stored and monitored. Understanding the ways in which Chinese-produced technology props up Iran’s ability to repress dissent is important for analysts to recognize. This information enables academics, political scientists, and politicians to understand what technological factors contribute to an authoritarian regime. Additionally, it also brings attention to the increased need to safeguard privacy and digital freedom before such repressive technologies become normalized.

As China is one of the leading exporters of technology, this research can prove useful in uncovering China’s role in perpetuating human rights abuses internationally. Further research on this topic may include other countries that China exports surveillance technology to, as well as the frequency at which countries that import Chinese technology utilize it, compared to other forms of repression.

Methodology

Our paper aims to understand the relationship between Chinese exports of surveillance technologies to Iran and political repression in Iran. This research focuses on whether technology exports between 2010 and 2025 aided political repression in Iran. To this end, an analysis was conducted of export agreements between Chinese companies that provided surveillance technologies to Iran to fully understand the types of technologies being used by Iranian government agencies to potentially surveil citizens. Then, research about what capabilities exported technologies have to politically repress or surveil populations was conducted. We conclude our analysis by focusing on qualitative accounts from the Iranian press and reports about the application of these technologies to citizens. We focused on Chinese surveillance technology exports contributing to political repression in Iran between 2010 and 2025.

The first section of the paper lays a foundation by analyzing the specific agreements between Chinese companies and Iranian government organizations. Chinese companies ZTE and Tiandy were examined for their exportations of surveillance technologies to Iranian government agencies and what these deals entail. Analyzing the export agreements, including the types of technologies, the number of units exported, and the conditions between the countries, brought insight into the purpose of these technologies and the overall influence Chinese companies had on the governance of Iranian citizens.

The second section delves into the technological capabilities and functions of the technologies exported to Iran. Looking at the capabilities of the technologies exported into Iran allows analysis to be done on the potential for political repression to be aided by these technologies’ functions. The purpose for which these technologies were created and whether they were designed with surveillance and repressive functions was also examined. It is important to establish whether the technologies are capable of aiding political repression in Iran.

The final section of our results and findings focuses on reports and qualitative evidence of technologies being used in Iran for the purpose of political repression. These reports were analyzed by investigating CCTV technology rates, democracy ratings, and accounts by the Iranian public during our given timeframe involving the use of surveillance technologies. It was noted whether these reports contained the technologies discussed in the second section to determine whether surveillance technologies being used against Iranian citizens were of Chinese origin.

Results and Findings

Our results investigate the potential relationship between Chinese exports of surveillance technology to Iran and the Iranian government’s use of that technology for political repression between 2005 and 2015. During this period, Chinese technology companies emerged as leaders in surveillance systems. Simultaneously, Iran faced increasing political instability that led it to seek out Chinese digital monitoring systems to suppress political opposition and maintain regime control. Our results will be presented in three sections: trade agreements, the capabilities of exported technology, and applications of surveillance tools in Iranian society.

ZTE and Iranian Trade Agreements

Trade agreements between Chinese companies and Iranian agencies reveal the surveillance capabilities of the technologies exported and the scale of those surveillance technologies. Understanding the nature of these agreements and the types of technologies exported is necessary to determine whether Chinese exports had a relationship to the increased political repression in Iran during this timeframe. The agreements occurred through the partially state-owned Chinese technology company ZTE and Iranian telecommunications entities. Trade agreements primarily revealed the types of technologies ZTE exported to Iran, along with their associated violations of U.S. sanction laws.

Since ZTE exported technologies of U.S. origin into Iran despite a broader U.S. sanction on Iran, the U.S. government placed large sanction-related penalties on ZTE, totaling 1.19 billion dollars. ZTE specifically sold U.S.-origin telecommunications technologies to Iranian government agencies, which largely included cellular and landline infrastructure (U.S. Department of Justice, 2017). According to the official court documents from the case "*United States of America v. ZTE Corporation*" the exportations of U.S.-origin telecommunications technologies from ZTE to Iran started in 2010 and lasted until 2016. ZTE re-exported technologies, such as servers, switches, routers, and components of a cellular network infrastructure. The company shipped over $32 million worth of U.S. technologies to Iran (Department of Justice, 2017). The U.S. origin technologies listed in the court case align with the aforementioned Reuters report that details how similar technologies were used to increase Iran's surveillance capabilities via monitoring landlines and digital infrastructure to surveil its citizens (Stecklow, 2012). Additionally, in the U.S. Department of the Treasury's Office of Foreign Asset Control settlement with ZTE, it was revealed that ZTE engaged in 251 violations of U.S. trade law and knowingly broke trade law with the U.S. The settlement refers to ZTE's repeated dishonest practices to conceal the fact that they were importing U.S. origin technologies into Iran. For example, ZTE used code names for Iran and Iranian customers to conceal the fact that they were doing business with U.S. embargoed states on official records. They also removed all ZTE branding and marketing references from U.S. technologies to conceal their involvement in selling U.S. technologies to Iran and intentionally removed any references to Iranian customers from their official documents and internal communications (U.S. Department of the Treasury, 2017). All of these instances cement the deceptive nature of the deals between ZTE and Iran.

Some of the most detailed information about trade agreements between ZTE and Iran comes from the aforementioned 2012 Reuters report on ZTE's illegal sales of telecommunications technologies into Iran (Stecklow, 2012). Specifically, in the contract pertaining to ZTE and TCI, a technology that was exported is referred to as "Equipment Model: ZXMT," which is an integrated monitoring system that has the ability to monitor telephone networks and the internet. In the Reuters interviews, two men, Mahmoud Tadjallimeher, a former telecommunications manager in Iran, and a former ZTE engineer who contributed to the installation of "Equipment Model: ZXMT" reported that the system was able to monitor voice, text messages, and various internet communications. They also stated the system can read packets of data that can be used to track internet users, deliver altered web pages to users, and even block certain traffic to users' devices. Although the former employees reported that these technologies did not use U.S.-origin technologies, there is no confirmation that this information is true, given that ZTE used a series of deceptive practices to hide its exportation of U.S. origin goods into Iran.

The findings from the U.S. court documents addressing ZTE's violations and the Reuters report show that the trade agreements between ZTE and Iran were deceptive in nature, and both involved technologies that had strong surveillance capabilities and U.S. origin technologies that were prohibited from entering Iran.

Technological Capabilities in Aiding Repression

China's technological exports have many uses within Iran. Specific data regarding its capabilities exhibit how the Iranian regime has utilized this technology as a means of maintaining the ruling coalition in the country. Our insight into the regime's application of Chinese surveillance technology exports reveals multiple avenues that aid the government's ability to monitor, surveil, neutralize, and control the Iranian population.

Firstly, the Chinese technological company, Huawei, has provided Iran with surveillance technology to assist the country's authoritarian government. Huawei's technological exports include facial recognition software, emotion-detecting artificial intelligence, drones, and other tools (Singleton, 2022). As demonstrated in previous studies, applications of this new technology include the creation of a surveillance state, with the use of artificial intelligence data analytics, facial identification technology, data management, internet censorship, control centers, and bureaucratic institutions (Akbarzadeh et al., 2024). The Chinese company, Tiandy, has also provided specific technologies that aid in Iranian repression efforts. Specifically, Tiandy provided sophisticated 4K cameras that support facial detection based on statistics regarding age, gender, and ethnicity (Singleton, 2022). These identification improvements established an enhanced ability to find and occasionally detain dissident citizens or those with opposing political views. Additional automated monitoring comes from Deep Packet Inspection (DPI), which tracks content being shared across digital networks and informs the Iranian cyber police, FATA, of signs of political dissent among citizens (Akbarzadeh et al., 2024). Insight into civilian mobile data provided further strategies for determining the political sentiments of Iranian citizens through their social media interactions and shared messages.

The Iranian government's technological capabilities have greatly increased in the last 10 years with the implementation and expansion of these technologies into their police systems and control centers. Facial recognition technology provided the necessary tools for FATA to form a monitoring structure similar to China's social credit system (Akbarzadeh et al., 2024). China's system used many forms of surveillance technology to maintain information about civilians, such as political sentiments, online behaviour, and other intimate personal information (Stachón, 2024). This information can be used to blackmail citizens into alignment with the Iranian regime's policies and preferences. Iran mirrors the Chinese system by retrieving similar information about its citizens, allowing for further capabilities in terms of repressing dissent and reducing political opposition. Furthermore, technological advancements have allowed the Iranian cyber police to retrieve more detailed information, including purchase records, location history, travel routes, internet search history, and downloaded content (Akbarzadeh et al., 2024). All of this information is sent to central control centers, where it is stored and analyzed for further repressive action. This intimate level of information violates the privacy of Iranian citizens.

The Iranian government's ability to repress political opposition and maintain its authoritarian regime has increased tremendously. Iranian security forces stated their intent to continue "to use surveillance cameras to identify and arrest individuals involved in protests" (Singleton, pg. 8, 2022). Facial recognition technology paired with the state's system of surveillance has made the prospect of open protest much more dangerous. Iran's surveillance apparatus has become almost entirely automated, allowing for greater efficiency in the Iranian police forces' goal to monitor, identify, and detain protesters (Singleton, 2022). Another impact of this new form of repression is the loss of power of protest in a large group. Historically, protests find success and gain traction in numbers. It's intuitively harder for security forces to maintain a large mob. In response to political protests, the Iranian regime stated its new repression strategies as "large police presence on the streets would not be necessary if the government accelerated efforts to equip security forces with smart technologies" (Singleton, pg. 8, 2022). The removal of police presence in protest management undermines the power of the Iranian civilians, as security forces can identify opposing actors without having to face them themselves. Further usage of Iran's technological capabilities includes human rights violations based on virtual surveillance methods, such as repressing women who were not wearing their hijabs.

Surveillance Quelling Dissent

The final aspect of our study analyzed reports and qualitative evidence to determine whether China's exported technologies are being used in Iran for the purpose of political repression. We analyzed these reports by investigating variables like CCTV technology rates, democracy ratings, and accounts by the Iranian public during our given timeframe involving the use of surveillance technologies.

It has been well-documented by scholars that Iran has built an extensive apparatus of surveillance technology and methods through its authoritarian government (Akbarzadeh et. al, 2024). The most public example of the surveillance technology being employed to repress Iranian citizens is with respect to enforcing morality guidelines. In 2015, it was revealed that CCTV surveillance cameras were used to identify and prosecute Iranian women who do not cover their hair while driving, as would be customary when adhering to Iran's state morality guidelines (Akbari, 2021). In the wake of the 2009 presidential elections in Iran, surveillance cameras became commonplace in schools, cafes, and ordinary streets around Iran (Khan et. al, 2013). The majority of these cameras then transmit surveillance footage to the headquarters of the Special Police Forces. This data is subsequently used for purposes such as controlling the wearing of a woman's hijab. Surveillance cameras use software to identify whether a woman's hijab is "incorrectly worn," and should the camera identify the wearing in the negative, then the woman driver is prosecuted, and her car impounded by the Special Police Forces (Akbari, 2021).

The government actively uses this surveillance technology to quell political dissent as well. In a speech to protestors in 2019, the President of Iran stated that CCTV cameras and other forms of surveillance could identify and link a dissenter to the vehicle that they drive, as well as their home address (Akbari, 2021). This indicates that the threat of surveillance is meant to deter potential protestors from voicing public dissent of Iran's authoritarian regime. Additionally, a specialized division within Iran's Special Police Forces is tasked with monitoring online forums to identify and suppress dissent. Known as FATA, the division is responsible for monitoring the cyber activities of Iranian citizens and silencing or arresting voices that speak out against the government online. Technology used to execute this mission includes Deep Packet Inspection (DPI), a tool that inspects the content of data being transmitted over a network, and alerts FATA if the content is flagged for dissidence (Akbarzadeh et. al, 2021). Iran used its close relationship with China to acquire this technology (Yacoubian, 2019).

This surveillance technology, once it has identified a citizen, has led to several executions. The United Nations Human Rights Commission found that 10 men were executed in the context of the "Woman, Life, Freedom" countrywide protest in 2022, the majority of whom were identified by Special Police Forces via CCTV surveillance systems (United Nations Human Rights Commission, 2025). The executed men were denied humane treatment, the right to a fair trial, and were tortured extensively, indicating that physical surveillance systems were the medium for the Iranian government to identify and subsequently kill protestors.

As of 2023, Iran's government is seeking to broaden its surveillance capabilities via a five-year plan for expansion. Article 75 of a bill introduced and passed by the Iranian legislature in 2023, called the 7th Development Plan, seeks to establish a "continuous monitoring system for the indicators of people's lifestyle' and obliging database owners 'to furnish data to this system through online channels" (Sinaiee, 2023). Similar to the style of China's social credit system that the Far East nation uses for ranking citizens based on political loyalty, this Iranian system will enable the ranking of Iranian citizens and subsequent discrimination against them. This is especially relevant in certain spheres if they have been found to express dissident opinions online or in public, as identified by FATA.

Conclusion

Three main aspects of the relationship between these two nations are relevant: trade and sanctions, technological capabilities, and their application. Regarding trade, the Chinese corporation ZTE was found to have illegally exported monitoring systems to Iran that enabled them to intercept calls and digitally track people. Technologies exported by China included facial recognition technology, drones, and cyber policing systems. In its application, cameras given by China have been used to enforce morality laws and crack down on protestors. Iran is strengthening its security apparatus by implementing a five-year plan to enhance its monitoring of citizens in a way that mirrors China's social credit system. It is evident that Iran's close relationship with China plays a direct role in the militarized surveillance that Iran employs against its citizens.

Discussion

In the first part of the results and findings, we examined the trade agreements between ZTE and Iranian telecommunication companies. While we could not locate data on the official agreements between ZTE and Iran, we examined what types of technologies were exported and the nature of the deal. Interviews with former Iranian telecommunication project managers revealed that the technologies being exported had surveillance functions and capabilities that had the potential to monitor citizens. Interviews also showed that ZTE hid the agreement between China and Iran because of its violations of U.S. sanction law. The agreements between ZTE and Iran were estimated to begin in 2010 and end in 2016, where $32 million worth of U.S. technologies were exported into Iran. The U.S. origin technologies (e.g. servers, switches, routers, and components of a cellular network infrastructure) were reportedly used to expand Iran's telecommunication quality, according to Department of Justice court documents. However, at the same time, Iran was receiving cellular network infrastructure technology and surveillance systems from China that could utilize routers and other components to monitor its citizens' internet presence, such as text messaging, phone calls, and messages on media platforms. Iran receiving key cellular network infrastructure and systems, such as ZXMT from ZTE, could suggest that the surveillance systems it uses were designed to be compatible with key network infrastructure. As found before, former project managers described the ZTE ZXMT system as a network that could surveil and monitor citizens to an extent that was not seen before in Iran. Specifically, its ability to monitor the messaging and calls of citizens suggests that Iran was strengthening its ability to crack down on free speech. Without a compatible key cellular infrastructure, it would be difficult for ZTE systems to monitor citizens as effectively as the project managers report. Thus, U.S. origin technologies and ZTE systems could have gone hand in hand in producing a telecommunications system that closely monitors Iranian citizens.

Additionally, the former project managers emphasized the surveillance capabilities of the ZTE ZXMT system. The ZXMT system was specifically designed by ZTE to monitor landlines, chats, and other forms of telecommunications. The sale of this system particularly suggests that Iran was seeking out a system with the ability to monitor its citizens' internet and cellular activities.

Technological Capabilities

In the second section of our results and findings, we looked at the technological capabilities of Chinese surveillance technology. More specifically, we researched the expansion of this technology's use in providing repressive capabilities to the Iranian regime and China's role in introducing these repressive techniques through technological exports. Through reports on Iranian surveillance systems and the government's accounts, we explored the Iranian government's capabilities to identify and detain dissident citizens through its cybersecurity system.

Our research indicates a large expansion in surveillance technology capabilities, such as improved camera quality and artificial intelligence equipment. Major technological companies, Huawei and Tiandy, have supplied cameras and surveillance operating systems that have provided extensive monitoring and cybersecurity capacities for the Iranian government. Specifically, Huawei has provided artificial intelligence innovations, allowing for enhanced facial recognition and other identification methods. Tiandy provided the Iranian government with high-functioning cameras that serve as human-free surveillance methods, and work together with Huawei's artificial intelligence exports to create a surveillance state in the country. The state system mirrored that of China's social credit system, with constant surveillance and data centers being used to create a network to score and monitor the sentiments of Iranian civilians. This provides the state with statistics on every Iranian citizen, including their political beliefs, relationships, and private information.

Further findings include the use of Deep Packet Inspection (DPI), allowing for mobile surveillance. DPI provides intimate information on social media posts that citizens view, share, and interact with, as it allows the Iranian cyber police to pull data from network packets as they travel across a network. This form of monitoring provides the Iranian cyber police with access to data regarding users' political ideology and views toward the regime. Not only does this remove citizens' privacy overall, but it has further consequences, including the threat of detainment and public humiliation, for Iranians with opposing political views. This has been shown to impact protest repression, allowing for efficient and safe surveillance, identification, and detainment of dissident citizens (Akbarzadeh et al., 2024).

The overall impact of the Iranian regime's increased capabilities in its technological surveillance has reduced the privacy of its citizens and enforced confirmation of the ruling party's sentiments. The extent of the Iranian government's technological capabilities strips the entire country of privacy in people's political ideology, view of the regime, and even religious practices. These findings are necessary to understand the extent to which Chinese surveillance technology has affected Iranian political repression. Chinese technology has introduced new realms of repressive practices and civilian maintenance, and the current advancements in artificial intelligence suggest that future use of these technologies will only become worse. With Chinese technological exports, along with the example set by Chinese surveillance techniques, Iran has been able to create an authoritarian surveillance state and use its capabilities to oppose dissidence. The possibility of further technological innovation in this realm creates the threat of increased authoritarianism worldwide.

Repressive Aid

The findings from this analysis are conclusive in establishing that surveillance technologies inspired by and received from the Chinese state are used by Iran to repress its population. We establish China as the primary enabler of state repression in Iran, as many of Iran's repression techniques were originally ideated by the Chinese, and the enabling technology was then sent through trade channels to Iran. Iran uses this technology to exert social control through monitoring the behavior of its citizens and targeting people who are observed not to comply with the government's arbitrary rules, as well as opponents to the regime.

The primary significance of these findings is the dual utility of the technology to enforce rules and engage in political repression. This evolves from a security-centered social control tool to a system that is used to quell political dissent. Initially, the CCTV system in Iran was used as a digital "morality police" in identifying women who were not adhering to the principles of Islam by covering their hair while driving. Now, the technology has evolved to the point where it is used by the Special Police Forces to identify political dissenters. The new use of the system is meant to deter political opposition, which creates a cycle of protest, then subsequent identification by camera to target and arrest protestors. As a result, the population of Iran becomes increasingly weary of protesting in public, as such public actions in the face of the CCTV system translate to an arrest. These tools, once used for morality and security, have been converted to provide the Iranian government with means to repress political dissent.

The United Nations findings regarding the 2022 protests confirm that the Iranian state surveillance infrastructure acted as the medium through which Special Police Forces units identified, tortured, and executed protestors. This evidence supports the idea that surveillance technology enables the arrest of protestors, and by extension, political repression itself. Security cameras and CCTV systems are a crucial tool in the Iranian government's effort to maintain its power by repressing dissident opinions among its citizens.

Iran's transformation of its surveillance system, from a mechanism of moral policing to a tool for political repression, relies on China's provision of surveillance technology. With this equipment, the Iranian government has the capacity to enforce far-reaching political control across the entire population. As a result, Chinese technological support becomes the foundation that enables Iran's ongoing cycle of identification, arrest, and unfair punishment of political dissidents and citizens.

The broader implications of these findings reveal the consequences of state-controlled surveillance technologies. In Iran, the use of CCTV policing policies poses a direct threat to civil liberties, personal privacy, and the freedom of expression. It results in citizens engaging in self-censorship, as people are aware that the Iranian government's digital infrastructure is monitoring them. For international stakeholders, such as human rights organizations, technological corporations, and policymakers, Iran's experience should be a wake-up call that highlights the urgent need for global standards on digital surveillance to ensure that governments cannot maintain state power through fear and intimidation.

Limitations

Despite the strengths of this study, several important limitations should be acknowledged. One key limitation is the lack of quantitative data available on the precise number of surveillance technologies China has exported to Iran. There is no specification on how much of the surveillance technology used by Iran to suppress its citizens is from China. The conclusion drawn in the results section is, therefore, largely inferred from the correlation between increased imports of Chinese technology and increased repression. No causal link between the two variables can be directly established by the research in this paper, even though this paper aims to establish that Chinese exports caused Iranian repression to increase. Future research can consult sources like the SIPRI Arms Transfer Database to provide an estimate of military-grade technological exports from China to Iran. In order to verify that the technology listed is used for surveillance purposes, an investigation should be conducted on the functions and purpose of the technology exported.

There is also limited data on Iranian surveillance technology. The Iranian government heavily restricts internet traffic and free expression of thoughts; therefore, information regarding the specific uses of technology they received from China and the details of their surveillance infrastructure is not readily accessible online. A possible solution would be to find interviews with defectors from the Iranian regime who worked in the surveillance apparatus to collect testimonies on how government workers utilized Chinese technology, although such interviews are likely sparse.

Without this detailed information, it is hard to predict how many units of the many surveillance technologies Iran established are of Chinese origin. While this paper can assess if there were Chinese exports and what types of exports those were, it is very difficult to draw conclusions about the extent to which the Chinese government was responsible for the political repression of Iranians due to surveillance technologies. Despite these constraints, we are confident that the analysis presented here offers meaningful contributions to understanding Chinese involvement in Iran's surveillance landscape by providing correlational evidence for our claim.

Conclusion

The technologies exported into Iran from Chinese companies strengthened Iran's ability to politically repress its citizens by monitoring private messages and calls, accessing personal information about lifestyle and personal data, and even justify executions of multiple citizens. The records between companies like ZTE, Tiandy, and Huawei revealed a significant amount of technologies with functions of surveillance, monitoring, and data collection. These technologies were utilized by Iranian government agencies to monitor internet traffic of citizens, use facial recognition technology, and CCTV systems to collect information about its citizens. In many instances, this information was used to blackmail citizens for behavior deemed as incorrect and limit the freedoms of the population. We concluded that there is a strong correlation between the exports of these surveillance technologies from Chinese companies and the increase of political repression in Iran between 2005-2015, however we were unable to prove definite causation due to there being a lack of concrete evidence that Chinese surveillance technologies were exported into Iran with the sole motivation of increasing political repression. However, the strong record of exports and oppressive uses of technologies indicates a strong argument for correlation and causation in this context. In order to prove definite causation, further research needs to be done in exploring the motivations of Iranian government entities for buying such large amounts of surveillance technologies from Chinese companies. Future researchers would have to explore why Iranian companies choose specifically Chinese companies and what these entities requested from Chinese companies in terms of the functions and purposes of the technologies they bought. Our results reflect the broader growing involvement of governments and large corporations in supporting political repression through surveillance. As surveillance technologies and artificial technologies rise, large corporations and governments will continue to export surveillance technologies that can have drastic effects on political repression and human rights around the world.

References

Akbari, A. (2021). The threat of automating control: Surveillance of women's clothing in Iran. *Automating Crime Prevention, Surveillance, and Military Operations*, 183–199. https://doi.org/10.1007/978-3-030-73276-9_9

Akbarzadeh, S., Naeni, A., Yilmaz, I., & Bashirov, G. (2024). *Cyber surveillance and digital authoritarianism in Iran*. https://www.globalpolicyjournal.com/sites/default/files/pdf/Akbarzadeh%20et%20al.%20%20Cyber%20Surveillance%20and%20Digital%20Authoritarianism%20in%20Iran.pdf

Berman, I. (2022). *Chinese tech is powering Iran's repression | American Foreign Policy Council*. https://www.afpc.org/publications/articles/chinese-tech-is-powering-irans-repression

Conduit, D. (2025). Digital authoritarianism and the global technology industry: Evidence from Iran. *Government and Opposition*, *60*(3), 1–22. https://doi.org/10.1017/gov.2024.31

Dastbaz, M., Halpin, E., & Wright, S. (2013). *Emerging technologies and the human rights challenge of rapidly expanding state surveillance capacities.* Strategic Intelligence Management. 108–118. https://doi.org/10.1016/B978-0-12-407191-9.00010-7

Davis, M., Lecky, J., Froscher, T., Chen, D., Kerevel, A., & Schlaikjer, S. (2012). *China–Iran: A limited partnership.* US China Economic and Security Review Commission. https://www.uscc.gov/sites/default/files/Research/China-IranA%20Limited%20Partnership.pdf

Garver, J. W. (2006). China and Iran: Ancient partners in a post-imperial world. *ResearchGate*, 1–401. https://www.researchgate.net/publication/291937351_China_and_Iran_Ancient_partners_in_a_post-imperial_world

Gohdes, A. R. (2023). Theory. *Repression in the digital age: Surveillance, censorship, and the dynamics of state violence*, 40–59. Oxford University Press. https://doi.org/10.1093/oso/9780197743577.003.0003

Kostka, G., & Antoine, L. (2018). Fostering model citizenship: Behavioral responses to China's emerging social credit systems. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3305724

Khan, S. O., Carrieri, M., Deibert, R., & Noman, H. (2013, February 15). *After the Green Movement: Internet controls in Iran, 2009-2012*. The Citizen Lab. https://citizenlab.ca/2013/02/internet-controls-in-iran-2009-2012/

Perryer, S. (2019, October 29). *Surveillance cameras have become one of China's most valuable exports – here's why*. www.worldfinance.com. https://www.worldfinance.com/featured/surveillance-cameras-have-become-one-of-chinas-most-valuable-exports-heres-why

Sinaiee, M. (2023, November 17). *Hardliners back legislation to monitor Iranians' online lifestyle*. Iranintl.com; Iran International. https://www.iranintl.com/en/202311161654

Singleton, C. (2022, December). *Targeting Tiandy*. FDD. https://www.fdd.org/analysis/2022/12/01/targeting-tiandy/#easy-footnote-bottom-34-136050

Stachoń, M. (2024). Iranian cyber capabilities as a tool of domestic and foreign policy. Zeszyty Naukowe SGSP, (89/2).

Stecklow, S. (2012, October 25). *Huawei partner offered US tech to Iran*. Arab News; Arabnews. https://www.arabnews.com/huawei-partner-offered-us-tech-iran-0

Stecklow, S. (2012, March 22) *Special report: Chinese firm helps Iran spy on citizens,* Reuters, https://www.reuters.com/article/world/special-report-chinese-firm-helps-ir an-spy-on-citizens-idUSBRE82L0BC/

Su, Z., Xu, X., & Cao, X. (2021). What explains popular support for government monitoring in China? *Journal of Information Technology & Politics*, *19*(4), 1–16. https://doi.org/10.1080/19331681.2021.1997868

United Nations Human Rights Commission. (2025). *Iran: Government continues systematic repression and escalates surveillance to crush dissent in the aftermath of protests, UN Fact-Finding Mission says*. Office of the High Commissioner. https://www.ohchr.org/en/press-releases/2025/03/iran-government-continues-systematic-repression-and-escalates-surveillance

Yacoubian, A. (2019, September 11). *Iran's Increasing Reliance on China*. The Iran Primer. https://iranprimer.usip.org/blog/2019/sep/11/irans-increasing-reliance-china

U.S. Department of Justice. (2017, March 7). *ZTE corporation agrees to plead guilty and pay over $430.4 million for violating U.S. sanctions by sending U.S.-origin items to Iran*. Justice.gov.

Office of Foreign Assets Control, U.S. Department of the Treasury. *Settlement agreement between the U.S. department of the Treasury's Office of Foreign Assets Control and Zhongxing Telecommunications Equipment Corporation | Office of Foreign Assets Control*. (2017). https://ofac.treasury.gov/recent-actions/20170307

Jordan and Palestine: The Effect of Drought Patterns on Environmental Policy and Renewable Energy Investment (1995 - 2015)

Natalie Timberg, Gia Verma, Katelyn Threkeld

Our research examines how drought patterns in Jordan and Palestine between 1995 and 2016 correlate with investment in renewable energy and environmental policy after 2010. We specifically investigate the frequency and intensity of droughts in the region across this time period and the openings of solar and wind farms. To understand the relationship between renewable investments by the governments and drought patterns, we performed a quantitative and qualitative analysis of droughts from 1995 to 2016 and renewable farms in the period post-2010. We also examined specific government policies meant to address water quality issues that occurred in the wake of significant droughts in the 2000s and 2010s. We concluded that, while the increasing frequency of droughts played a role in the development of renewable energy capacities by the governments, there is strong evidence to suggest other factors at play that also contributed to renewable investments, such as their usage in desalination projects. As a result, Jordan and Palestine have been able to increase energy generation capacities while also attempting to use renewables to meet domestic goals.

Introduction

Jordan and Palestine are among the most water-stressed countries in the Middle East. This is due to climate change, shifting weather patterns, rapid population growth, and tumultuous resource control. That has led to droughts having a critical political and economic focus. Both states underwent sustained and severe drought periods between the 1990s and 2010s that added strains to agriculture, socioeconomic inequalities, and exposed the inefficiencies of water management systems. At the same time, the 2010s saw a pivot toward solar and wind energy projects and new water and energy policies across the Levant.

In this paper, we examine the relationship between drought patterns in Jordan and Palestine from 1995 to 2016 and subsequent environmental policy and renewable energy investment after 2010. Using both quantitative and qualitative methods, we compare significant drought years to the advancements of solar and wind farm development and analyze how and when major drought events appear to affect government strategy, specifically focusing on water policy. Understanding this relationship is essential because many water-scarce, politically constrained states are pressured to adapt to climate change with limited autonomy over their own resources and governance. Our findings allude to how and when environmental crises lead to policy and infrastructural change, and when other political and economic forces overshadow those efforts.

Review of the Literature

Historical Drought in the Levant

Since the 1990s, significant research has explored the impact of weather patterns in the Levant, a subregion of West Asia along the Eastern Mediterranean, on precipitation levels and agriculture. Using a meteorological perspective, a study by Ziv et al. (2006) discovered that winter rainfall in Israel and Palestine is largely modulated by the Eastern Mediterranean upper trough, which explained over 54% of the variance in rainfall from 1950 to 2002. This is important because this one weather pattern affects so much of the rainfall patterns, so if it shifts due to climate change, it can significantly alter precipitation patterns. Much of the previous literature analyzing rainfall and temperature in relation to droughts focused on annual or seasonal patterns and longer droughts that spanned from a couple of months to years. Similarly, Saaroni et al. (2014) examined atmospheric patterns, focusing on prolonged dry spells. It is often these prolonged dry spells during the rainy season that most affect water in the region. This is because they force irrigation in the middle of the rainy season (Saaroni et al., 2014). Additionally, in an analysis of precipitation variability's impact on crop yields and productivity, Kaniewski et al. (2012) found that precipitation variability was a driving force in controlling the location of human settlements in the past 10,000 years. In the future, they determined this would continue to impact humans by decreasing crop yields and damaging economic opportunities from a lack of agricultural productivity. Drought in the Levant significantly affects the livelihoods of people living in the region, who must farm amid changing weather patterns (Kaniewski et al., 2012).

Comprehending how and why meteorological patterns impact droughts is essential because they impact water availability in regions. It is difficult to measure changing drought frequency and intensity without a baseline understanding of what influences drought formation. Analyzing patterns and how they may change agricultural practices and water levels is essential when making government policy decisions. While the research by Ziv et al. (2006), Saaroni et al. (2006), and Kaniewski et al.(2012) all skillfully address the weather and climatic conditions that eventually lead to drought formation, they do not cover what the governments of countries in the region should be doing in response. They lack analysis of any governmental actions taken in response to these droughts or water scarcity. To accurately assess the impact of droughts on government investments and policies in the region, further analysis needs to consider historical drought patterns and compare past and present government actions.

While droughts and the weather patterns that cause them generally to occur across all countries in the Levant, we will primarily examine case studies on Jordan and Palestine. For example, looking specifically at Jordan, Al-Qinna et al. (2011) analyzed the intensity and frequency of droughts from 1970 to 2005 using the Standardized Precipitation Index (SPI) and the Normalized Difference Vegetation Index. Al-Quinna et al. (2011) concluded that the average severity, intensity, and duration of droughts had increased significantly from normal to extreme levels across the thirty-five years analyzed, and most notably from 1995 to 2005. Over time, droughts in Jordan tend to move from the southern desert to the northern desert and from the eastern desert to the western highlands, and they are most frequent during the winter months (Al-Qinna et al., 2011). Additional information compiled by the Red Crescent Climate Center (RCCC) in their 2024 country report on Jordan adds to Al-Qinna et al.'s analysis of increasing frequency, intensity, and duration of droughts by compiling long-term temperature and precipitation statistics together. The mean annual temperature in Jordan has increased by 0.3 °C per decade from 1961 to 2015, and mean annual precipitation levels decreased sharply between 1980 and 2015 (RCCC, 2024).

When looking at historical research of drought patterns in Palestine, there is a general lack of data. Nevertheless, being geographic neighbors, it is generally assumed that drought and weather trends will remain the same between Palestine and Jordan. The decrease in precipitation and increase in temperature, often attributed to global climate change, have contributed to the increase in drought intensity and frequency in the Levant region. However, analysis is lacking regarding the impact of droughts in the 1990s, 2000s, and 2010s on shaping government policies and investments. The literature has also not investigated the correlation between severe droughts, including those from 1999-2001 or from 2007-2008 throughout the Levant, and government investments into renewable technologies or water conservation tactics. Additionally, any consideration of droughts should evaluate how they lead to shifting government policies, especially as they become more frequent in an increasingly industrialized world. As much historical research has been done exclusively on droughts or climate-focused investment, this paper will attempt to fill this gap in the literature while analyzing the significance of droughts in promoting wind and solar farms.

Moreover, examining more recent works can provide helpful background information and a basis for understanding where current investments and drought patterns could be heading. Works by Barlow et al. (2016), Ghasemifar et al. (2023), and Jomaa et al. (2024) made recent attempts to analyze characteristics of drought intensities and precipitation patterns in the Levant. Barlow et al. (2016) found that La Niña–a global weather pattern where trade winds in the Pacific increase in strength and push warm water towards Asia (NOAA, 2009)–plays an important role in regionwide droughts in the Middle East and Southwest Asia. Barlow et al. (2016) also emphasized the difficulties of predicting future droughts due to a lack of cooperative work amongst nations in the region. Ghasemifar et al. (2023) analyzed spatio-temporal characteristics of different drought intensities from 2001 to 2020 via the Standardized Precipitation Evapotranspiration Index (SPEI) to conclude that the frequency of droughts has significantly increased in all countries in the Middle East, though rates of increase varied. Jomaa et al. (2024) took a slightly different approach to analyzing drought frequencies by focusing primarily on Lebanon and using the SPI to compare years from 1876 to 2021. Nonetheless, their findings closely corroborate those of previous studies. Around 70% of the years measured were at or near normal precipitation levels, but in the past three decades, no year has had more precipitation than average, and there have been more drier years than not (Jomaa et al., 2024). These studies all supported previous findings that climate change may have led to a steady increase in drought-like conditions.

Barlow et al. (2016), Ghasemifar et al. (2023), and Jomaa et al. (2024) all focused on analyzing more recent trends in climate data and weather patterns as opposed to studies previously discussed. These studies all added important context to current events in the Levant region. However, our analysis will primarily be focused on how droughts in the 2000s and 2010s have affected government policies and investments in the late 2000s and 2010s. This literature has illustrated the likely impact climate change has on droughts in the Levant and touched on the harm droughts can have on agricultural productivity. Our study will enhance this research by adding additional context to how droughts impact government policies and how they influenced investment into renewable energies in the 2010s. This can provide a basis for future research into the topic and further analysis of other countries and their response to an increasing frequency, intensity, and duration of droughts.

Statehood & Environmental Policy History

Water Management in Palestine

Palestine's evolving statehood status and limited sovereignty have affected the state's ability to manage water resources and respond to drought. Water policy is seen as a significant cause of social and economic disruption and disaffection in the Levant, especially following British and Israeli control of the region (Broich, 2013). During the British Mandate period from 1917 to 1948, agriculturalists and pastoralists across the region witnessed dramatic changes in their access to land and water. The establishment of private companies, such as the Palestine Electric Corporation and its control over the Jordan River under the British Mandate, led to increasingly centralized water management systems (Broch, 2013). The ownership produced lasting social and hydrological inequalities as colonial settlement interests grew, and companies began prioritizing settlers over local agricultural communities. This limited Palestinian access to water and marked the start of water being used as a tool for political and territorial control (Broich, 2013). As a result of this privatization, British water policy in Palestine focused on regulating land and resource ownership rather than on drought management. These policies created an enduring legacy of water dependency and infrastructural inequality, which would later profoundly impact the region during severe droughts (Schorr, 2021).

Figure 1: *Jordan River Basin*
Adapted from Eckstein, 2015.

Following the Six-Day War in 1976, Israel gained control of the West Bank, Gaza, and other territories, along with control of the Mountain Aquifer and the Jordan River Basin (UN ESCWA, 1991). Shortly following the occupation, the Israeli military enacted a series of military orders that restricted Palestinian use of water. For example, Military Order No. 92 (1967) transferred all authority over water resources to the Israeli military, while Military Order No. 158 (1967) required permits for any construction or modification of water infrastructure, halting independent Palestinian well drilling and irrigation projects (Amnesty International, 2023). Israeli settlers continued to receive prioritization for water access and infrastructure development, which continued to negatively impact Palestinian local farmers, especially during significant drought periods. Israel also continued to use water as a form of leverage, as Israeli settlers aimed to push out local Palestinians in the area, specifically farmers. During the 1980s, the annual availability of groundwater in the West Bank was approximately 120 million m³ for Palestinians, while it reached almost 500 million m³ for Israel and its settlements (United Nations, 1992). Israeli occupation of the region was marked by an era rooted in persistent hydro-political inequalities, creating a longstanding structural imbalance that the two areas still experience today. Also, the emergence of Palestinian environmental legislation was limited, which prevented the development of sustainable infrastructure, leaving the region highly vulnerable to droughts during later periods (Rudolph & Kurian, 2022).

During the Israeli occupation of Palestine, Israel and the Palestine Liberation Organization signed the Oslo Accords in 1990. These policies split the West Bank into three separate regions. Oslo Accord Article 40 created a framework for cooperation on water regulation between these two regions and created the Joint Water Committee (JWC) (Brooks & Trottier, 2017). However, the JWC retained Israeli control over Area C, which contained the majority of the water resources, such as aquifers (Israel Academy of Sciences and Humanities, 1999). During the 1990s, the region experienced longer, more intense droughts. Due to this water scarcity and the policies laid out in the Accords, Palestinian authorities became dependent on the JWC (Selby, 2013). According to Article 40, Palestinians could not build or upgrade their own wells, pipes, or irrigation systems without Israeli approval by the JWC, and those approvals were routinely delayed, restricted, or vetoed (World Bank, 2009). As a result, water scarcity intensified in the rural areas. Overall, the Oslo Accords limited the development of Palestinian environmental legislation related to drought resilience (Selby, 2013).

Water Management in Jordan

Similar to Palestine, during the British Mandate period (1921–1946), Transjordan, which would later become Jordan, underwent major administrative restructuring that laid the groundwork for the modern Jordanian state. Under Article 25 of the Mandate for Palestine in 1922, Britain established a separate governing system east of the Jordan River, granting authority to suspend Mandate provisions and to gain complete control over Transjordan's land and water resources (United Nations Digital Library, 1947). Britain had given the Palestine Electric Corporation complete control over the Jordan and Yarmuk rivers, which extended into Transjordanian territory. This created issues with transboundary relations, as water resources were controlled by foreign and private entities. As British oversight expanded, Transjordan developed early water management institutions, such as land settlement offices and irrigation departments, and adopted regional laws that centralized state control over wells, springs, and irrigation access (IWMI, 2003). These developments displaced longstanding communal water practices and access to water traditionally held by local farmers. By the time Transjordan gained independence in 1946 and officially became the Hashemite Kingdom of Jordan in 1949, it inherited a water governance structure heavily shaped by British concession-based resource control, which formed the basis for many of the water-scarcity challenges the country continues to face (IWMI, 2003).

The Hashemite Kingdom of Jordan rapidly expanded agricultural production in the late 20th century, particularly in the Jordan Valley, to support food security and rural development. This agrarian expansion placed significant pressure on surface and groundwater resources, accelerating the need for a national water-management strategy (Pitman, 2004). As Jordan intensified agricultural production in the Jordan Valley, the country depended heavily on the limited flows of the Jordan and Yarmouk Rivers, making it vulnerable to climatic variability and recurring droughts. Expanding agricultural demand also exceeded the capacity of the British Mandate–era water laws and regulations, which were not designed to manage rapid groundwater extraction or large-scale irrigation (Katz, 2022). Following this, in the 1950s, the US established the Johnston Plan, a regional water-sharing proposal allocating flows from the Jordan–Yarmuk Basin among Jordan, Israel, Syria, and Lebanon. While the plan was never formally ratified, both Jordan and Israel largely adhered to its technical allocations, and it became an informal blueprint for regional water governance (Wolf, 1995). This framework led to the development of Jordan's early irrigation schemes and storage plans. However, since the plan was not formally ratified, it limited Jordan's ability to adapt to severe droughts and to upstream diversions by neighboring states (Wolf, 1995). After the 1967 Arab–Israeli War, Jordan lost control of the West Bank, including critical headwaters and agricultural lands, placing even greater pressure on the East Bank's already scarce water sources. In response, Jordan established the Jordan Valley Authority (JVA) in 1973 to consolidate irrigation planning, regulate agricultural water use, and coordinate development projects in the valley (Haddadin, 2002).

Jordan's water governance shifted after signing the 1994 Israel–Jordan Peace Treaty, which formalized bilateral water rights for the first time. Annex II of the treaty granted Jordan guaranteed annual water transfers from Israel, joint management of the Yarmuk and Jordan Rivers, and commitments to develop desalination and storage projects (Salameh et al., 2019). However, due to recurring droughts, infrastructure constraints, and political disputes, Israel's water deliveries often fell short of agreed volumes, reinforcing Jordan's long-term water insecurity (Salameh et al., 2019). These historical events, from British concessionary policies to post-loss of water-rich land and treaty-dependent resource flow, have continued to shape Jordan's limited resilience to drought today.

Influences on Environmental Policy

Existing literature explores key factors influencing water policy and investment in renewable energy infrastructure in Jordan and Palestine, affirming the significant influence of drought patterns on water policy and renewable energy infrastructure. The literature highlights the social, political, and economic considerations when evaluating proposed policy, policy alterations, and financial allocation for water policy and renewable energy sources.

The Intergovernmental Panel on Climate Change (IPCC) forecasts further, but not numerically specified, decline in rainfall and increase in droughts over the coming decades (Rahman et al., 2015). Droughts and water scarcity diminish the state's agricultural productivity, lead to the loss of livestock and healthy soil, disrupt citizens through socioeconomic inequality, and divert attention and capacity from hydropower to basic clean water access needs (Rahman et al., 2015). The droughts and subsequent water scarcity are exacerbated by the drastic 5.02% average per year population growth between 1961 and 1995, thus indicating a policy focus area (Rahman et al., 2015).

Jordan

In Jordan, water policy is constrained by the government. Jordan is a constitutional monarchy in which King Abdullah II holds wide executive power and appoints the prime minister and cabinet. The bicameral National Assembly is made up of an elected House of Representatives and an appointed Senate; however, they exercise limited legislative authority. Scholars describe Jordan as a state of monarchical authoritarianism rather than a full parliamentary democracy (Lucas, 2004; Ryan, 2011; Salameh, 2018). The Kingdom and legislative body of Jordan control water management and coordination with international donors. This author highlights that a fragmented government and the lack of intergovernmental coordination in Jordan have made effective and lasting policy difficult to obtain (Karner, 2012). In addition to political constraints, the economic state of Jordan lacks the financial capacity for the development and upkeep of water infrastructure such as desalination plants and wastewater treatment facilities (Karner, 2012). Authorities often rely heavily on external aid and donor funding, which undermines their ability to maintain a cohesive and independent water supply (Scott et al., 2003).

Renewable energy infrastructure development in Jordan is driven by the country's emphasis on reducing dependence on imported fossil fuels, making up over 90% of its energy sector (IRENA, 2019). The Jordan government has progressively shifted toward national renewable energy legislation. To assist Jordan's mission, international donors provide technical and financial assistance that mitigates up-front costs and barriers to renewable energy infrastructure (Hochberg, 2015).

Palestine

Palestine has also seen a large spike in droughts. Recent research affirms that drought conditions have contributed to severe water scarcity in Palestine. According to Spinoni et al. (2014), annual rainfall data indicate a significant increase in drought frequency since the 1990s. Long dry periods exacerbate water shortages in conjunction with political, social, and economic turmoil.

Water policy in Palestine is mostly influenced by this water scarcity (World Bank Group, 2018). Political and economic challenges, such as Palestine's longstanding conflict with Israel, leave little ability to evaluate and regulate water policy in a sufficient capacity. Moreover, transboundary water source ownership with Israel leaves little control over allocation and infrastructure (World Bank Group, 2018). Economic constraints, such as dependence on international donors and lack of internal revenue, also contribute to Palestine's difficulty in establishing effective water policy (World Bank Group, 2018). Additionally, urbanization and rapid population growth contribute to putting Palestine in a difficult position to assert control over water policy (World Bank Group, 2018).

Much of what constrains water policy in Palestine also constrains the growth of renewable energy infrastructure. Water policy constraints includes political instability and restrictions on movement by the Israel's significant political and economic control, such as limits on the imports of renewable energy technology, supplies, construction, and maintenance (World Bank Group, 2018) Technical barriers also strain Palestine's energy sector, including limited grid infrastructure and storage capacity, and a lack of a skilled workforce, providing additional challenges for Palestine's desire for independent, renewable energy.

The literature makes three main helpful points to launch our research. Meteorological research indicates that Levant droughts are becoming increasingly long and intense, which is detrimental to agriculture and water security. Second, research on the historical political state of Jordan and Palestine all emphasize connected hydropolitical inequalities with limited capacity to respond to those inequalities. Lastly, recent literature starts the process of connecting climate change and intensifying droughts and water scarcity to governance. However, there is limited direct evidence of the connection between specific drought periods and specific policy and infrastructure. Our research will focus on determining whether evidence exists for this gap by examining how documented drought patterns in Jordan and Palestine correlate, qualitatively and quantitatively, to policy shifts and investment in renewable energy, such as wind and solar

Methodology

For the purpose of this paper, drought is defined according to the National Oceanic and Atmospheric Administration (NOAA) definition as a deficiency in precipitation over an extended period, typically at least a season, that results in water shortage (NOAA, 2006). We researched how the increasing frequency and intensity of droughts in the Levant region, a subregion of West Asia along the Eastern Mediterranean, has impacted government policies in Jordan and Palestine. The specific policies in question were renewable energy investment and implementation, and how their respective governments have taken actions to promote water security. When discussing renewable energy, we primarily refer to solar and wind energy because of their higher potential for usage in the region, as opposed to other methods, like hydroelectric or nuclear. Additionally, for renewable energy investments, we primarily focus on large-scale solar and wind farms that have opened since the 2010s. To effectively research these correlations, we use a combination of qualitative and quantitative methods.

In terms of the quantitative methods, a Pearson correlation coefficient test is used to test the correlation between significant droughts from 2010 to 2016 and the number of solar and wind farms in Jordan. A value close to -1.0 or 1.0 indicates statistical significance between the two factors. This statistical test is helpful to investigate how much impact droughts have had on promoting renewable energy investment. In addition to testing for statistical significance, we employ charts to better illustrate the changing frequency of droughts and the usage of renewables, with a specific focus on droughts before 2010, and renewable implementation after that date. The combination of these quantitative methods, along with qualitative methods, allows us to examine the correlation between droughts and renewables.

Our qualitative analysis explores the creation of environmental legislation following droughts. The first steps involve identifying literature and collecting data. We strive to analyze studies that have established a relationship between droughts and the implementation of renewable infrastructure and environmental policy. The literature is selected with priority given to studies that examine the period from 2000 to 2015. Following the collection of material, these studies are reviewed and categorized based on identifiable patterns and policy responses. This categorization is then used to understand how droughts in these regions have influenced environmental policy responses.

Additionally, by utilizing existing literature and government data, we aim to identify a connection between major drought years and subsequent policy responses and funding for sustainable infrastructure. To achieve this, we strive to determine the years of significant drought in Jordan and Palestine, and then analyze environmental legislation and funding for renewable energy in these years. This legislation and budget allocations are used to determine whether significant droughts are a central driver of shifts in policy priorities and renewable energy investments in these two regions.

Results and Findings

Introduction

Our overarching question on whether droughts in the Levant from 1995 to 2016 led to increasing renewable investments required both a quantitative and qualitative analysis. We first examined the frequency of droughts in the region from 1995 to 2010, looking into the specific type of droughts. After a brief analysis of the frequency of large-scale droughts, this data was combined with an overarching investigation into the openings of historical solar and wind farms in both Jordan and Palestine. It was found that there was significant investment in solar and wind farms starting in 2014. We then expanded on this initial quantitative approach with a Pearson statistical test to investigate whether there was a significant statistical correlation between droughts and renewables between 2010 and 2016.

Droughts vs. Renewables

Increasing drought frequency in the Levant has long been discussed in various studies. However, a quantitative analysis of the exact number of droughts from 1995 to 2010 in the region was needed to appropriately illustrate this pattern and make it easier to answer our overarching question on whether the increasing frequency of droughts led to renewable energy investment. This section will examine this analysis.

A report published by the International Water Management Institute (IWMI) in 2022, which was adopted by the Jordanian government into its policy framework, detailed historical droughts that had impacted the nation, and recommended strategies that should be adopted to help mitigate potential damages. This data is illustrated in Figure 2, which is shows the number of droughts from 1995 to 2010 in Jordan.

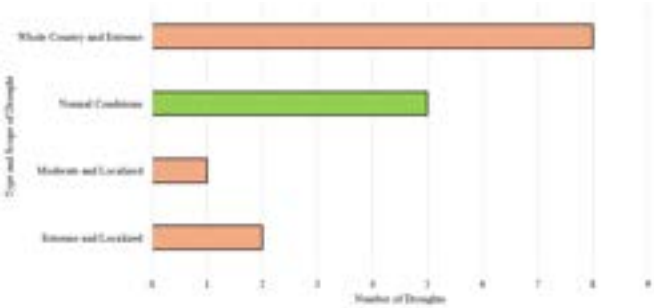


Figure 2: *Historical Droughts in Jordan (1995-2010) Separated by Type of Drought and Scope of Impact*
Data from IWMI Report Published in 2022.

During this fifteen-year period, there were only five years in which Jordan did not experience drought-like conditions in at least one region. During eight of the droughts, the whole country experienced extreme drought conditions, and extreme localized droughts occurred in another two years. The most severe droughts occurred from 1997 to 2001 and from 2007 to 2008 (RCCC, 2024). It is important to consider that a drought does not need to affect the whole country to negatively impact the economy and have a broad impact on people. We found that three of the years in our fifteen-year period had localized droughts of varying degrees. Localized droughts typically do not gain the same international recognition as country-wide droughts, but they still have major impacts on government policies. This understanding informed our decision to analyze and graph both the extreme whole country droughts and smaller localized droughts.

To begin to evaluate if the increase in droughts affected renewable energy policies and government investment, we examined the number of renewable energy farms from 2010 to 2021, for both regions. Our data on Jordan and Palestine's renewable energy farms is shown in Figure 3.

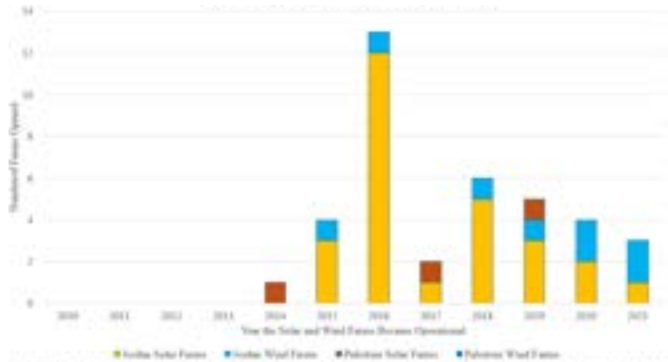


Figure 3: *Number of Solar and Wind Farms that Became Operational in Jordan and Palestine Each Year from 2010 to 2021.*
Data compiled from Salah et al. (2021) and a Jordanian Ministry of Energy and Mineral Resources (2024) report.

Both Jordan and Palestine had no solar or wind farms before 2013, but government investment increased sharply after that year. Since 2015, Jordan has built eight wind farms and 27 solar farms to make its energy grid more efficient and self-reliant (International Trade Administration, 2024). Palestine has invested in three solar farms since 2014 to promote greater energy reliability and independence from Israel, but has made no investment in wind (Salah et al., 2021). This is slightly different from Jordan, which has made some strides in wind energy due to the greater area available for turbines and wind farms. Nonetheless, since the increase in droughts at the end of the 20th century and the beginning of the 21st century, both Palestine and Jordan have made significant efforts to increase their renewable energy production.

Based on comparing trends between Figures 2 and 3, it can be inferred that the increasing frequency of droughts in the region, and especially the eight years of severe widespread drought, was likely a reason for increasing the need for renewable energy investment. This was, in part, due to a need to promote water security. The changing weather patterns that led to drought-like conditions created a need for the government to move towards sustainability. To achieve this goal, both solar and wind energy have been deployed in Jordan to power reverse osmosis desalination via photovoltaic cells (Novosel et al., 2015). Due to the high average sunlight in the region, solar energy has far outpaced wind energy investments in both countries. However, there is a clear trend that renewable energy has become a larger part of the national energy grid since 2010. This is in part due to the frequency and intensity of droughts in the 1990s and 2000s.

The Economics of Drought

To determine if there was statistical significance between droughts and renewable energy investment, we performed a test with the Pearson correlation coefficient for Jordan. This helped us look for a correlation between drought and total renewable energy farms to answer whether the increasing droughts led to increased government investments in renewable solutions. When performing the calculations, we looked for significant droughts, classified as those that lasted more than 6 months, in Jordan from 2010 to 2016. We also looked at the total number of wind and solar farms built there in that same time period. The timeline was chosen due to availability of data on renewable energy projects during this time, which allowed us to test correlation. The number of droughts served as our independent variable (X), and the number of solar and wind farms built served as our dependent variable (Y).

Calculations

These calculations analyzed the period between 2010 and 2016. During this time, there were regional droughts for five straight years from 2010 to 2014, and we denoted each year with a drought in Table 1 as a 1 (IWMI, 2022). These numbers do not include dry spells or less significant small, short-term droughts. This is because those are less commonly tracked by the Jordanian government and have less direct impact on government policies. Based on a 2024 renewable energy projects report by the Jordanian government, significant renewable energy investment projects did not begin operations until 2015, when the first solar and wind farms were built. However, after 2015, investment by Jordan began to skyrocket, and 13 renewable energy farms were completed and operational in 2016 (Jordanian Government, 2024). We used the sum of products of the deviations of x and y and the equation R=SPxy/square root of (SSxSSy) and calculated a Pearson coefficient of -.85. The numbers are shown in Table 1.

YEAR	# OF DROUGHTS (X)	# OF SOLAR AND WIND FARMS (Y)	$(X-\bar{X})^2$	$(Y-\bar{Y})^2$	$(X-\bar{X})(Y-\bar{Y})$
2010	1	0	.084	5.9	-.705
2011	1	0	.084	5.9	-.705
2012	1	0	.084	5.9	-.705
2013	1	0	.084	5.9	-.705
2014	1	0	.084	5.9	-.705
2015	0	4	.504	2.46	-1.11
2016	0	13	.504	2.46	-7.5
	$\bar{X}$=.71	$\bar{Y}$=2.43	SSx=1.43	SSy=143.68	SPxy=-12.135

Table 1: *Data Found Used to Calculate Pearson Correlation Coefficient Based on a Report on Droughts by the Jordanian Government in 2024 and the IWMI in 2022.*

This indicates that there was a high statistical correlation between droughts and investment in renewable energies. However, the negative value was unexpected, since it indicates an inverse relationship between droughts and renewable investments. This is likely due to the years selected, considering there were no significant droughts in Jordan in 2015 and 2016, but that is when many renewable energy farms became fully operational for the first time (International Trade Administration, 2024). There will naturally be a temporal lag between when the government commissions solar and wind farms and when they become operational. We were only able to perform a Pearson correlation calculation with Jordan due to the lack of data on droughts in Palestine and its ambiguous legal status in the international community, but due to geographical similarity, it is reasonable to think the correlation would generally hold.

Qualitative

Palestine

The qualitative analysis of drought-related literature and policy reports revealed a consistent relationship between drought events and the development of environmental legislation in Palestine. The study categorized responses according to patterns of infrastructure development, water conservation, and legislative action. Findings show that Gaza suffered from extreme water scarcity due to over-extraction of the coastal aquifer, contamination from untreated wastewater, and limited rainfall, compounded by the political blockade (Mason, 2014). In the West Bank, groundwater resources were more abundant, but access was politically constrained, resulting in inequities in water distribution (Messerschmid, 2011). Data from the Status of the Environment in the State of Palestine (2015) indicated that over 90% of water extraction in Gaza exceeded sustainable limits, while in the West Bank, agricultural water use remained the largest sectoral consumer. It accounted for approximately 55% of total water resources (Isaac & Rishmawi, 2015). These vulnerabilities prompted targeted legislation that emphasized equitable water allocation, climate-resilient agriculture, and emergency water planning.

In Palestine, policy responses focused strongly on infrastructure, and adaptive strategies were directly linked to drought events. The creation of the National Water Strategy in 2012 highlighted investments in rainwater harvesting, desalination, and wastewater treatment, with institutional reforms that improved water allocation and management efficiency (Palestinian Water Authority, 2012). Additional analyses suggested that these measures were influenced by both regional security concerns and the intersection of water scarcity with migration patterns, highlighting the broader socio-political context of environmental policy (Weinthal et al., 2015). Overall, the findings indicated that droughts served as catalysts for environmental legislation and infrastructure development, though financial limitations and political constraints, especially in Gaza, continued to challenge the full effectiveness of policy.

Analysis of existing literature and government data revealed a clear connection between periods of severe drought and subsequent environmental policy responses in Palestine. Major drought events were recorded between 2000 and 2003, and again from 2007 to 2011, with prolonged water scarcity and heightened vulnerability in both the West Bank and Gaza (Abdo, n.d.). In response, a series of policy measures was enacted, including Water Law No. 3 in 2002, which established the legal framework for water allocation and management (Ecolex, n.d.). This was followed by the adoption of Integrated Water Resources Management (IWRM) in 2003 to coordinate sustainable use of limited water resources (Palestinian Water Authority, 2012). Later droughts coincided with additional policy and funding initiatives, including the alignment of the Sustainable Development Goals from 2009 to 2011 (United Nations, 2012) and the Palestinian Water Authority (PWA) National Water Strategy in 2012 and 2013 (Palestinian Water Authority, 2012). These policy efforts were reinforced through broader development planning, such as the Palestinian Reform & Development Plan and subsequent National Development Plans (2011–2013 & 2014–2016), which explicitly prioritized water infrastructure, renewable energy investments, and sustainable management in drought-prone regions (Palestinian National Authority, n.d.). Collectively, this data indicated that periods of drought prompted direct policy initiatives and funding for renewable water infrastructure and integrated resource management.

Jordan

In Jordan, droughts have been a central driver of water governance reform. Al Adaileh et al. (2019) developed a drought-adaptation management system using a Combined Drought Index; the results showed that prolonged droughts in Jordan have lasted up to 13 consecutive years, with high spatial and temporal variability in severity. The Azraq and Dead Sea basins were identified as most vulnerable due to over-extraction and low adaptive capacity. At the same time, the Disi and Yarmouk basins also exhibited high vulnerability because of weak enforcement of transboundary agreements (Al Adaileh et al., 2019). The study further highlighted that adaptation capacity was limited by institutional, economic, and technological-related factors (Al Adaileh et al., 2019).

Other literature confirms that these vulnerabilities have driven policy reform. Jordan's water sector has historically suffered from over-exploitation of groundwater, reliance on shared basins, and insufficient regulatory enforcement. In response, the Ministry of Water and Irrigation (MWI) established a Drought Management Unit. It adopted a formal Water Sector Policy for Drought Management in 2018, emphasizing early-warning systems, contingency planning, and integrated governance (United Nations, 2012). Cooperative initiatives, such as partnerships between the International Center for Agricultural Research in the Dry Areas and MWI, also supported technology transfer and the development of nature-based solutions to enhance adaptive capacities (ICARDA, 2022). These results indicate that scientific identification of drought risks has catalyzed environmental legislation and strategic planning.

Similarly, in Jordan, there was also a clear link between periods of severe drought and subsequent policy responses aimed at sustainable water management and renewable energy development. Key drought events occurred in 2000–2001, 2007–2009, and spatially variable droughts from 2010–2014 (IWMI, 2023). In response, Jordan implemented comprehensive policy measures, including the National Water Strategy (2008), to prioritize water resource planning, supply security, and drought resilience (Ministry of Water and Irrigation, 2009). Additionally, the Renewable Energy and Energy Efficiency Law (2010) provided a legal and financial framework for investing in solar, wind, and energy efficiency projects to reduce climate vulnerability (Ministry of Energy and Mineral Resources, 2012). Additionally, Integrated Water Resources Management (IWRM) initiatives, launched in the early 2000s and codified through formal legislation, facilitated coordinated planning across surface and groundwater resources to improve resilience to drought shocks (Rahaman & Varis, 2005). These interventions indicated that major drought events shifted Jordan's policy priorities, prompting legislative action and targeted funding for renewable water infrastructure.

Discussion

The main objective of our paper was to analyze the relationship between renewable energy and drought patterns in the Levant by taking a deep dive into policies implemented by Jordan and Palestine. We examined drought patterns from 1995 to 2016 in Jordan, and researched the opening of solar and wind farms in both nations from the 2010s up until 2021. Upon performing a quantitative and qualitative analysis, we determined that, while increasing drought frequencies and intensities in the region likely played a role in increasing renewable investments due to their uses in desalination projects, a determination cannot be made with absolute certainty that droughts were the sole reason for this change. However, these findings are an important basis for continued research into how and why solar and wind have been implemented in these countries, and for an investigation into future potential implementations of these technologies by countries in the Levant.

Drought Frequency

Droughts have the potential to significantly alter the livelihoods of the people living in the Levant region. They can both change agricultural production and help change government investment in infrastructure. We decided to investigate this relationship and analyzed drought patterns in Jordan and Palestine from 1995 to 2010 for the first part of our research. We chose this time frame because two of the worst long-term droughts to hit the region in human history, from 1998 to 2001 and 2007 to 2008, occurred in that span. However, there were still a number of years where precipitation conditions were considered normal (IWMI, 2022). It is nearly impossible to make a sweeping analysis of climatic conditions based on only 15 years, which is why we used a qualitative approach primarily for this topic to determine the validity of our question and the potential impacts these droughts have on populations.

There was significant research done previously on droughts in the Levant. A previous study by Al Qinna et. al (2011) found that the average intensity, frequency, and duration of droughts had increased in Jordan from 1970 to

2005, and most significantly from 1995 to 2005. This data was corroborated in a report by RCCC in 2024, where it was discovered that mean annual temperatures had increased by 0.3°C every decade from 1961-2015, and mean annual precipitation had decreased across this same period (RCCC, 2024). Table 1 of our results showed the numbers of each type of drought that occurred in Jordan from 1995 to 2010, found using data from the Jordanian government reports on what they classified as droughts in that time span. When looking at our data, we saw this pattern of drought frequency, with eight of the sixteen years investigated being under extreme drought (IWMI, 2022). Additionally, while not graphed, the period from 1995 to 2005 had drought conditions in 1995, from 1997 to 2001, and from 2001 to 2002 (IWMI, 2022). Al Qinna et. al (2011) specifically pointed towards as extreme in their own research. Our research, shown in Figure 2, supports these findings while adding additional nuance as to which type of drought is becoming more frequent. Many previous studies focused on this idea of drought frequency and intensity, but they rarely specified what types of droughts were increasing in frequency or if parts of the country were experiencing this on a worse scale. That gap in the literature was what our data collection was able to help supplement.

Understanding the type of drought impacting a country is important because of the nature of droughts. Droughts, at their largest scale, impact everyone in a country in some way, most significantly in agricultural production. The IPCC wrote, with high confidence, that “climate change has reduced food security and affected water security due to warming, changing precipitation patterns…, and greater frequency and intensity of climatic extremes” (IPCC, 2023). If droughts continue to worsen and increase in frequency, it puts millions of people in the Levant at risk of water insecurity and food scarcity due to limited agricultural production. This is especially true for Jordan, where the amount of renewable water available each year fell from 500 cubic meters per person to less than 100 cubic meters per person from 1975 to 2017 (IWMI, 2022). The global water poverty line, for reference, is 1000 cubic meters per person (IWMI, 2022). These implications are why research into drought types is so vital and should be expanded upon in future papers. Water is, by far, the most essential natural resource to human development due to its role in agriculture and industry. Additionally, in the IPCC’s Sixth Assessment Report, it was predicted that the increasing aridity and drought in the Levant could enhance wildfire conditions (IPCC, 2021). The increasing change in weather patterns has a likelihood of significantly altering lives in the region.

Our quantitative and qualitative approach to this topic, where we expanded on previous research by diving into the specific types of droughts in Jordan from 1995 to 2010, is a good foundation for continuing further research on this topic. It is important to know the exact type of drought, as illustrated in Figure 2 of our results and findings, because different kinds can impact agriculture in different ways. The vast majority of droughts from 1995 to 2010 were extreme and covered the whole country, but there were still three years of localized droughts. While we did not elaborate on where they were or their influence on agriculture, future research could be done to examine the most vulnerable parts of the country or how exactly localized droughts impact agricultural production, depending on the area. There is also more that can be done for researching droughts in Palestine, as data is currently lacking in that area. In addition, knowing the intensity and frequency of various droughts is an essential foundation for understanding country expansion in renewable energy facilities. Research surrounding drought frequency contextualized the second part of our research question on whether there was a correlation between droughts and renewable energy operations in Jordan and Palestine.

Renewable Energy Policies

Quantitatively, we calculated the Pearson correlation coefficient to test for correlation between droughts and renewable energy farms between 2010 and 2016. It was discovered that there is a significant correlation between droughts and renewable energy investment in Jordan, but not in the direction we expected. The correlation was negative, which indicated an inverse relationship between droughts and renewable investments. This is likely because of several factors, most notably the temporal lag between droughts and government investments. It takes time after significant drought events occur to complete these solar and wind farms due to the need for the proper infrastructure and location. Thus, the correlation will appear weaker. A better choice of analysis when calculating this Pearson correlation would have been to calculate it with the years the renewable farms were commissioned, as opposed to when they were completed. Additionally, droughts remain unpredictable long-term under a constantly changing environment, so it is difficult to determine correlation when only looking across a seven-year span (Hao et al., 2018). Due to the years selected and our units of measurement, it is difficult to say with certainty, from only looking at statistical analysis, that our claim that increasing drought frequency and intensity promoted greater renewable investment holds true. While droughts were likely a reason for increasing investment, there were certainly other factors too, such as a wish for energy independence. Despite the unexpected results from the Pearson test, our qualitative analysis does provide some support that the increasing intensity of droughts in the 2000s and 2010s spurred important renewable energy legislation to tackle the water crisis.

The qualitative analysis demonstrates that droughts in both Palestine and Jordan produced similar environmental policy and investment focus, but each state had a different capacity to respond effectively. Both states sustained major droughts in the 2000s that were followed by new water laws and strategies, such as Water Resources Management. This suggests that droughts acted as drivers for government re-evaluation of water strategy. Jordan’s sovereign monarch allowed for these new focuses to lead to infrastructural and policy action. This includes the National Water Strategy, the Renewable Energy, Energy Efficiency Law, and donor-backed solar and wind projects intended to improve water security. Conversely, Palestine responded to droughts through more strategic policy like Water Law No. 3 and IWRM adoption. Palestine remained constrained by Israeli control over aquifers and restrictions on movement and imports at the same time as advancements were being made. These comparisons led to the conclusion that Jordan was able to take the newly fueled water scarcity messaging to implement renewable energy infrastructure that also aids with water management, while at the same time, Palestine was more focused on water equitability concerns and planned for subsequent emergencies alongside smaller renewable energy infrastructure. This research draws broad conclusions about the notable impact droughts have on governmental climate and energy focus, but it also suggests that each government's ability to respond to concerns has very real economic and political strains

Limitations

While researching this topic, we identified several limitations that hindered our research. The most significant was the lack of data available due to Palestine's ambiguous status in world politics. The government restricts what information is publicly available on the topics of drought and sustainability. There has not been emphasis on empirical collection of drought data, and it was difficult to collect information on renewable energy investments, due to a lack of published reports from the government. Also, renewable energy investment is not a historical focus of the Palestinian government or other research papers. Thus, we had to make numerous assumptions that drought conditions in Jordan would also be experienced in Palestine because of their geographical similarities as neighboring states. Our assumptions about Palestine likely skewed the data and hindered our data collection. The lack of widely available data impacted both our quantitative and qualitative analyses for Palestine, but also presented a difficulty with Jordan as well. What the Jordanian government considers a drought often varies from the general consensus in the literature on drought, as it tends to define droughts by a lower threshold. There were a couple of years, for example, 1997, that the Jordanian government considered as having drought-like conditions, but few other papers consider that as a year of major drought. These competing sources of information made analysis difficult.

Quantitatively, it was challenging to perform statistical tests due to the nature of our years studied from 1995 to 2016. Historically, much research on drought in the Levant has been focused on a long-term increasing trend in drought frequency and intensity. Focusing only on a 20-year span limits our quantitative research on climate trends because climate trends are typically analyzed over the course of multiple decades. Therefore, we were severely limited in what kinds of statistical tests we could run. This also skewed our results in an unexpected way, as we had not anticipated a negative Pearson correlation. Additionally, drought patterns are still irregular, even if they are becoming more frequent. While it is relatively easy to see that the intense droughts experienced in the 2000s spurred government investment in the renewable energy farms that began operating in 2015, many statistical tests comparing the two factors from 2010 to 2016 did not show a direct correlation as not every year had the severe drought conditions we were measuring. This was a key limitation of our paper and had an influence on our quantitative analysis because we were only analyzing severe droughts over a 220-year period.

Our last major limitation was our limited time frame. We are all university students and only had the length of the semester for the research process. This shorter time span limited our ability to collect resources, such as not being able to physically travel to their locations to collect data. With more time, we would have wanted to spend more time running different analyses with our gathered data material as well.

Conclusion

This study finds that severe and consistent droughts in Palestine and Jordan helped push environmental policy and renewable energy investment forward, but they did so in concert with other political and economic forces. In Jordan, extreme droughts in the 1990s, 2000s, and 2010s were followed by a significant rise in solar and wind farms. These were made possible through policies such as the National Weather Strategy and the Renewable Energy and Efficiency Law. This aligns with our Pearson correlation, which indicates a strong correlation between renewable projects and drought patterns; the negative correlation may reflect a time lag between droughts and the completion of renewable infrastructure. In Palestine, major drought periods coincided with new water legislation, such as the adoption of Integrated Water Resources Management. Additionally, there was an increase in national strategies that emphasized drought and subsequent water scarcity as key drivers of new infrastructure. These findings corroborate previous literature that connects climate change to increased drought risk, and drought episodes can shape the timing and substance of environmental policy and energy infrastructure.

Our research also finds that droughts are only part of the equation. Jordan's dependence on imported fossil fuels and external donors, and Palestine's constrained sovereignty and hydro political inequalities, were also significant factors in when and how environmental policy and energy infrastructure were pursued. The limited and uneven data, especially in Palestine, and our time constraints for research purposes, calls for further investigation to affirm our findings. Future research could expand the time period of analysis and compare Jordan and Palestine with other Levantine states. Despite these limitations, our findings have significant implications, suggesting that in water-scarce and politically tumultuous regions, effective climate adaptation requires technical solutions such as renewable infrastructure alongside governmental and economic reform. Understanding how droughts interact with these structures is crucial in order for policymakers and donors to design practical and equitable solutions.

References

Aladaileh, H., Al-Qinna, M., Karoly, B., Al-Karablieh, E., & Rakonczai, J. (2019). An investigation into the spatial and temporal variability of the meteorological drought in Jordan. *Climate*, *7*(6):82. https://doi.org/10.3390/cli7060082

Al-Qinna, M. I., Hammouri, N. A., Obeidat, M. M., & Ahmad, F. Y. (2011). Drought analysis in Jordan under current and future climates. *Climatic Change*, *106*, 421–440. https://doi.org/10.1007/s10584-010-9954-y

Amnesty International USA. (2023, October 26). *Troubled waters: Palestinians denied fair access to water.* https://www.amnestyusa.org/blog/troubled-waters-palestinians-denied-fair-access-to-water/

Barlow, M., Zaitchik, B., Paz, S., Black, E., Evans, J., & Hoell, A. (2016). A review of drought in the Middle East and Southwest Asia. *Journal of Climate*, *29*(23), 8547–8574. https://doi.org/10.1175/JCLI-D-13-00692.1

Broich, J. (2013). British water policy in Mandate Palestine: Environmental Orientalism and social transformation. *Environment and History*, *19*(3). https://doi.org/10.3197/096734013X13690716950028

Brooks, D. B. & Trottier, J. (2017). A new paradigm for transboundary water agreements: The opportunity for Israel and Palestine. In Dinar, A. & Tsur, Y. (Eds.), *Management of transboundary water resources under scarcity: A multidisciplinary approach*, (pp. 159-187). World Scientific.

Abdo, K.M. (n.d.). *Drought conditions and management strategies in Palestine.* Ministry of Agriculture. https://www.droughtmanagement.info/literature/UNW-DPC_NDMP_Country_Report_Palestine_2014.pdf

Ecolex. (n.d.). *Water Law No.3 of 2002*. https://www.ecolex.org/fr/details/legislation/water-law-no3-of-2002-lex-faoc147311/

Ghasemifar, E., Sonboli, Z., & Hedayatizade, M. (2023). Comprehensive analysis of droughts over the Middle East using IMERG data (2001–2020). *Journal of Atmospheric and Solar-Terrestrial Physics*, *252*, 106135. https://doi.org/10.1016/j.jastp.2023.106135

Haddadin, M. J. (2002). Diplomacy on the Jordan. *Springer*. https://link.springer.com/book/10.1007/978-1-4615-1513-5

Hao, Z., Singh, V. P., & Xia, Y. (2018). Seasonal drought prediction: Advances, challenges, and future prospects. *Reviews of Geophysics*, 56(1), 108–141. https://doi.org/10.1002/2016RG000549

Hochberg, M. (2015, August 19). *Jordan's energy future: A path forward*. Middle East Institute. https://www.mei.edu/publications/jordans-energy-future-path-forward

ICARDA. (n.d.). *ICARDA and Jordan partner to advance cooperation on water and climate change adaptation.* https://icarda.org/media/news/icarda-and-jordan-partner-advance-cooperation-water-and-climate-change-adaptation

Israel Academy of Sciences and Humanities, Palestine Academy for Science and Technology, Society, R.S., & Jordan and National Academy of Sciences (US) Committee on Sustainable Water Supplies in the Middle East. (1999, January 1). *Water for the Future: The West Bank and Gaza Strip, Israel, and Jordan*. National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK230239/

International Renewable Energy Agency. (2019, January). *Renewable energy market analysis: GCC 2019*. https://www.irena.org/publications/2019/Jan/Renewable-Energy-Market-Analysis-GCC-2019

International Trade Administration. (2024, January 17). *Jordan - renewable energy*. https://www.trade.gov/country-commercial-guides/jordan-renewable-energy

IPCC. (2021). *Climate change 2021: The physical science basis*. https://www.ipcc.ch/report/ar6/wg1/

IPCC. (2023). *Climate change 2023: Synthesis report*. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf

Issac, J. & Rishmawi, K. (2015). *Status of the environment in the state of Palestine.* Applied Research Institute–Jerusalem. https://www.arij.org/wp-content/uploads/2016/06/Final_SOER_2015_opt_r.pdf

IWMI. (2003). *Development of effective water-management institutions, final report, vol.IV: Country study reports and action plans.* https://hdl.handle.net/10568/39648

IWMI. (2022). *National drought action plan of Jordan*. https://menadrought.iwmi.org/wp-content/uploads/sites/44/2023/02/combined_jordan_dap.pdf

IWMI. (2023). *MENAdrought synthesis of drought vulnerability in Jordan.* https://menadrought.iwmi.org/wp-content/uploads/sites/44/2022/03/menadrought_synthesis_of_drought_vulnerability_in_jordan.pdf

Jomaa, I., Choker, M., El Haj, N., Saab. M. T., Funaro, M., & Mereu, S. (2024). Levant drought occurrence, Lebanon case. *Atmospheric and Climate Sciences, 14*(1), 118-127. https://doi.org/10.4236/acs.2024.141007

Kaniewski, D., Van Campo, E., & Weiss, H. (2012). Drought is a recurring challenge in the Middle East. *Proceedings of the National Academy of Sciences*, *109*(10), 3862–3867. https://doi.org/10.1073/pnas.1116304109

Karner, M. A. (2012). Hydropolitics in the Jordan River Basin: The conflict and cooperation potential of water in the Israeli-Palestinian conflict (Master's thesis). *Trinity College Dublin.* https://transboundarywaters.ceoas.oregonstate.edu/ …

Katz, D. (2022). Basin management under conditions of scarcity: The transformation of the Jordan River Basin. *Water, 14*(10), 1605. https://doi.org/10.3390/w14101605

Lucas, R. E. (2004). Monarchical authoritarianism: Survival and political liberalization in a Middle Eastern regime type. *International Journal of Middle East Studies*, *36*(1), 103–119. https://doi.org/10.1017/S0020743804361064

Mason, M., Zeitoun, M., & Mimi, Z. (2012). Compounding vulnerability: Impacts of climate change on Palestinians. *Journal of Palestine Studies*, *41*(3), 38–53. https://doi.org/10.1525/jps.2012.xli.3.38

Messerschmid, C. (2011). Water in Gaza: Problems and prospects [Birzeit University working paper No. 2011/19]. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1764252

Ministry of Energy and Mineral Resources. (2012). *Renewable energy and energy efficiency law (Law No. 13 of 2012).* https://www.memr.gov.jo/EN/ListDetails/Projects/72/18?

National Oceanic and Atmospheric Administration. (2006). *Drought fact sheet.* https://gml.noaa.gov/

National Oceanic and Atmospheric Administration. (2009). *What are El Niño and La Niña?* https://oceanservice.noaa.gov/facts/ninonina.html

Ministry of Water & Irrigation. (n.d.). *National Water Strategy 2016–2025.* https://faolex.fao.org/docs/pdf/jor156264E.pdf

National Water Strategy for Palestine. (n.d.). *Palestinian Water Authority*. https://water.fanack.com/

Novosel, T., Ćosić, B., Pukšec, T., Krajačić, G., Duić, N., Mathiesen, B., Lund, H., & Mustafa, M. (2015). Integration of renewables and desalination in Jordan. *Energy*, *92*, 270–278. https://doi.org/10.1016/j.energy.2015.06.057
Palestinian National Authority. (n.d.). *Reform and development plan 2008–2010*. https://mptf.undp.org/sites/default/files/documents/10000/palestinian_reform_and_development_plan_2008-10.pdf
Palestinian Water Authority. (2012). *National water strategy for Palestine.* https://water.fanack.com/wp-content/uploads/2015/12/PWA-National-Water-Strategy.pdf
Pitman, G. T. K. (2004). Jordan: An evaluation of Bank assistance for water development and management. World Bank Operations Evaluation Department. https://documents1.worldbank.org/curated/en/590281468273647134/pdf/821050WP0jorda00Box379853B00PUBLIC0.pdf
Rahaman, M. M. & Varis, O. (2005). *Sustainability: Science, practice, & policy, 1*(1), 15-21. https://doi.org/10.1080/15487733.2005.11907961
Rahman, K., Gorelick, S. M., Dennedy-Frank, P. J., Yoon, J., & Rajaratnam, B. (2015). Declining rainfall and regional variability changes in Jordan. *Water Resources Research, 51*(5), 3828–3835. https://doi.org/10.1002/2015WR017153
RCCC - Red Crescent Climate Center. (2024). *Jordan: Climate fact sheet*. https://www.climatecentre.org/wp-content/uploads/RCCC-Country-profiles-Jordan-2024_final.pdf
Rouyer, A. (2025, July 29). *Basic needs vs. swimming pools*. Middle East Research and Information Project. https://www.merip.org/2003/06/basic-needs-vs-swimming-pools/
Ryan, C. R. (2011). Political opposition and reform coalitions in Jordan. *British Journal of Middle Eastern Studies*, *38*(3), 367–390. https://doi.org/10.1080/13530194.2011.621699
Saaroni, H., Ziv, B., Lempert, J., Gazit, Y., & Morin, E. (2014). Prolonged dry spells in the Levant region. *International Journal of Climatology*. https://doi.org/10.1002/joc.4143
Salah, W. A., Abuhelwa, M., & Bashir, M. J. K. (2021). The role of renewable energy technologies in Palestine. *Journal of Cleaner Production*, *293*, 125348. https://doi.org/10.1016/j.jclepro.2020.125348
Salameh, E., Abdallat, G., & van der Valk, M. (2019). Planning considerations of managed aquifer recharge (MAR) projects in Jordan. *Water*, *11*(2), 182. https://doi.org/10.3390/w11020182
Salameh, M. B., Ananzeh, A., & Daradkah, M. (2018). The impact of economic reform on political reform: Jordan as a model. *American Journal of Industrial and Business Management*, *8*(6), 1556–1586. https://doi.org/10.4236/ajibm.2018.86105
Schorr, D. (2021). Horizontal and vertical influences in colonial legal transplantation: Water bylaws in British Palestine. *American Journal of Legal History, 61*(3), 308-331. https://doi.org/10.1093/ajlh/njab015
Spinoni, J., Naumann, G., Carrao, H., Barbosa, P., & Vogt, J. (2014). World drought frequency, duration, and severity for 1951-2010. *International Journal of Climatology*, *34*(8), 2792-2804. https://doi.org/10.1002/joc.3875
Scott, C. A., El-Naser, H., Hagan, R. E., & Hijazi, A. (2003). Facing water scarcity in Jordan. *Water International*, *28*(2), 209–216. https://doi.org/10.1080/02508060308691686
Selby, J. (2013). Cooperation, domination and colonisation: The Israeli-Palestinian joint water committee. *Water Alternatives, 6*(1), 1–24. https://www.water-alternatives.org/index.php/allabs/196-a6-1-1/file
United Nations Digital Library. (1947). *Text of Mandate [for Palestine]*: *Note* / by the Secretary-General. https://digitallibrary.un.org/record/829707?ln=en&v=pdf
United Nations. (1992). *Water resources of the occupied Palestinian territory* [Report]. https://www.un.org/unispal/document/
United Nations. (2012). *Sustainable development under Israeli occupation*. https://sustainabledevelopment.un.org/content/documents/1024palestine.pdf
United Nations. (n.d.). *The origins and evolution of the Palestine problem, part I: 1917-1947.* https://www.un.org/unispal/document/auto-insert-199840/
United Nations. (n.d.). *Water resources of the occupied Palestinian territory*. https://www.un.org/unispal/document/auto-insert-197919/
Weinthal, E., Zawahri, N., & Sowers, J. (2015). Securitizing water, climate, and migration in Israel, Jordan, and Syria. *International Environmental Agreements*, *15*(3), 293-307. https://doi.org/10.1007/s10784-015-9279-4
Wolf, A.T. (1995). *Hydropolitics along the Jordan River: Scarce water and its impact on the Arab-Israeli conflict.* United Nations University Press.
World Bank. (2009, April). *Assessment of restrictions on Palestinian water sector development [report]*. https://documents1.worldbank.org/curated/en/775491468139782240/pdf/476570SR0P11511nsReport18Apr2009111.pdf
World Bank Group. (2018). An investigation into the spatial and temporal variability of meteorological drought in Jordan. *Climate,* 7(6), 82. https://doi.org/10.3390/cli7060082
Ziv, B., Dayan, U., Kushnir, Y., Roth, C., & Enzel, Y. (2006). Regional and global atmospheric patterns governing rainfall in the southern Levant. *International Journal of Climatology, 26*(1), 55-73. https://doi.org/10.1002/joc.1238

Political Environments and AI Surveillance: A Comparative Analysis of India and Singapore

Maggie Hartman, Anna Sagui, Hannah Olson

Our research investigates how the political climates in India and Singapore influence the use of AI surveillance technology in both countries. The main focuses of the paper include the governing ideologies of India and Singapore, how legal frameworks in both countries impact the government's ability to use AI surveillance, how surveillance impacts civil liberties, and how surveillance practices in both countries influence governments throughout Southeast Asia. We analyzed specific laws, surveillance technologies, and reports from NGOs to determine patterns in levels of civil liberties and AI surveillance. While AI surveillance is connected to a decline in civil liberties in both countries, the motivations behind surveillance vary due to political differences between India and Singapore. In India, the Hindu nationalist ideology of the ruling party contributes to an encroachment on civil liberties, which is partially achieved through AI surveillance. In Singapore, the government convinces the public to accept surveillance by positioning it as a matter of convenience and technological advancement. We concluded that the political climates in India and Singapore heavily influence how those governments use AI surveillance to maintain and consolidate power. Furthermore, within Southeast Asia, India and Singapore influence other nations by normalizing surveillance technology, which makes the threat to civil liberties a broader regional problem.

Introduction

Within the last decade, the rapid advancement and implementation of artificial intelligence (AI) technologies in both India and Singapore have transformed state surveillance practices. This is primarily due to the vast number of emerging technologies; however, the differences in implementation depend on the unique political contexts of both countries. India is classified as a federal parliamentary republic, and the government operates under the principle of a democratic republic. Singapore in contrast is classified as a parliamentary republic, but operates as a dominant-party state, with the People's Action Party (PAP) holding power since independence. India's surveillance growth in the last decade has been significantly influenced by the rise of Hindutva ideology and the consolidation of power by Prime Minister Narendra Modi and his Bharatiya Janata Party (BJP). Since 2014, the government's approach to AI surveillance has been marked by the absence of robust, rights-preserving constraints, especially against Muslims. Attacks on democracy and secularism characterize Hindutva ideology and lead to discrimination against Muslims, who make up approximately 14% of India's population (Chowdhury, 2022; Donahue Singh, 2020).

Similarly, public polling indicates broad acceptance of AI surveillance technologies in India. However, considerable opposition persists among media and civil society groups, such as the Internet Freedom Foundation, who believe the government has not transparently informed citizens about the scope and impact of surveillance (Internet Freedom Foundation, n.d.). Despite these efforts, AI surveillance has deepened discrimination against minorities and has become a tool to consolidate power for the Hindu nationalist ideology. This is significant, for India being classified as a democracy, it is crucial to recognize and hold the government accountable for challenges to the freedoms of speech and privacy. Ultimately, understanding the role of political culture in shaping India's approach to AI surveillance is crucial for ensuring that democratic values are upheld in the face of AI technology.

The Singapore government, led by the People's Action Party (PAP), has promoted the adoption of AI in an effort to position the country as a global leader in technological advancement. Since 2014, the government has released multiple public documents to advance the country's AI implementation, including a National AI Strategy in 2019 and an updated NAIS 2.0 in 2023. AI surveillance in Singapore has been extensively applied to various sectors, including policing, health screening, and security applications. The PAP aims to normalize AI use in a way that promotes public acceptance; however, the lack of legal safeguards and government regulation allows the PAP to manipulate information, clamp down on dissent, erode individual freedoms, and further expand its data surveillance. The political influence behind this AI implementation is influential in recognizing how AI adoption can both be framed as a positive advancement for citizens while simultaneously being used in violation of citizens' privacy rights. Privacy rights include citizens' right to informed consent and transparency on AI surveillance regulation, data privacy regarding their personal information, and the ability to opt out of AI surveillance.

In this paper, we analyze the prevalence and role that political influence has on AI implementation, focusing on India and Singapore as they are both leaders in AI adoption with contrasting political systems. Both countries are significant influences on the broader Pacific Asian region, allowing for a comprehensive analysis to be applied broadly to the AI surveillance practices of many countries in the region. This study aims to be illustrative rather than exhaustive, focusing on the context of state power, ideology, and governance models, as well as their impact on AI surveillance over the past decade.

Review of the Literature

Since 2015, the political climates of India and Singapore have influenced the implementation of Artificial Intelligence (AI) surveillance within each country. Extensive literature has analyzed the political cultures, the adoption of AI, and the ways these factors influence both India and Singapore. This enables a meaningful comparison of how innovation, technology, and society intersect in the influence of AI surveillance on political regulation and laws.

India's Political Climate

In recent years, a form of Hindu nationalist ideology called Hindutva has gained traction in India, and concerns about national identity have dominated Indian political debates (Sahoo, 2020). Hindutva became a governing ideology in 2014 with the election of Prime Minister Narendra Modi and his Bharatiya Janata Party (BJP) (Aiyar, 2020; Sahoo, 2020). Attacks on democracy and secularism characterize Hindutva ideology and lead to discrimination against Muslims, who make up approximately 14% of India's population (Chowdhury, 2022; Donahue Singh, 2020).

Analysts have debated the extent of the BJP's popularity since the party's victory in 2014 (Aiyar, 2020). Chowdhury (2022) argue that the BJP's popularity has increased, highlighting the fact that the BJP won a larger vote share in Parliament in 2019, with 303 out of 543 seats, compared to 282 seats in 2014. However, other research emphasizes that the BJP's power has limits (Aiyar, 2020). For instance, the courts have ruled against the Modi government on key issues, such as when India's Supreme Court struck down the government's attempts to take over state governments controlled by the rival Congress Party. Additionally, parties that once formed a coalition with the BJP now collaborate with other parties (Aiyar, 2020). Despite this, Chowdhury (2022) cited metrics like state-level election results and opinion polls to argue the BJP's enduring popularity. As Aiyar (2020) argues, India is still a democracy, albeit a flawed one. Therefore, exploring the extent to which public opinion aligns with the government's actions and how the government responds to shifts in public opinion will provide greater insight into how the Indian government approaches contentious issues, such as AI surveillance.

One instance where the government's actions match public opinion is its actions towards the Muslim population. Hindutva ideology not only conflates Indian identity with Hinduism but also promotes a range of discriminatory actions against Muslims. This discrimination comes in the form of laws, such as the Citizenship Amendment Act (2019), which denies citizenship to Muslim immigrants. Additionally, BJP politicians have often engaged in anti-Muslim rhetoric (Chowdhury, 2022). Such rhetoric is especially effective because it assigns blame for complicated problems on a single group of people (Chowdhury, 2022). Lynchings of Muslims by Hindu vigilantes indicate that these perspectives may have serious consequences (Aiyar, 2020). However, most existing literature does not connect this extreme rhetoric with systemic discrimination, which has less obvious consequences than outright violence.

One such consequence is the influence of societal prejudice on AI surveillance algorithms used by law enforcement. Algorithms have biases that reflect societal prejudice, which in this case is a bias against Muslims. India's National Crime Bureau wants to implement a national system of facial recognition (Tiwari, 2023). Given the Indian government's attempts to suppress protest movements, such as the farmers' protests from recent years, police journalists, and discriminate against religious minorities, the adoption of these new technologies should be a concern (Aiyar, 2020; Tiwari, 2023). This paper aims to pinpoint specific features of AI technologies and weaknesses in the regulatory framework that could lead to these technologies being used in a discriminatory manner.

Another important question is to what extent the Modi government's attempts to consolidate power influence how it uses AI surveillance technologies. Modi's government has politicized independent institutions, such as the electoral commission, leading to a decline in democracy (Chowdhury, 2022). Existing research papers on India's democratic decline generally rely on organizations such as the Economist Intelligence Unit and Freedom House to assess levels of democracy (Chowdhury, 2022; Sahoo, 2020). Freedom House considers India to be "partially free" with a score of 32 out of 60 for the Civil Liberties Ranking (Freedom House, 2025). Therefore, new research must consider the Modi government and its efforts to consolidate power when assessing its motivations for utilizing AI surveillance technology.

When discussing democratic decline in India, many papers emphasize challenges such as internet freedom that both predate and are exacerbated by the Modi government. India's Internet Freedom Ranking is "partially free" at 50 out of 100 points because both public and private Internet Service Providers (ISPs) censor certain content, though the level of censorship varies across ISPs (Freedom House, 2025). Press freedom is an additional concern. India ranked 135th out of 180 countries for press freedom in 2015 and is now ranked 151st in 2025, according to Reporters Without Borders (Chadha & Arya, 2021; Reporters Without Borders, 2025). Over the past several decades, the Central Bureau of Investigation, India's federal investigative body, has launched investigations into media outlets that criticized the government (Chadha & Arya, 2021). Such investigations have become more frequent during Modi's tenure as Prime Minister, as have other threats to press freedom. For example, in 2018, a large team of people at the Ministry of Information conducted surveillance on the major Indian news channel ABP. Intimidation of journalists is also a concern, especially in the Kashmir region, where journalists report facing intense pressure to reveal their sources (Chadha & Arya, 2021). Current threats to civil liberties risk being exacerbated by ever-improving AI surveillance technologies in the years to come.

While some sources focus on democratic decline in India before the advent of the Modi government, other sources emphasize the decline in civil liberties in India since 2014 due to the Modi government's attempts to consolidate power and discriminate against the Muslim population. Combined with the advent of AI surveillance technologies used by law enforcement, the Modi government's attempts to consolidate power raise concerns that AI could become another tool that the Indian government can use to suppress freedom of expression.

Singapore's Political Climate

Singapore gained independence from British colonial rule in 1965. Since then, the People's Action Party (PAP), a center-right political party, has remained the dominant ruling party (Zhu, 2023). Singapore's attainment of self-government and independence was facilitated by the PAP's composition of parliament and the design of the electoral system (Yeo, 2002). Singapore's government is a republic with a parliamentary system, established as a limited democracy rather than a Western-style liberal democracy. The Prime Minister, appointed by the President, is typically the leader of the political party holding the majority of parliamentary seats. Along with the Cabinet, the Prime Minister holds the central political position (PARL, 2024). The political environment in Singapore has enabled the PAP to establish authoritarian rule and influence over the general infrastructure, both within and outside of AI implementation. The PAP has won every general election, maintaining a 66-year unbroken rule and virtually unbroken parliamentary dominance (Zhu, 2023). However, this dominance has not always resulted from a fair election process. Many researchers note that freedom in Singapore has been severely reduced, raising questions regarding the rule of law in political cases and 'fair' elections. Several mechanisms have been introduced into law to weaponize the PAP majority and weaken the opposition's chances of challenging and winning seats in parliament, ultimately gaining a majority (Ortmann, 2023). Under the Singapore Constitution, a general election must be held within three months of the dissolution of Parliament, which has a maximum term of five years from the date of its first sitting (Attorney-General's Chambers, 1963). In the last three elections over the past decade, 97 seats in Parliament were contested in the 2025 election, up from 89 in the 2015 election (Elections Department Singapore, 2025). In 2015, the PAP won 83 seats and the opposition Workers' Party won six. The Workers' Party, the opposition, gained an additional four seats in the 2020 election and retained its 10 seats in the 2025 election (Elections Department Singapore, 2025). The PAP, however, still maintained a large majority, with 83 seats in 2020 and 87 seats in 2025, indicating that the PAP has continued to secure widespread electoral support and implement policies without much pushback or checks and balances (Elections Department Singapore, 2025). The consolidation of power in the PAP is a key indicator of the AI surveillance environment, as well as how political power facilitates the deployment of AI governance tools without significant opposition in parliament. However, the increase in the Workers' Party's number of parliamentary seats, despite the PAP's initiatives, is indicative of the PAP's political domination eroding and electoral support for the opposition steadily increasing.

It is important to note that election results in Singapore may not accurately reflect the public's overall opinion, as electoral laws and restrictions on freedom of speech disproportionately disadvantage opposition parties. Since 2015, legislation has been passed that reduces online criticism of the PAP, including the Protection from Online Falsehoods and Manipulation Act (POFMA) (Protection from Online Falsehoods and Manipulation Act, 2019). This act allows a government minister to declare an online statement of fact as harmful and issue "correction directions" or, in severe cases, order its removal (POFMA, 2019). Academics have been publicly censured, and many activists have been rebuked (Abdullah, 2020). Following the COVID-19 pandemic and the growing use of social media, public doubts have arisen in Singapore about whether future leaders in the PAP will be able to maintain the party's previous achievements. There have been increasing challenges to its core beliefs, particularly meritocracy and multiracialism (Singh et al., 2020).

The PAP views meritocracy as an efficient mechanism for resource allocation. The 'merits' that matter most to the PAP are academic qualifications, professional expertise, and technocratic competence (Lee & Abdullah, 2022). The constitution also emphasizes that, despite being a Chinese-majority state, Singapore is a "multiracial" nation, meaning that it is an integral part of Singapore's national interest that all racial groups are treated equally under the law (Attorney-General's Chambers, 1963). The state must intervene to ensure that racial differences are accepted. However, the political motives of the PAP have come under criticism, with some arguing that these core beliefs are intended to preserve elitism and maintain strict control over racial dynamics (Lee & Abdullah, 2022). Critics claim that by framing race and religion as inherently divisive forces, the PAP uses these narratives to justify extensive monitoring and policing, ultimately ensuring that the political environment remains firmly under its control (Lee & Abdullah, 2022).

Such narratives and political strategies have far-reaching consequences, especially for press freedom, which faces significant limitations in Singapore. Reporters Without Borders (RWB) ranked Singapore 123 out of 180 countries for press freedom in 2025 (RWB, 2025). This index is calculated based on two components: (1) a quantitative tally of abuses against media and journalists in connection with their work, and (2) a qualitative analysis of the situation in each country or territory, based on responses to an RSF questionnaire from press freedom specialists, including journalists, researchers, academics, and human rights defenders. A significant reason for this ranking is Singapore's strict regulations, which limit press freedom, including the POFMA introduced in 2019, the Foreign Interference (Countermeasures) Act introduced in 2021, and the Foreign Interference (Countermeasures) Regulations introduced in 2023. These laws allow the government to implement countermeasures to prevent, detect, and disrupt foreign interference through hostile information campaigns; however, they also authorize a broad umbrella that allows the government to infringe on private journalists' and civilians' media freedom as well (Singapore Statutes Online, 2021; Singapore Statutes Online, 2023; Hirschmann, 2025).

While RWB may not depict Singapore as a nation with extensive press freedom, other organizations portray the nation's government as "open" compared to those of other countries in the region. According to the World Justice Project's 2024 report, which assigns countries an index score from 0 to 1, with 1 being the highest score a country can achieve for open government principles and government accountability. Singapore's open government index score was 0.6, ranking the country sixth out of 15 countries in the Asia-Pacific region for open government (Hirschmann, 2025). The World Justice Project (WJP) defines open government as "the extent to which a government shares information, empowers people with tools to hold the government accountable, and fosters citizen participation in public policy deliberations" (WJP, 2024a).

Overall, the extensive literature on Singapore highlights a political climate shaped by the dominance of the PAP, which is sustained through laws and regulations that constrain opposition and enable the party to maintain control. The PAP still holds a majority of seats and support in Parliament. However, the Workers' Party's growing electoral success reflects a change in public opinion. This demonstrates the complexity of Singapore's political climate and the varying ways that Singaporean citizens and NGOs perceive government actions and legislation as both "restrictive" and "open." Our paper finds that understanding the PAP's political environment, characterized by authoritarian regulations, parliamentary control, and declining democracy indices, is crucial for assessing the country's emerging implementation of AI surveillance to further its political objectives and maintain power.

AI Surveillance in India

In terms of AI surveillance, existing literature focuses on specific cases of surveillance methods used for law enforcement purposes, especially at the local level. For example, in 2015, the city of Delhi unveiled plans to use predictive policing technologies to identify places where crimes were more likely to occur. Although these technologies can lead to more effective policing and save lives, they also perpetuate societal biases reflected in the datasets on which they are trained (Marda & Narayan, 2020; Vats, 2022). These biases can be based on caste, gender, class, and religion (Marda & Narayan, 2020). Despite these problems, most existing literature, such as Vats' (2022) research, does not advise that predictive policing technologies be discontinued altogether. Instead, the research argues that more third-party oversight is necessary. Our research will focus on the political conditions that create this lack of oversight.

Another city that heavily uses surveillance technology is Imphal, which has installed large numbers of CCTV cameras, pursued biometric data collection, and tracked crowd patterns using sensors as part of India's Smart City Initiative (SCM) (McDuie-Ra, 2024). As part of this initiative, the Indian government has given out grants to a variety of cities, especially in the northeastern part of India, to build so-called "smart cities" (Mc-Duie-Ra, 2024). The Indian government also has other national surveillance initiatives, such as a national identity system called Aadhar that uses metrics including facial recognition technology, iris scans, and fingerprints for a variety of functions. The uses of this system include making airline boarding easier, screening attendees of political protests, and identifying missing children (Hickock et al., 2021). Indians can access a variety of government services on the internet or using their cellphones (Khanna & Khanra, 2023). Additionally, the National Crime Records Bureau wants to implement another form of surveillance, the Automated Facial Recognition System, using data from existing CCTV cameras in order to verify an individual's identity (Hickock et al., 2021). Currently, there are no existing laws that sanction the use of facial recognition technology (FRT) (Hickock et al., 2021). However, the government can implement these technologies because of existing laws that give the government a broad mandate for surveillance in general. For example, the Information Technology Act of 2008 gives agencies broad authority to intercept and decrypt information (Hickock et al., 2021). Our research will investigate the surveillance techniques used in India's cities and compare conditions in the cities to analogous smart cities in Singapore.

At the national level, scholars emphasize that the rapid adoption of these systems reflects a broader shift toward technologically driven governance, where efficiency and modernization are prioritized over rights-protecting frameworks. India's surveillance expansion is often justified through the rhetoric of "digital transformation," which positions these tools as necessary for development, service delivery, and administrative coordination. However, research indicates that in practice, these systems can reinforce pre-existing inequalities rather than resolve them. For instance, predictive policing tools mirror and amplify historical biases embedded in crime data, resulting in disproportionate targeting of marginalized communities (Marda & Narayan, 2020). Similar concerns apply to FRT: the accuracy of facial matches is highly sensitive to basic environmental factors such as lighting conditions, camera angle, and skin tone, which makes misidentification more likely for certain groups (Hickock et al., 2021). The cumulative effect is a surveillance ecosystem that appears neutral but functionally creates uneven levels of risk and visibility across social groups. Even though researchers like Vats (2022) do not argue for discontinuing these technologies entirely, the consensus is clear that their use must be governed by significantly stronger oversight structures, independent auditing, and meaningful transparency requirements.

Additionally, the literature highlights that India's legal and institutional environment has not kept pace with the scale of technological adoption. Despite the sensitive nature of biometric and facial data, there still is no comprehensive law specifically regulating FRT or limiting how data generated through these systems can be used (Hickock et al., 2021). Instead, the government's authority stems from broad and outdated frameworks, like the Information Technology Act of 2008, which grants sweeping interception and decryption powers with minimal safeguards. This gap between technological capacity and legal protection creates a situation in which surveillance tools can be rapidly deployed with few avenues for redress, especially for communities already facing discrimination. Scholars also note that civil society responses have been uneven: while Aadhaar generated significant public debate and litigation, sustained activism around newer forms of surveillance—such as smart-city monitoring or automated facial recognition—remains limited. Khanna & Khanra (2023) argue that the widespread integration of digital platforms into daily life creates a form of "soft coercion" in which individuals feel compelled to participate in state-run digital systems simply to access essential services. Taken together, the literature suggests that India's surveillance trajectory is defined not only by technological expansion but by the absence of robust, rights-preserving constraints – an imbalance that shapes how these systems function on the ground and how inclusive or exclusionary they ultimately become.

AI Surveillance in Singapore

Over the past decade, Singapore's technological advancements have been widely studied, especially with consideration of how its government integrates AI into surveillance infrastructures. Scholars emphasize that Singapore's surveillance model cannot be separated from its broader political structure: a dominant-party state that frames technology as a neutral and necessary tool for progress and safety (Ortmann, 2011). Academics and scholars from media, legal, and scientific studies have examined Singapore's efforts toward a "Smart Nation" project, which would effectively meld governance, urban management, and security under a technological system (Das & Kwek, 2024). Singapore reports using these measures not for coercion but to increase efficiency, a dedication to public service, and to maintain regulatory control (Das & Kwek, 2024).

A common theme across the existing literature is the state's capacity to integrate AI into urban infrastructure in a palatable way (Ho, 2017). The Smart Nation Initiative, launched in 2014, enabled a network for Singapore to be able to accept a large number of sensors, cameras, and analytics to be gathered from the motive of "living meaningful and fulfilled lives, enabled… by technology" (Ho, 2017). Some scholars argue that this public integration operates in "anticipatory governance", meaning that it uses AI and analytics to manage traffic, detect anomalies, and optimize services (Ong & Loo, 2021). These systems rely on AI techniques such as predictive analytics, anomaly detection, and computer vision to process the 'big data' generated by their growing number of urban sensors. Again, these operations all use transparency with their people, including lamppost cameras and biometric turnstiles. Ong calls this method "compliance by design" because it allows citizens to view this type of surveillance as a part of ordinary life, rather than any restrictive measure (Ong & Loo, 2021).

FRT has been widely used and extensively studied in Singapore. In 2019, the Singapore government announced its Lampost-as-a-Platform project, which includes a plan to deploy approximately 110,000 lampposts with FRT (Das & Kwek, 2024). Legal scholars have emphasized the risk posed by Singapore's lack of explicit regulations for FRT (Tan, 2024). These mechanisms emphasize technical accuracy rather than distinct legal limits. FRT depends on machine learning (ML) models, typically neural network-based models, that enable automated identification and become stronger and more accurate the more that they are used. This "calibrated approach" reveals that Singapore relies on trust in government rather than adversarial legal checks (Das & Kwek, 2024).

These measures were only increased during COVID-19 with the use of TraceTogether, an app that utilizes Bluetooth for contact tracing, which later provided a wearable token instead (Lee et al., 2021). The Singapore Government assured its people and users that its data would only be used for public health purposes. However, this was reversed in 2021, when it was discovered that police could access TraceTogether's data for criminal investigations. The revelation prompted public backlash and renewed debates about data transparency, as it appeared to contradict earlier government assurances. While compliance remained high due to Singapore's strong social compact and trust in governance, the incident marked a visible fracture in the perception of state accountability. Citizens began questioning how temporary emergency measures could normalize expanded surveillance authority, particularly when legal safeguards were ambiguous. This erosion of trust revealed the tension between Singapore's emphasis on efficiency and the public's expectation of proportionality in data use. Although TraceTogether itself is just a data-gathering tool, its data can be fed into an ML model to create predictive modeling, network analysis, and increased policing–as shown in its breach in criminal investigations. FRT is one example that scholars use to illustrate the government's gradual progression from implementing technology in a public and palatable way to a scope greater than pitched.

Legal scholars have examined how Singapore's data protection regime enables and constrains AI surveillance. The Personal Data Protection Act (PDPA), passed in 2012, establishes a baseline for privacy protections in the private sector; however, the government is largely exempt from this (Tan, 2024). Appeals remain largely within the executive branch rather than the courts, thus reducing, if not eliminating, checks and balances on these matters (Tan, 2024). Crucially, this means that there are no requirements for algorithmic transparency, auditing, or accountability in their AI or ML models, allowing AI systems to operate in a black box with increasing power. This highlights Singapore's legal architecture and reflects an authoritarian political system: administrative trust and legitimacy in technology replace any adversarial accountability.

Overall, the literature highlights Singapore as distinct in the landscape of AI surveillance. Rather than relying on overt coercion, Singapore's government focuses on implementing surveillance through infrastructural transparency, manipulated legal structures, and the trust of its people. This allows advanced technologies to be deployed with minimal pushback.

Methodology

Our research examines the evolution of Artificial Intelligence (AI) surveillance in India and Singapore from 2015 to the present. Our analysis used both quantitative and qualitative sources to examine how different political systems in each country shape legal frameworks, the roles of government institutions in implementation, and the level of privacy protections afforded to citizens in the context of both developed and emerging AI surveillance. Through this research, we aim to understand the effectiveness of political governance in utilizing these technologies and consider the broader implications of AI surveillance practices in India and Singapore, as well as their impact on the wider Asia-Pacific region.

This paper employs a qualitative approach, analyzing credible reports from international organizations that offer unbiased perspectives on the state of democracy around the world. We further examined national and international news sources to better understand the type of government and political climate in both nations. We also investigated literature that provided a sociotechnical lens on the situation, drawing connections between the technical features of the nations' surveillance systems and the societal impacts of these systems. Furthermore, we analyzed the effects of litigation related to surveillance technologies. This analysis is important because it reveals the level of resistance to surveillance technology within India and Singapore. Additionally, court cases that establish precedents related to a citizen's right to privacy reveal the implications of legislation enacted through the political process, as legal precedents shape how governments operate, even within existing laws. We researched laws limiting the instances in which the government can use technological surveillance and analyzed the effectiveness of these laws in preventing government encroachment on privacy. We also compared the regulatory structure for AI surveillance in India and Singapore to that of other nations, such as the U.S., the United Kingdom, Canada, and the European Union, in order to identify gaps in India's regulatory structure. Furthermore, we investigated how governments utilized AI surveillance technology during times of crisis, such as the COVID-19 pandemic. Information from the pandemic was especially instructive in understanding how government powers change during times of crisis and how crises impact the way governments use surveillance.

Employing a comprehensive quantitative approach, our research analyzed current reports from reputable research organizations, including Freedom House, V-Dem, the World Bank, the World Justice Project, and the Carnegie AI Surveillance Index. Variables included democracy and press freedom scores, government transparency, and the number and types of AI initiatives (e.g. FRT, predictive policing). Statistics and indices from outside organizations assessed relationships between democratic decline and surveillance expansion in both India and Singapore. The lack of transparency from the government limits this approach; however, it complements qualitative findings to illustrate the political influence of AI surveillance empirically. This analysis also used graphical methods, drawing on poll data from civilian voting on government and democracy, as well as results from government elections in Singapore and India, to visually illustrate public opinion trends. We examined quantitative data on the adoption and use of AI surveillance in both countries to better understand, in numerical terms, the growth of AI as a key surveillance measure.

Results and Findings

Political Systems and Governmental Control in India and Singapore

Our research findings indicated that the political systems and governmental control in India and Singapore, while vastly different, both played a crucial role in shaping the impact of Artificial Intelligence (AI) surveillance on civilians. Recent data has found that India has faced a decline in democracy and press freedom through increased censorship, intimidation of opposition parties and leaders, and greater centralization of authority (Tudor, 2023). This has been essential to its weaponization of AI surveillance against Indian citizens. Specifically, AI was utilized in ways that restricted freedom of expression and suppressed opposition against the ruling party and Prime Minister Modi, such as the use of AI facial recognition during protests against Modi. Research on the Union Government under the governing ideology of Hindutva showed that conflating Indian identity with Hinduism led to discrimination against minority groups, especially Muslims. Many laws and regulations, such as the Citizenship Amendment Act (2019), have increasingly discriminated against Muslims in India, contributing to a broader political attack on democratic institutions (Kronstadt, 2024). These actions violate Article 25 of the Indian Constitution, which states that all persons are equally entitled to freedom of conscience and the right to freely profess, practice, and propagate their religion (Constitution of India, n.d.). This is also reflected in global democracy indices. In the 2025 Freedom in the World Report by Freedom House, India ranked 31 out of 40 for Political Rights and 32 out of 60 for Civil Liberties, for a total score of 63 out of 100 and a "partially free" classification (Freedom House, 2025).

India is also experiencing an increase in criminal political candidates. Specifically, in the 2020 assembly elections in the state of Bihar, 68% of elected candidates had a criminal history, with a majority of them accused of serious crimes (Prakash et al., 2021). These findings indicate that as India becomes less democratic and increasingly corrupt, freedom of expression is being increasingly challenged. India ranked 151 out of 180 countries for press freedom in 2025, according to the World Press Freedom Index by Reporters Without Borders (Reporters Without Borders, 2025). These factors led us to conclude that India's use of AI surveillance has ultimately worked against the interests of its citizens, failing to protect their freedoms and undermining public perceptions of the government's role. Instead, AI surveillance has been used as a tool for gaining greater control.

Our research also examined Singapore's government and its integration of AI surveillance into its governance. We found that Singapore's approach to AI is closely linked to the PAP's political dominance. AI-based surveillance techniques grew in Singapore during the COVID-19 pandemic, as the government sought to accelerate the detection of infections (Abeler et al., 2020; Avitabile et al., 2020). The government has consistently presented technology, primarily AI surveillance, as neutral, beneficial, and necessary for safety and effective governance. In reality, this framing has helped the PAP build a visible surveillance infrastructure that is seen as ordinary and even positive by much of the public, allowing the government to expand AI surveillance with minimal pushback (Beltrão et al., 2025). This has also enabled the government to bypass legal restrictions meant to protect the public from private-sector surveillance, instead turning these tools toward broader state control. Research suggests that laws and regulations are crucial in minimizing AI surveillance, particularly as recent evidence indicates a decline in public support for the PAP (Ostwald & Oliver, 2020). In response, the PAP has used its majority in Parliament to pass legislation that weakens the opposition's ability to win seats in elections. Examined together, these findings suggest that AI surveillance in Singapore, beyond being just a tool for public safety, is also a means of maintaining long-term state control. The system is implemented openly, but the technical and legal frameworks are carefully designed to preserve PAP dominance, reinforce central administrative authority, and limit public resistance or scrutiny from opposition.

AI Surveillance and Implementation in Singapore

The Singaporean government has placed significant emphasis on the development of AI and consistently frames its adoption as a positive advancement that will benefit society as a whole. Review of Singapore's first National AI Strategy (2019) indicates that the government planned to strengthen the use of AI in transforming the economy (Smart Nation, 2025). This strategy aimed to utilize AI to transform national-level planning, significantly enhancing the quality of public goods such as transportation, education, and healthcare, while increasing convenience, safety, and security, ultimately improving the lives of Singaporeans (National Artificial Intelligence Strategy, 2019). However, it is important to note that this is the framing of the government, which is significantly influenced by the politics of the PAP and its agenda of maintaining power as a dominant party and reducing opposition.

This resulted in early investment in AI, which led to the establishment of approximately 150 teams working on research and development, as well as 900 startups exploring new ideas with AI, setting Singapore ahead of Southeast Asian countries for implementation (Cyber Security Agency of Singapore, 2025). Further analysis on the Singapore National AI Strategy 2.0 (NAIS 2.0) launched in 2023 and resulted in changes to Singapore's strategy to account for breakthroughs in generative AI, such as the release of ChatGPT by OpenAI on November 30, 2022 (NAIS, 2023). This highlights Singapore's initiative in looking to the future and remaining a powerful actor in AI implementation. Similarly, results indicate that Singapore will continue to place significant emphasis on AI technologies. For example, Singapore's Smart Nation and Digital Government Office (SNDGO) announced that by 2030, Singapore would be a leader in developing impactful AI solutions in key economic and social sectors (Smart Nation, 2025).

This research specifically focused on the government's application of AI for surveillance purposes. Singapore's Model of AI Governance Framework was developed to guide and promote its adoption in conformity with Singaporean values and regulations. Over the past decade, the Singaporean government has enhanced its surveillance capabilities by utilizing advanced technology to monitor civilians (Gomez, 2023). These enhancements initially occurred mainstream during the COVID-19 pandemic, when the Singapore government strongly promoted the use of the surveillance technology known as TraceTogether. TraceTogether was a mobile app developed by GovTech Singapore in collaboration with the Ministry of Health in response to COVID-19, utilizing Bluetooth to collect data when individuals' phones came into contact with those of people who had tested positive for the virus (Fontes et al., 2022; Findlay et al., 2020). This app laid the groundwork for public opinion on privacy and surveillance, as well as citizens' acceptance of government-led surveillance. This has resulted in AI being used as a governance tool to further the PAP's political agenda of increasing AI use, thereby granting the government more power over citizens' privacy.

More specifically, Singapore utilized various AI devices during the COVID-19 pandemic. For example, the device VigilantGantry used AI to automatically screen individuals' temperatures using a video camera and thermal scanner (Das & Kwek, 2024). Our research found that Singapore's development and implementation of AI technologies, such as VigilantGantry's role in health status verification, have transitioned AI implementation from passive surveillance into agents of public governance (Das & Kwek, 2024).

However, public health was not the only sector in Singapore that had adopted AI technology. AI has rapidly become integrated across nearly every sector of the country. Notably, one area where Singapore has made significant strides is in leveraging AI for military and policing applications. A report by the Ministry of Home Affairs noted that unmanned aerial vehicles were/are used for various surveillance purposes, including monitoring crowds at mass public events and conducting national security operations (Antunes, 2023).

Singapore's government strategy and forward-looking approach to AI implementation have had a significant impact on governance, public health, and surveillance.

Results indicate that Singapore will continue to leverage AI for both societal benefits and the government's (PAP) priorities through various implementation efforts, as previously seen during the COVID-19 pandemic and security operations. Our research found that AI implementation is primarily in response to improving the government and its goals rather than a device for the betterment of Singaporean citizens or respect for their privacy.

AI Surveillance and Implementation in India

Analysis of the established programs and task forces created by the Indian government to develop and research AI, such as the National Program for Artificial Intelligence (NPAI), the Artificial Intelligence Task Force, and multiple Committees for AI under the Ministry of Electronics and Information Technology, has simulated a rapid rise in AI innovations in India (Bajpai & Wadhwa, 2021; Rani, 2024). Over the last two decades, India has emerged as a leading hub for AI technology and implementation (Rani, 2024). Reports released by organizations such as the National Association of Software and Service Companies (NASSCOM), which rank India as eighth among the top 10 countries in AI and the fourth largest producer of scholarly papers related to AI in the world, showcase the cultural importance placed on AI in India. The country has not only focused on implementation but also on developmental research and academic purposes for technological growth (NASSCOM, 2021). Our findings indicate that this is primarily due to the ruling BJP's development of AI infrastructure, which justifies extensive use and implementation.

Findings suggest that the implementation of AI surveillance in one sector in India tends to drive its adoption in others, leading to the development of an interconnected surveillance infrastructure throughout the country. This is a direct result of the Indian government's initiatives to integrate AI surveillance across various sectors, including the legal profession, justice system, healthcare, and education (Choubey & Yadav, 2024). The concept of increasing AI surveillance adoption across sectors is evident in the use of facial recognition technology (FRT). FRT is the primary AI technique used by the Indian police, enabling law enforcement agencies to detect and identify individuals of interest in real-time (Rani, 2024). Law enforcement initially used FRT and statistical methods to detect and identify criminals and missing persons; however, with the introduction of emerging systems like the National Automated Face Recognition System (NASRS), approved by the Indian government, these technologies are now also being used to identify individuals involved in protests (Rani, 2024). This is a clear indication that the progression of AI technologies is furthering the objective and authoritarian government of the BJP. This results in India using AI surveillance in ways that reinforce existing social biases, leading to discrimination against Muslim communities and eroding trust in surveillance among minorities. Furthermore, the implementation of FRT in policing, as well as in airports, increased AI technology advancements across various infrastructure in India. Four airports in the country, including Varanasi, Pune, Kolkata, and Vijayawada, have implemented a biometric system for identification purposes, indicating that AI surveillance is being promoted as a beneficial technology across India (Chandra, 2021).

The Indian government has played a significant role in advancing the nation's adoption of AI through deliberate, positive promotion, shaping both public opinion and practical implementation. This strategic approach has supported the BJP's authoritarian initiatives and contributed to the nationwide expansion of AI technologies. As a result, AI surveillance, such as facial recognition, has expanded to various sectors, including law enforcement, airports, and more. By creating an interconnected system of AI technologies and a reliance on AI not only in practice but also in research, India has positioned itself as a global leader in AI development and implementation.

Role of Public Opinion, Activism, and Media in AI Surveillance

Surveys polling the Indian population largely indicate support for visible CCTV/FRT. The 2023 Status of Policing in India Report showed high acceptance of CCTV and police use of drones and FRT (Aasif et al., 2023). Minority communities, however, report lower trust in policing and surveillance (Aasif et al., 2023). This distrust stems from long-standing experiences of over-policing, discrimination, and targeted surveillance under the guise of national security. Muslim and Dalit communities, in particular, have faced disproportionate stops, profiling, and data collection in the name of counterterrorism or social order. As a result, technologies like FRT – framed as neutral or efficiency-enhancing – are instead perceived by these groups as amplifying existing inequities and enabling selective enforcement (Marda & Narayan, 2020; Vats, 2022). This divergence highlights how public acceptance of AI surveillance in India is stratified along lines of class, caste, and religion, rather than reflecting a uniform national consensus. Independent polling groups report similar results. A 2023 survey by Lokniti for the Study of Developing Societies and Common Cause reports that approximately 59% of respondents expressed support for the government and police use of facial recognition technology, while 69% supported CCTV surveillance (Aasif et al., 2023).

Despite this strong evidence of support, numerous movements have opposed the use of AI surveillance. Human rights groups and advocacy organizations have taken efforts to gather litigation support and inform the public on the risks of state surveillance. The Internet Freedom Foundation (IFF), a Delhi-based nonprofit with over 50,000 online supporters, launched Project Panoptic to document and challenge the government's growing use of FRT. The project has mapped over 70 deployments across India and submitted dozens of Right to Information (RTI) requests, revealing widespread adoption without adequate legal or technical safeguards (Internet Freedom Foundation, n.d.). These findings have been cited in parliamentary debates and prompted several states, such as Telangana and Tamil Nadu, to temporarily pause new FRT procurements pending review.

Another notable group of actors includes digital rights organizations, such as the Software Freedom Law Centre. Following the Puttaswamy (Retd.) v. Union of India (2017) decision recognizing privacy as a fundamental right, SFLC and IFF have used this constitutional framework to contest state surveillance measures, including facial recognition, mass CCTV, and Aadhaar-based data collection (Bhatia, 2014; Ramanathan, 2021). While these organizations operate within a small but influential civil society network, their work has contributed to growing public awareness and legal scrutiny around unregulated AI surveillance, signaling that dissent—though limited—is increasingly institutionalized in India's digital rights space.

Indian media outlets have historically reported from an anti-AI surveillance perspective. Sentiments include the notion that the risk of error is high and that the use of such technologies increases the risk of a police state (Jauhar, 2020). In response to an RTI, the New Delhi Police stated that any match above 80% in FRT will be considered a positive match. Any match below 80% will require further investigation and corroboration; however, in practice, people have still been detained for matches below 80% (Jauhar, 2020). Therefore, 80% is not a reliable threshold for law enforcement purposes. For instance, during the 2020 Delhi riots, the Delhi Police reportedly used FRT to identify and arrest protestors—even as technical experts warned that facial recognition accuracy drops sharply in crowded or low-light conditions. With FRT, minor variations, such as camera angle, facial expression, or lighting, can alter match outcomes, raising concerns about wrongful identification. With FRT, simple differences like the angle of the camera, the angle of the face profile, or the lighting can affect match outcomes (Klare et al., 2015). Awareness of this discrepancy has prompted human rights groups, such as the IFF and the Software Freedom Law Centre (SFLC), to make efforts to raise awareness and initiate litigation (Jauhar, 2020).

In Singapore, public trust in institutions has largely shaped a different trajectory of societal response. Surveys and policy analyses show that Singaporeans exhibit around 77% trust in the government and over 80% satisfaction with government digital services, underscoring a high level of confidence in state-led smart-city and contact-tracing initiatives (Edelman Trust Barometer, 2024; Hartley & Aldag, 2024; GovTech Singapore, 2023). However, trust was temporarily strained during the 2021 TraceTogether controversy, when the government revealed that police could access data from its COVID-19 contact-tracing app under the Criminal Procedure Code. Public backlash prompted swift legislative action to restrict access strictly to investigations of serious crimes. Beyond this episode, activism around surveillance remained limited; dissent primarily emerged through media commentary, academic discussions, and parliamentary debates rather than public protests. For instance, journalists and scholars from The Straits Times and The Online Citizen questioned the proportionality of the government's data-sharing policies following the TraceTogether revelations, while members of Parliament, such as Gerald Giam, raised concerns over the lack of explicit legal safeguards for data use (Jasper, 2021). The Singaporean press typically frames surveillance within a "safety-and-efficiency" narrative that aligns with the state's broader Smart Nation agenda, reinforcing the view that surveillance is a trade-off for social order (Lee et al., 2021).

Comparatively, India and Singapore reflect divergent modes of societal engagement with AI surveillance. In India, public opinion is divided between support for technological modernization and concerns over misuse, resulting in a vibrant civil society movement that leverages privacy laws and RTI mechanisms to demand accountability. In Singapore, by contrast, high institutional trust and rapid state responsiveness have produced a model of consensual surveillance, where citizens largely accept monitoring as integral to security and governance. The contrasting responses highlight how political culture and institutional trust mediate the social legitimacy of AI surveillance. While India's pluralistic democracy fosters contestation and litigation, Singapore's technocratic governance favors compliance and incremental reform. Together, these cases illustrate that societal response–not technology alone–determines whether AI surveillance strengthens governance or undermines civic freedoms.

Legal Practices and Regional Impact

The case Justice K.S. Puttaswamy vs. Union of India enshrined privacy as a fundamental right under Article 3 of India's Constitution. According to this judgment, in order for the government to justify a claim to surveillance, it must prove that a valid law exists to justify its claim, that its claim is for legitimate state purposes, and that there is proportionality between the purpose of the surveillance and its infringement on privacy (Chattopadhyay, 2025).

Despite these constitutional protections for privacy rights, certain laws make it easier to abuse surveillance technology. These laws include the Telegraph Act (1885) and the Information Technology Act (2008). The Telegraph Act permits the government to intercept communications in order to address various concerns, including sovereignty, state security, and public order. The Information Technology Act expands on the powers of the Telegraph Act and includes a provision that allows the government to use surveillance technologies for any open investigation (Chattopadhyay, 2025). It also includes some mechanisms of government accountability (Hickock & Xynou, 2015). For example, the act includes a provision that no data can be intercepted without an order from a government official, which can be a secretary in the Ministry of Home Affairs or the Secretary of the Home Department (Hickock & Xynou, 2015). A review committee at the national and state levels monitors these requests and can deny improper requests (Hickock & Xynou, 2015).

Despite these safeguards, in the years since the passage of the Information Technology Act, the government has pursued increasingly intrusive measures, such as the National Intelligence Grid and the Centralized Monitoring System, which collect communications data from various databases across India (Chattopadhyay, 2025; Hickock &

Xynou, 2015). Additionally, India lacks a parliamentary committee overseeing government surveillance efforts (Chattopadhyay, 2025). Legislative oversight of surveillance is an important check on government power in many democracies, and a lack of legislative oversight is just one of the ways in which Indian laws do not meet the challenges posed by rapidly advancing AI surveillance technologies.

Like India, Singapore adheres to global frameworks on general AI regulation, such as the one the OECD adopted in 2019, which promotes an approach that respects fundamental rights (Mahapatra, 2025). However, Singapore still lacks a comprehensive regulatory platform such as the one that exists in the European Union (EU). Unlike the EU, Singapore's AI framework relies on existing regulations that the dominant PAP can exploit for further surveillance (Mahapatra, 2025).

In Singapore, the COVID-19 pandemic underscored the vulnerabilities in its current framework for regulating government surveillance. The government developed the TraceTogether app in line with its vision of a technologically advanced nation that uses technology to improve the lives of citizens. Although downloading the app was voluntary, critics raised concerns that data collected in the app about citizens' movements could end up in the hands of police agencies (Lee & Lee, 2020). The government did nothing to refute these allegations. If true, the allegations would be an example of surveillance creep, which is when governments use technology for surveillance measures rather than its original purpose (Tan & Denyer, 2023).

Singapore's actions during the COVID-19 pandemic are especially relevant due to parallels in other Southeast Asian nations, where emergency measures related to the pandemic led to a decline in civil liberties. For example, Thailand, Cambodia, Malaysia, and Indonesia used emergency measures to charge pro-democracy activists (Tan & Denyer, 2023). Overall, Singapore's use of contact-tracing measures had an impact that extended beyond the COVID-19 pandemic. These measures serve as an example of how technologies intended to advance the public good can infringe on people's rights.

Discussion

The increased use of AI surveillance on civilians in Singapore and India is significantly influenced by the countries' authoritarian political institutions. The governments in both countries develop and expand AI technologies as tools of governance, creating complex relationships between political priorities, legal frameworks, and public trust. By comparing Singapore's unitary parliamentary republic and India's Hindu nationalist-led democracy, our findings show that surveillance regimes are shaped by each country's unique political values, legal systems, and approaches to government regulation. This comparison highlights how the design and implementation of AI surveillance not only reflect existing political structures but also actively shape public opinion and the overall relationship between citizens and the state.

Our analysis finds that Singapore's government has made deliberate efforts to normalize AI surveillance by adopting it in a range of government institutions, including hospitals, prisons, immigration checkpoints, and for access to government agency services (Abdullah, 2020; Immigration & Checkpoints Authority, & Home Team Science & Technology Agency, 2025; Paulo & Tanu, 2019). Singapore's Model of AI Governance Framework was developed to guide and promote its adoption in conformity with Singaporean values and regulations (Personal Data Protection Commission, 2020). Furthermore, legal safeguards in Singapore are tailored to support state priorities rather than citizens in subtle ways that facilitate the expansion of surveillance with minimal public resistance (Lee & Lee, 2020). As a result, public opinion on surveillance in Singapore often reflects deliberate government design rather than genuine informed consent and public awareness of the government's actions.

In India, the government's authoritarian tendencies and Hindu nationalist agenda have driven an increased use of AI surveillance technology for control over a wide range of areas, including airports, stadiums, concerts, and police enforcement (Mehta & Jain, 2021). India has used AI surveillance in ways that reinforce existing social biases, leading to discrimination against Muslim communities and eroding trust in surveillance among minorities (Mahapatra 2021). Additionally, AI surveillance in India serves as a tool for government control and the consolidation of power, supporting the Modi government's political objectives. The decline in press freedom and civil liberties through technology highlights how the government has intentionally utilized AI implementation in a way that strengthens control and disadvantages opposition groups (Joshi, 2024).

Effect of AI Surveillance on Singapore

The political influence of the PAP has significantly shaped AI adoption, often resulting in it reflecting the government's desire to position Singapore as a technologically advanced global information and communications hub (Lee & Lee, 2020). The political influence that the PAP holds, as the majority party in parliament, enables it to shape the regulatory framework and the implementation of AI surveillance, resulting in an AI framework closely tied to the values and politics of parliament. Through the PAP's unbroken control of parliament, it has been able to shape government laws and policies and, consequently, influence public perception of AI in a favorable light for the PAP's initiatives (Zhu, 2023). Singapore's Model AI Governance Framework establishes a standard that ensures compliance from businesses and ordinary citizens (Frana, 2024). It is essential to examine how the PAP has achieved significant success in framing AI surveillance as a means of enhancing citizens' everyday lives, in comparison to the reality that it is, in fact, a pervasive governance and monitoring practice (Gomez, 2023). Many of the key documents that undergird Singapore's emerging AI social contract originate directly from the government, such as the Personal Data Protection Act (PDPA). The PDPA establishes a baseline for privacy protections in the private sector; however, the government is largely exempt from these regulations (Tan, 2024). This raises a broader question: how can citizens trust a legal framework intended to protect them from AI uses that restrict their freedoms, when the government is both setting the standards and acting as the primary producer of AI surveillance?

Furthermore, the Singapore government actively consolidates its power through AI data surveillance and governance initiatives. Authorities collect and manipulate information to clamp down on dissent, erode individual freedoms, and further expand their data surveillance (Frana, 2024). The lack of regulation of AI use, which has led the Singapore government to employ defamation laws liberally against individuals and online media outlets, is indicative that strategic AI use can then be applied to many other areas, resulting in a reduction of freedoms from various sources. For example, the Protection from Online Falsehoods and Manipulation (POFMA) Act has been invoked by Singaporean ministries almost 100 times since 2019, and the majority of POFMA notices and letters are directed at individuals or publications that criticize the government or its policies (Awang, 2020; Human Rights Watch, 2021; Siyuan, 2023; Teo, 2021). Free speech is a crucial right and a primary indicator of democratic governance. Without governments prioritizing this principle, there is a risk of devolving into a dictatorial political climate.

Overall, Singapore's AI surveillance serves as a case study of how AI use can be deeply embedded within government political influence. Such use must be closely monitored by legal safeguards to ensure ethical practices and to preserve the freedoms of affected citizens. Singapore has leveraged AI as a strategic tool for technological advancement, yielding some positive effects. However, the lack of transparent regulation undermines citizens' ability to trust the government, which is essential for a full democracy. While Singapore's government reinforces that AI surveillance is for the betterment of its citizens, it is ultimately up to the people to push for stronger regulatory standards and to ensure the privacy they deserve and were promised.

Authoritarianism in India

The rapid development of AI surveillance technologies in recent years has exposed the inadequacy of India's existing regulatory frameworks to confront newfound technological challenges, leading to the exploitation of new technologies by those in power. Modi's government has two main characteristics: authoritarianism and Hindu nationalism, which have motivated the government's attempts to consolidate power and curtail civil liberties (Sahoo, 2020). In general, the Modi government consolidates power by eroding the independence of government institutions and attacking press freedom by investigating news channels like ABP (Chadha & Arya, 2021; Chowdhury, 2022). This crackdown indicates an increased focus on surveillance during Modi's government. In this political climate, the use of surveillance methods, such as the Aadhar biometric identity system, which can identify political protestors, is also more frequent (Hickock et al.; Chattopadhyay, 2025). The use of AI surveillance tools to crack down on protests aligns with the Modi government's suppression of past protests, such as the 2019 farmers protests (Aiyar, 2020). The use of AI aligns with the government's overall policy of curtailing civil liberties, such as the right to protest. Additionally, the erosion of government institutional independence suggests that the government's use of AI surveillance technology risks politicization.

Furthermore, the discriminatory attitudes against Muslims that the Modi government advances are also ingrained in AI surveillance technology. One area of special concern is police departments that use FRT to apprehend criminals. FRT technology is imperfect, and there is already a risk of false matches (Jauhar, 2020). FRT uses algorithms that are reflective of societal attitudes, which in India leads to bias against Muslims (Marda & Narayan, 2020). As a result, minority communities in India report a lower level of trust in surveillance technology than the general population (Aasif et al., 2023). Predictive policing technologies ensure that discrimination against Muslims will not end with the Hindu nationalist government and will be present in Indian life for decades to come, especially as surveillance technology becomes more prevalent.

The use of AI surveillance is part of a broader erosion of civil liberties in India, particularly under the Modi government. Overall, India is considered "partially free" by Freedom House and ranks 32 out of 60 for Civil Liberties (Freedom House, 2025). Declining political freedom metrics indicate that the general trajectory of India under the Modi government is not positive. Despite this, the government maintains strong support. In fact, Modi's BJP party increased its vote share in the 2019 parliamentary election (Chowdhury, 2022). This support for the government, combined with the fact that a majority of the Indian public supports the use of FRT in law enforcement, means that the government has no incentive to discontinue its current surveillance policies. Despite the majority of the public accepting the use of AI surveillance technologies, there is considerable opposition from media and civil society groups (Jauhar, 2020; Internet Freedom Foundation, n.d.). For example, the Internet Freedom Foundation gathers data and informs the public about uses of surveillance technology (Internet Freedom Foundation, n.d.). However, the government's crackdown on civil society groups and the media negatively impacts political freedoms, making it harder to challenge the government's AI usage (Chowdhury, 2022). Despite the efforts of these civil society groups, AI surveillance has played a role in advancing authoritarianism and discrimination in the context of Hindu nationalist ideology in India.

How Singapore and India Influence the Asia-Pacific Region

The surveillance trajectories of Singapore and India, although shaped by distinct political systems, are increasingly interlinked through regional trends in digital governance, security cooperation, and the diffusion of authoritarian technology. Both countries reflect and reinforce the broader normalization of AI surveillance across the Pacific Asia region. While Singapore's model is driven by technocratic efficiency and India's by nationalist control, their approaches converge in their ability to legitimize state surveillance under the language of progress, innovation, and security (Freedom House, 2022). This convergence has led to unexpected cross-regional effects: democratic backsliding, the export of surveillance norms, and the weakening of transnational privacy standards.

Regionally, Singapore has positioned itself as a hub for responsible AI, exporting governance frameworks and digital-infrastructure expertise across Southeast Asia (Personal Data Protection Commission, 2020). Neighboring countries, such as Malaysia, Thailand, and Indonesia, have referenced Singapore's model in crafting their own AI strategies, often emphasizing efficiency and smart city integration over privacy concerns (OECD, 2019). This diffusion underscores how Singapore's soft power operates through technological emulation rather than explicit political coercion. The idea that surveillance can coexist with prosperity and safety has become a compelling regional narrative, one that normalizes monitoring as a sign of development rather than repression (Ong & Loo, 2021). Ironically, this regional influence has enabled the Singaporean model, initially justified by its small size and tightly managed politics, to be scaled across very different political contexts, where it can be easily adapted to justify broader forms of control.

India, meanwhile, contributes to the regional dynamic through its scale and democratic façade. Its rapid adoption of AI surveillance, particularly through initiatives like Aadhaar and predictive policing systems, signals that democratic regimes can also institutionalize surveillance under the guise of modernization (Mehta & Jain, 2021; Mahapatra, 2021). The Indian example has further blurred the regional boundary between authoritarian and democratic uses of AI. For countries like Sri Lanka, Bangladesh, or even the Philippines, where democratic institutions remain fragile, India's model demonstrates that large-scale surveillance can be integrated into democracy without immediate political backlash. The consequence is a broader erosion of liberal norms in the region, as governments learn that surveillance can be both politically viable and domestically popular.

Despite their political differences, Singapore and India influence each other through shared regional networks of technology procurement and infrastructure. Both import AI systems and surveillance technologies from Chinese and Western firms, creating a hybrid ecosystem that circulates both tools and governing philosophies. This blending of democratic and authoritarian models of surveillance has made the Pacific Asia region a testing ground for how states balance digital innovation with control. In practice, it has led to unexpected outcomes: most notably, a paradox where increased transparency technologies such as digital governance platform) coexist with decreasing accountability and civil rights (Joshi, 2024).

The most unexpected result of this dynamic is the emergence of regional public acceptance toward surveillance as a feature of modern governance. In both India and Singapore, citizens are increasingly associating AI systems with efficiency and progress, rather than repression. As Gomez notes, this acceptance is often manufactured through legal and institutional design that presents surveillance as lawful, rational, and necessary. Once exported, this model contributes to a regional feedback loop: public tolerance for surveillance in one state reinforces its normalization in another. The long-term implication is a Pacific Asia in which privacy becomes negotiable, and where surveillance is viewed less as an infringement of rights than as an inevitable condition of modern citizenship.

Our findings demonstrate that the rise of AI surveillance in Singapore and India over the past decade has been profoundly shaped by each country's political institutions and priorities. In Singapore, the government's drive to become a 'smart nation' has led to the normalization and expansion of AI surveillance, supported by legal and regulatory frameworks like the PDPA. These measures have expanded state control while minimizing public opposition, with data regulation tools such as POFMA and hundreds of defamation lawsuits curbing freedom of speech in favor of maintaining the PAP's political dominance. Similarly, India's authoritarian trends under the Modi government have enabled the widespread deployment of AI surveillance as a means to consolidate power and curtail civil liberties. The government's discriminatory stance against Muslims is reflected in the use of technologies like facial recognition by police to target protesters, further eroding democratic freedoms, as shown by declining democratic indices.

Overall, despite differences in their political systems, both Singapore and India have contributed to the regional normalization of state surveillance, with other Pacific Asian countries adopting similar practices that prioritize efficiency and security over privacy and civil liberties. This pattern is reducing democratic priorities in the area and weakening privacy standards. Ultimately, the political climates in Singapore and India not only shape the development and use of AI as a tool for consolidating power, but also position both countries as influential models for the broader Pacific Asia region. Understanding how the political climates of India and Singapore influence the implementation of AI surveillance reveals how technology can be shaped to either protect or undermine civil liberties, and the effects that the influence of these countries has had globally on the adoption of AI.

Limitations

As researchers, we encountered several limitations in our analysis of AI surveillance implementation in Singapore and India from 2015. Our study was constrained by the time since we are college students. With more time, we could have examined the influence of confounding variables and the roles of additional stakeholders beyond governmental actors, such as AI companies and technology producers. Our research further relied primarily on online academic journals and resources from the University of Michigan library, which limited our access to research datasets and scholarly journals that were available to students. More comprehensive technical and deployment data on AI surveillance in each country, if made more readily available, could have facilitated a more thorough analysis in each country to understand the extent of AI implementation. Additionally, our analysis of the political climates in both India and Singapore was complicated by laws that censor opinions that counter the dominant political party. As a result, the reliability of government-released information remains a significant limitation of our study.

More specifically, in our research, one of the main limitations we faced when studying AI surveillance was the limited availability of first-party data, which led us to rely primarily on secondary sources and qualitative analysis. Our methodology primarily consisted of analyzing academic journals and government acts and regulations, with a focus on how AI is represented in these sources, rather than on firsthand accounts from affected citizens in India or Singapore. Our research tried to address this limitation by reviewing court cases involving AI, but was confined by the availability of online court records in both countries. We also faced significant asymmetry in data availability between the two countries. Literature on India's AI surveillance is much more extensive, particularly on facial recognition and Aadhaar-related systems, than in Singapore, where much of the research focuses on general "Smart Nation" initiatives rather than AI-specific surveillance. Based on the differing results, we identified a limitation in comparable sources that analyze similar AI surveillance criteria. Our group also recognizes that our conclusions may be limited, as both AI regulation and surveillance technologies are constantly evolving, and studies may become outdated as new updates emerge and are implemented. Despite these limitations, we believe that our research provides a plausible analysis and meaningful insights into how differing political climates in India and Singapore have influenced their use of AI surveillance since 2015.

Conclusion

The cases of India and Singapore indicate how the use of AI surveillance cannot be understood without an assessment of the political environment in which they are used. In both countries, AI has been framed as a symbol of progress and modernization, providing security to its citizens. However, the specific methods and justifications that have been used to deploy these systems have been contested. Thus, AI surveillance has become less of a neutral technology and instead has become a tool to extend and promote political control.

In India, the growth of AI surveillance is tightly linked to the BJP's Hindu nationalist agenda and ongoing democratic backsliding. Technologies like FRT, predictive policing, and Aadhaar-based systems are implemented in a context where minorities, especially Muslims, are already subject to legal and social exclusion. Our research shows that these tools amplify existing inequalities by enabling targeted policing, protest monitoring, and data collection that disproportionately harm marginalized communities, even as polling suggests broad public support for CCTV and FRT. Legal protections like the Puttaswamy judgment coexist with older, expansive surveillance laws, creating a fragmented regulatory environment that the central government can exploit. This reveals how a formally democratic system can still normalize AI surveillance in ways that undermine civil liberties and entrench authoritarian tendencies.

Singapore shows a similar result. The PAP's "Smart Nation" agenda has successfully normalized AI surveillance to its people, accepting it as a feature of everyday life, from health screenings to public services. Legal instruments like the PDPA and Model AI Governance Framework create a facade of responsible regulation, yet, they leave space for state surveillance and data access. High levels of public trust combined with limited avenues for dissent produce "consensual surveillance:" a system where citizens accept monitoring as necessary in order to receive safety and economic growth. The TraceTogether controversy exposed the risks of overextended surveillance, yet it did not significantly alter the course of AI surveillance's rise to prevalence.

Together, India and Singapore represent a political climate that not only influences the spread and scale of AI deployment and surveillance, but also represents a climate where different rights of people are prioritized and how accountability can be manufactured. Regionally, these two cases help to normalize AI surveillance to the broader Pacific Asia by offering powerful models, rooted in control and efficiency, that other states can mimic. Understanding these models is not only essential to understand current harms, but also in the future of designing safeguards to protect civil liberties in a time of rapidly expanding technological capabilities.

References

Aasif, M., Beohar, A., Kumar, D., Malik, A., Mohiddin, U., Pandey, A., & Sharma, V. (2023). *Status of policing in India report 2023: Surveillance and the question of privacy.* Common Cause & Lokniti – Centre for the Study of Developing Societies. https://www.commoncause.in/wotadmin/upload/REPORT_2023.pdf

Abdullah, W. J. (2020). "New normal" no more: Democratic backsliding in Singapore after 2015. *Democratization*, *27*(7), 1123–1141. https://doi.org/10.1080/13510347.2020.1764940

Abeler, J., Bäcker, M., Buermeyer, U., & Zillessen, H. (2020). COVID-19 contact tracing and data protection can go together. *JMIR mHealth and uHealth, 8*(4), e19359. https://doi.org/10.2196/19359

Aiyar, A. S. (2020, September). *Despite Modi, India has not yet become a Hindu authoritarian state.* Cato Institute Policy Analysi*s, 903.* https://www.cato.org/policy-analysis/despite-modi-india-has-not-yet-become-hindu-authoritarian-state

Antunes, M. E. (2023). *Innovations in smart cities: The role of technology in urban development.* Deloitte Portugal. https://www2.deloitte.com/pt/en/pages/public-sector/articles/smart-cities-innovation.html

Attorney-General's Chambers of Singapore. (1965, August 9). *Constitution of the Republic of Singapore—Singapore Statutes Online*. Singapore Statutes Online. https://sso.agc.gov.sg/act/cons1963

Avitabile, G., Botta, V., Iovino, V., & Visconti, I. (2020). *Towards defeating mass surveillance and SARS-CoV-2: The Pronto-C2 fully decentralized automatic contact tracing system (No. 2020/493).* Cryptology ePrint Archive. https://eprint.iacr.org/2020/493

Awang, N. (2020, August 11). *Li Shengwu agrees to pay S$15,000 fine for contempt of court, but won't admit guilt*. TODAY. https://www.todayonline.com/singapore/li-shengwu-agrees-pay-s15000-fine-contempt-court-denies-admitting-guilt

Bajpai, N., & Wadhwa, M. (2021). Artificial intelligence and healthcare in India. *Columbia University, Earth Institute, Center for Sustainable Development (CSD). 43*. https://hdl.handle.net/10419/249832

Beltrão, G., Goh, S. T., Sousa, S., & Lamas, D. (2025). Community, identity & stability? building trust in facial recognition systems for mass surveillance. *Journal of Responsible Technology*, *24*. https://doi.org/10.1016/j.jrt.2025.100139

Bhatia, G. (2014). *State surveillance and the right to privacy in India: A constitutional biography.* National Law School of India Review, 26(2), Article 3. https://repository.nls.ac.in/nlsir/vol26/iss2/3

Chadha, K., & Arya, S. (2021). Challenges to press freedom in India. *In Oxford Research Encyclopedia of Communication.* https://doi.org/10.1093/acrefore/9780190228613.013.974

Chandra, J. (2021, December 3). *Facial recognition at airports from 2022.* The Hindu. https://www.thehindu.com/news/national/facial-technology-at-airports-from-2022-says-govt/article37811424.ece

Chattopadhyay, S. (2025). *Navigating surveillance monitoring in India: Reconciling national security imperatives with individual privacy rights.* In Proceedings (pp. 482–510). https://doi.org/10.2991/978-2-38476-426-6_23

Choubey, H., & Yadav, H. (2024). Intersections of AI and law enforcement in India: Policies and legal implications. *Nirma University Law Journal*, *14*(1), 20. https://articles.manupatra.com/article-details/INTERSECTIONS-OF-AI-AND-LAW-ENFORCEMENT-IN-INDIA-POLICIES-AND-LEGAL-IMPLICATIONS

Chowdhury, S. (2022). Economics and politics under Modi government: A synoptic view. *Institute of Human Geography*, *16*(2). https://doi.org/10.1177/19427786221133475

Constitution of India. (n.d.). *Article 25: Freedom of conscience and free profession, practice and propagation of religion.* https://www.constitutionofindia.net/articles/article-25-freedom-of-conscience-and-free-profession-practice-and-propagation-of-religion/

Cyber Security Agency of Singapore. (2025). *Keeping our cyberspace safe & secure.* https://www.csa.gov.sg/

Das, D., & Kwek, B. (2024). AI and data-driven urbanism: The Singapore experience. *Digital Geography and Society*, *7*. https://doi.org/10.1016/j.diggeo.2024.100104

Donahue Singh, H. (2020). Numbering others: Religious demography, identity, and fertility management experiences in contemporary India. *Social Science & Medicine*, *254*. https://doi.org/10.1016/j.socscimed.2019.112534

Edelman Trust barometer 2024: A collision of trust, innovation, and politics. (2024). Edelman*.* https://www.edelman.com/trust/2024/trust-barometer

Elections Department Singapore. (2025). *Parliamentary general election results.* https://www.eld.gov.sg/elections_past_parliamentary.html

Findlay, M. J., Loke, J. Y., Remolina, N., & Tham, B. (2020). Ethics, AI, mass data and pandemic challenges: Responsible data use and infrastructure application for surveillance and pre-emptive tracing post-crisis. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3592283

Fontes, C., Hohma, E., Corrigan, C. C., & Lütge, C. (2022). AI-powered public surveillance systems: Why we (might) need them and how we want them. *Technology in Society*, *71*. https://doi.org/10.1016/j.techsoc.2022.102137

Frana, P. L. (2024). Assessing smart nation Singapore as an international model for AI responsibility. *International Journal on Responsibility*, *7*(1). https://doi.org/10.62365/2576-0955.1109

FreedomHouse. (2025). *India: Country Profile*. https://freedomhouse.org/country/india

Gomez, J. (2023, June 30). *Singapore under the Pandemic: The normalisation of digital authoritarianism*. EngageMedia. https://engagemedia.org/2023/pandemic-control-singapore/

GovTech Singapore. (2023). *Government Technology Agency of Singapore.* https://www.tech.gov.sg/

Hartley, K., & Aldag, A. (2024). *Public trust and support for government technology: Survey insights about Singapore's smart city policies. Cities*, 154. https://doi.org/10.1016/j.cities.2024.105368

Hickock, E., & Xynou, M. (2015). *Security, surveillance and data sharing schemes and bodies in India*. https://editors.cis-india.org/internet-governance/blog/security-surveillance-and-data-sharing.pdf

Hickok, E., Bedi, P., Nair, A., Sinha, A., Murray, D., Fussey, P., Stevens, A., & Basu, A. (2021). *Facial Recognition Technology in India*. The Centre for Internet and Society, India. The Human Rights, Big Data and Technology Project, University of Essex, UK. https://cis-india.org/internet-governance/facial-recognition-technology-in-india.pdf.

Hirschmann, R. (2025, January 16). *Singapore: World press freedom ranking 2024*. Statista. https://www.statista.com/statistics/1550760/singapore-world-press-freedom-ranking/
Ho, E. (2017). Smart subjects for a smart nation? Governing (smart) mentalities in Singapore. *Urban Studies*, *54*(13), 3101–3118. https://doi.org/10.1177/0042098016664305
Human Rights Watch. (2021, January 13). *Singapore: 'Fake news' law curtails speech*. https://www.hrw.org/news/2021/01/13/singapore-fake-news-law-curtails-speech
Immigration & Checkpoints Authority, & Home Team Science & Technology Agency. (2025). S*ecuring our borders.* Ministry of Home Affairs Singapore. https://www.mha.gov.sg/what-we-do/securing-our-borders
Internet Freedom Foundation. (n.d.). *About Us.* https://internetfreedom.in/about/
Jasper, K. (2021, February 17). *Singapore's updated TraceTogether privacy policy could erode public trust.* Center for Strategic and International Studies. https://www.csis.org/blogs/new-perspectives-asia/singapores-updated-tracetogether-privacy-policy-could-erode-public
Jauhar, A. (2020). Facing up to the risks of automated facial-recognition technologies in Indian law enforcement. *Indian Journal of Law and Technology, 16*(1), Article 1. https://repository.nls.ac.in/ijlt/vol16/iss1/1
Joshi, D. (2024). AI governance in India – Law, policy and political economy. *Communication Research and Practice, 10*(3), 328–339. https://doi.org/10.1080/22041451.2024.2346428
Khanna, P., & Khanra, S. (2023). Citizen empowerment through smart surveillance: Evidence from Indian smart cities. *Digital Policy, Regulation and Governance*, *25*(4), 385–401. https://doi.org/10.1108/DPRG-11-2022-0141
Klare, P., Nigg, J., Nold, J., Haller, B., Krug, A. B., Mair, S., Thoeringer, C. K., Christle, J. W., Schmid, R. M., Halle, M., & Huber, W. (2015). The Impact of a ten-week physical exercise program on health-related quality of life in patients with inflammatory bowel disease: A prospective randomized controlled trial. *Digestion,* 91(3), 239–247. https://doi.org/10.1159/000371795
Kronstadt, A. (2024, April 18). *Changes to India's citizenship laws*. United States Congress. https://www.congress.gov/crs-product/IF11395#:~:text=In%20late%202019%2C%20India's%20parliament,to%20the%20country's%20naturalization%20process
Lee, T., & Abdullah, W. J. (2022). (Not) democratising through strength: Core beliefs and the institutions of Singapore's People's Action Party. *Contemporary Politics*, *28*(5), 587–610. https://doi.org/10.1080/13569775.2022.2059830
Lee, T., & Lee, H. (2020). Tracing surveillance and auto-regulation in Singapore: 'Smart' responses to COVID-19. *Media International Australia*, *177*(1), 47–60. https://doi.org/10.1177/1329878X20949545
Lee, J. K., Lin, L., & Kang, H. (2021). The influence of normative perceptions on the uptake of the COVID-19 TraceTogether digital contact tracing system: Cross-sectional study. *JMIR Public Health and Surveillance, 7*(11), e30462. https://doi.org/10.2196/30462.
Mahapatra, S. (2025). *Ethical governance of AI and the prevention of digital authoritarianism in South and Southeast Asia.* German Institute for Global and Area Studies, 3. https://epub.sub.uni-hamburg.de/epub/volltexte/2025/186102/pdf/DigiTraL_2025_03_Mahapatra.pdf
Mahapatra, S. (2021). *Digital surveillance and the threat to civil liberties in India (Vol. 3).* German Institute for Global and Area Studies. https://www.giga-hamburg.de/en/publications/giga-focus/digital-surveillance-and-the-threat-to-civil-liberties-in-india
Marda, V., & Narayan, S. (2020). Data in New Delhi's predictive policing system. *Association for Computing Machinery,* 317-324. https://doi.org/10.1145/3351095.3372865
McDuie-Ra, D. (2024). Smart Cities, surveillance and speed in Imphal, Manipur. *Journal of South Asian Studies*, *47*, 970–992. https://doi.org/10.1080/00856401.2024.2381997
Mehta, N., & Jain, N. (2021). Rise in facial recognition surveillance and its implications for India in coming decades; Violation of privacy and human rights. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3877325
National Association of Software and Service Companies. (2021, June 2). *AI patents – driving emergence of India as an AI innovation hub*. https://nasscom.in/knowledge-center/publications/ai-patents-driving-emergence-india-ai-innovation-hub
National Artificial Intelligence Strategy. (2019). *Advancing our smart nation journey*. https://go.gov.sg/nais2019
National Artificial Intelligence Strategy. (2023). *AI for the public good for Singapore and the world.* https://go.gov.sg/nais2023
Organization for Economic Co-operation and Development. (2019). *Artificial intelligence in society.* OECD Publishing. https://www.oecd.org/en/publications/artificial-intelligence-in-society_eedfee77-en.html
Ong, E.-I., & Loo, W. L. (2021). *Gauging the acceptance of contact tracing technology: An empirical study of Singapore residents' concerns with sharing their information and willingness to trust*. 27. http://dx.doi.org/10.2139/ssrn.3817972
Ortmann, S. (2011, October 1). Singapore: Authoritarian but newly competitive. *Journal of Democracy, 22*(4), 153-164. https://www.journalofdemocracy.org/articles/singapore-authoritarian-but-newly-competitive/
Ortmann, S. (2023). Liberal vestiges in an illiberal regime: The case of Singapore. *Society*, *60*(1), 28–39. https://doi.org/10.1007/s12115-022-00790-0
Ostwald, K., & Oliver, S. (2020). *The Singapore PAP's waning dominance*. East Asia Forum. https://doi.org/10.13140/RG.2.2.18806.63040
PARL. (2024, March 12). *System of government*. https://www.parliament.gov.sg/about-us/structure/system-of-government#:~:text=Being%20unicameral%2C%20the%20Parliament%20of,Functions%20of%20Parliament
Paulo, D. A., & Tanu, E. (2019, February 25). *How Changi Prison is taking to video analytics and facial recognition in a big way*. Channel News Asia. https://www.channelnewsasia.com/news/cnainsider/singapore-changiprison-facial-recognition-ai-tech-surveillance-11263318
Personal Data Protection Commission. *(*2020*). Advisory guidelines on use of personal data in AI recommendation and decision systems.* https://www.pdpc.gov.sg/guidelines-and-consultation/2024/02/advisory-guidelines-on-use-of-personal-data-in-ai-recommendation-and-decision-systems
Protection from Online Falsehoods and Manipulation Act (2019). *No. 18*, Singapore Statutes Online. https://sso.agc.gov.sg/Act/POFMA2019?WholeDoc=1
Prakash, N., Sahoo, S., Saraswat, D., & Sindhi, R. (2021, March 19). *When criminality begets crime: The role of elected politicians*. Ideas For India. http://www.ideasforindia.in/topics/governance/when-criminality-begets-crime-the-role-of-elected-politicians.html
Ramanathan, R. (2021). Towards a systemic approach to business. *NHRD Network Journal*, *14*(4), 450–459. https://doi.org/10.1177/26314541211030061

Rani, M. (2024). Impacts and ethics of using Artificial Intelligence (AI) by the Indian police. *Public Administration and Policy, 28*(2). DOI:10.1108/PAP-06-2023-0081

Reporters Without Borders. (2025). *Index | RSF*. https://rsf.org/en/index

Sahoo, N. (2020). *Mounting majoritarianism and political polarization in India.* In Political polarization in south and southeast Asia: Old divisions, new dangers (pp. 9–24). Carnegie Endowment for International Peace. https://www.jstor.org/stable/resrep26920.7?seq=1

Singapore Statutes Online. (2021, November 26). *Foreign interference (countermeasures) Act 2021*. Republic of Singapore Government Gazette Acts Supplement. https://sso.agc.gov.sg/Act/FICA2021

Singapore Statutes Online. (2023, December 29). *Foreign interference (countermeasures) Regulations 2023*. https://sso.agc.gov.sg/SL/FICA2021-S881-2023?DocDate=20231222

Singh, B., Abdullah, W. J., & Tan, F. (2020). *Unmasking Singapore's 2020 general elections: COVID-19 and the evolving political landscape*. World Scientific. https://doi.org/10.1142/12025

Siyuan, C. (2023). Regulating online hate speech: The Singapore experiment. *International Review of Law, Computers & Technology*, *38*(2), 119–139. https://doi.org/10.1080/13600869.2023.2295091

Smart Nation. (2025, October 7). *National AI strategy*. Smart Nation Singapore. https://www.smartnation.gov.sg/initiatives/national-ai-strategy/

Tan, D. (2024, March). *Generative AI and copyright fair use.* Centre for Technology, Robotics, Artificial Intelligence & the Law, National University of Singapore. https://law.nus.edu.sg/trail/generative-ai-copyright-fair-use/

Tan, N., & Denyer, R. L. (2023). *Regulating online pandemic falsehoods: Practices and interventions in Southeast Asia.* In C. Soon (Ed.), Mobile communication and online falsehoods in Asia (pp. 227–248). Springer. https://doi.org/10.1007/978-94-024-2225-2_12

Teo, K. (2021). Civil society responses to Singapore's online "fake news" law. *International Journal of Communication*, *15*, 4795–4815. https://ijoc.org/index.php/ijoc/article/download/17910/3593

Tiwari, K. (2023). Digital revolution in criminal procedure of India: An in-depth examination of the impact of emerging technologies. *International Journal of Law Management & Humanities*, *6*(6), 3573–3588. https://doij.org/10.10000/IJLMH.116540

Tudor, M. (2023). Why India's democracy is dying. *Journal of Democracy*, *34*(3), 121–132. https://www.journalofdemocracy.org/articles/why-indias-democracy-is-dying/

Vats, A. (2022). Building the case for restricted use of predictive policing tools in India. *The International Review of Information Ethics*, *32*(1). https://doi.org/10.29173/irie487

World Justice Project. (2024, October 5). *Singapore: Open government index by factor 2024.* Statista. https://www.statista.com/statistics/1550683/singapore-open-government-index-by-factor/

Yeo, L. (2002). Electoral politics in Singapore. *Electoral Politics of Asia and Southeast Asia,* (pp. 1–13). https://www.researchgate.net/publication/241614797_Electoral_Politics_in_Singapore

Zhu, R. (2023). The secrets of continuous governance by the People's Action Party in Singapore: A focus on parliamentary system design. *Lecture Notes in Education Psychology and Public Media, 23(1),* doi.org/10.54254/2753-7048/23/20230348

Beyond Peacekeeping: How the Shift from AMISOM to ATMIS Reshaped Somali's Fight Against Al-Shabaab

Natalia Pataq, Nahum Sullivan, Isaac Schultz, Thea Zellmer

This paper examines how the transition from the African Union Mission in Somalia (AMISOM) to the African Union Transition Mission in Somalia (ATMIS) in 2022 strengthened Somali military efforts against Al-Shabaab. We analyze the shortcomings of AMISOM, how they informed the strategic improvements of ATMIS, and how these changes have ultimately impacted the Somali military's efficiency, mobility, and effectiveness. To assess ATMIS's impact, we evaluated AMISOM's prior failures and looked at the new strategic developments of ATMIS. We then analyzed how these developments aided ATMIS's fight against Al-Shabaab through territorial gains, casualty counts, and political evolution. We concluded that ATMIS has produced short-term operational gains against Al-Shabaab; however, these successes have not been sustained territorially following troop withdrawals from Gedo and the Lower Juba region. Furthermore, ATMIS has significantly impacted Somalia as a nation both positively and negatively. ATMIS has generated notable economic, structural, and humanitarian effects such as increasing spending deficits, strengthening local Somali forces, and loss of civilians. Despite ATMIS's improved efforts, its unsustainability allows Al-Shabab to maintain a significant presence within Somalia.

Introduction

For more than 30 years, Somalia has existed within continuous, unstable evolutions of political fragmentation, clan tension, and the constant presence of insurgent militia and terrorist groups like Al-Shabaab. After the fall of the central government in 1991, Somalia entered a period of instability characterized by failing institutions, extreme violence between competing clans, and a constant struggle for legitimacy between the Federal Government of Somalia (FGS) and non-state actors such as Al-Shabaab. Since then, missions by regional and international entities have sought to stabilize Somalia by focusing on both improving the military's self-sufficiency and state-building.

The African Union Mission in Somalia (AMISOM) formed in 2007 under a United Nations mandate to combat Al-Shabaab's use of violence against civilians and governmental targets to advance Al-Shabaab's rigid interpretation of Islamic law and restore the state's authority (Ajú, 2025). While AMISOM accomplished parts of its mission to reestablish stability, it has been criticized by security analysts for fostering dependence on external actors and for limiting the development of Somalia's security capacities, thereby rendering the nation's effective governance over time unsustainable (Liaga & Habib, 2024; Tadesse, 2023).

In 2022, AMISOM transitioned to the African Union Trade Mission in Somalia (ATMIS) to shift from a prolonged external military presence toward a conditions-based exit, prioritizing long-term Somali self-sufficiency. ATMIS's goals encompass shifting security responsibilities from external actors to Somali institutions and building the nation's military infrastructure. In addition, ATMIS aimed to enhance logistical support, intelligence systems, and inter-agency dynamics for security institutions in Somalia. It did this by helping to plan and oversee offensives, creating local political councils, and training Somali troops in counterinsurgency strategies.

While ATMIS has strengthened Somalia's military and defense structures, the country's unstable and fractured politics continue to complicate ATMIS's objectives and delay progress. The FGS remains unable to establish legitimacy in the country due to regional fragmentation, Al-Shabaab's territorial holdings, and its dependence on foreign funding for security and governance. ATMIS currently operates within this strained environment of limited resources, competing political interests, and the resilient terrorism of Al-Shabaab. As operations shift, through decentralization in some areas and insurgent infiltration in others, maintaining consistent security and national cohesion remains a persistent challenge.

This paper seeks to understand the impact of this transition on Somalia's capacity to conduct sustained operations, hold recovered territory, and develop effective security institutions, in analyzing the impact of the transition from AMISOM to ATMIS in strengthening the Somali military against Al-Shabaab. More broadly, how this transition might reveal implications for regional stability in the Horn of Africa particularly Somalis, Kenya and Ethiopia. Furthermore, this paper hopes to offer insight into how security assistance models shape the trajectory of Al-Shabaab's violent extremism. This study analyzes the shortcomings of both ATMIS and AMISOM efforts to combat Al-Shabaab, and evaluates how these missions fell short in strengthening Somalia's security institutions and countering opposing armed factions. The analysis considers how both ATMIS and AMISOM failure against Al-Shabaab contributed to ongoing humanitarian, structural, and territorial losses.

Review of the Literature

To provide a comprehensive background of existing literature this section delves into the historical, political, and security dynamics that shaped the emergence of Al-Shabaab and the evolution of international intervention efforts in Somalia. This literature traces Al-Shabaab's rise from the collapse of the Somali state to its transformation into a transnational terrorist organization, and the effectiveness of AMISOM and its successor, ATMIS. The synthesis of existing literature highlights both the accomplishments and limitations of these missions.

Rise of Al-Shabaab in Somalia

The creation of Al-Shabaab is a manifestation of Somalia's perpetual, anarchical, and volatile state after the collapse of Somalia's central government in 1991. This chaos created a power vacuum, which in turn, led to the rise of several militant groups. Amongst these groups, Al-Shabaab, an Islamist group seeking to impose a strict form of Sharia law, rose to prominence in Somalia. Since its emergence, Al-Shabaab has waged brutal insurgency and entrenched its control in Somalia, significantly altering the political landscape (Wise, 2011).

In Somalia in 1991, after the United Somali Congress (USC) overthrew military dictator, Mohammad Siad Barre, chaos ensued as several warlords and clans competed for sovereignty (Wise, 2011). During this intense power struggle, no single faction was able to decisively obtain control, causing Somalians to live in a riotous state for several years (Wise, 2011). During this anarchical period, there was an urgent need for stability. Finally, after 14 attempts at peace led by external powers such as the UN and the African Union, the Transitional Federal Government (TFG) was established in 2004 (Wise, 2011). The TFG was formed through external negotiations with numerous Somali factional groups, Kenya, and support for the Somali peace process from Ethiopia and the U.S. The negotiations were facilitated in Kenya, as it was a neutral and secure place near Somalia (Anzalone, 2014).

As a result, many Clan-based coalitions viewed the TFG as a foreign imposition, making it difficult for the TFG to exert control with Ethiopian funding (Ingiriis, 2018). Eventually, competing clan politics in Somalia diminished the TFG's legitimacy in 2009, creating another power vacuum (Wise, 2011). To fill this governance gap, local Sharia courts—counsel that applies aspects of Islamic law—began to impose a degree of order in 2004 (Ingiriis, 2018). In an effort to restore order, eleven of the most prominent shari'a courts merged to form the Union of Islamic Courts (UIC); together, these courts ushered in a period of stability by establishing a unified security force, dismantling warlord checkpoints, and enforced judicial rulings (Anzalone, 2014). However, as the UIC expanded its authority, it utilized its power to enforce a rigid interpretation of Islamic law upon citizens (Wise, 2011). Some of these strict Islamic practices included placing sanctions on media, enforcing mandatory veiling for women, and imposing harsh punishments on those who violated the teachings of the Quran (Anzalone, 2014).

One fundamentalist faction within UIC that supported this approach was Al-Shabaab. The origins of Al-Shabaab are disputed amid different literature. Some scholars, including Wise (2011), argue that the group's creation was much before the establishment of the UIC, though the general consensus from Ingiriis (2018) and Anzalone (2014) is that they emerged between 2003 and 2007 as a faction within the UIC. Prior to the rise of Al-Shabaab, in the late 1980s, an Islamist organization titled Al Itihaad al Islamiya (AIAI) began to emerge in 1983. The AIAI remained in power for several years, until military defeat by Ethiopian forces, internal divisions, and increasing public resentment led to its downfall in 1997. Although the AIAI collapsed it left behind its youngest militant members with an unfulfilled vision of restoration. Sheikh Hassan Dahir Aweys, the chairman of UIC's Shura council (governing body of the UIC), was one of these members. He sought to restore the AIAI's goal of establishing an Islamic state in Somalia governed by sharia law, through the creation of Al-Shabaab under UIC's sponsorship. As Awey's influence grew, he passed operational leadership to Aden Hashi Ayro, a younger militant commander whose battlefield experience made him the natural successor (Anzalone, 2014). Eventually, in 2006, Ayro led Al-Shabaab within UIC's military wing, helping it seize power in Mogadishu (Ingiriis, 2018). This marked Al-Shabaab's first public appearance, establishing the rise of an Islamic movement that would forever transform Somalia.

In December 2006, to defend the TFG, Ethiopia launched an incursion against Somalia backed by the TFG forces. Ethiopia viewed the UIC's growing power as a military imposition on its own national security, so this foreign invasion sought to dispose of the UIC and reinforce the TFG's supremacy (Ingiriis, 2018). After very little time, the Ethiopian militia succeeded in dissolving the power of UIC, expelling many of the UIC's prominent leaders. These leaders included Sharif Sheikh Ahmed, Hassan Dahir Aweys, Yusuf Indha'ade, and Mukhtar Robow. During the UIC's collapse, Al-Shabaab began to emerge during the UIC's collapse. Al-Shabaab naturally formed into two groups during the invasion: one group fled the country with the top UIC leaders, while the other remained in Mogadishu, Somalia's capital. The group that remained in Somalia was composed of the Al-Shabaab's extremist flank, including Aden Hashi Ayro, while the moderate voices left for neighboring countries (Ingriis, 2018).

Before its collapse, the UIC's ideology was largely tempered by moderate beliefs and rooted in its ability to bring stability to Somalia. However, with moderate voices fleeing Somalia, the extremists were given free rein over Al-Shabaab, imposing a stricter version of Sharia law. Since Al-Shabaab was no longer subordinate to the UIC, it had to define itself as a nationalist movement seeking to reclaim Somalia from Ethiopian power (Wise, 2011). Al-Shabaab's ideological redefinition served to create an autonomous identity that would resonate with the Somali citizens amid political upheaval. As a result, this nationalist rhetoric fueled widespread support, leading to a large expansion of the group from 400 members to over 1,000 between 2006 and 2008 (Wise, 2011). This influx of dedicated fighters caused Al-Shabaab to develop an asymmetric operational strategy against Ethiopians, becoming the most powerful resistance force in Somalia. With its newfound supporters, Al-Shabaab's ideology began to shift from a movement concerned with restoring order to one grounded in global jihadist principles. It soon began a campaign of guerrilla raids, bombing, and assassination attempts against Ethiopian forces, eventually regaining some control of Ethiopia's capital, Addis Ababa, in 2009 (Anzalone, 2014).

In the following years, Al-Shabaab's control has grown more sophisticated, evolving from a nationalist resistance group into a transitional terrorist organization in 2010 (Ingiriis, 2018). This transformation marked a shift from a primarily domestic insurgency to a movement with regional jihadist ambitions. This paper aims to build upon the existing scholarship by tracing the transitional phase of Al-Shabaab, highlighting how the group's shift towards transnational terrorism reshaped Somalia's organizational structure, recruitment strategies, and political objectives.

AMISOM's Role in Somali Security (2007-2022)

The initial rise of Al-Shabaab in the early 2000s set the stage for the decades of African Union (AU) intervention with the United Nations' (UN) support. While the initial intervention succeeded in weakening Al-Shabaab and providing national stability, it failed in its goal of building a self-sustaining Somali security infrastructure and completely eliminating Al-Shabaab (Liaga & Habib, 2024).

In 2007, the AU and UN formed the African Union Mission in Somalia (AMISOM) to provide an exit strategy for Ethiopian forces stationed in the country and to defend the transitional federal government of Somalia (Ajú, 2025). Two years later, the United Nations passed Resolution 1863, which established a United Nations Support Office in the country to aid military efforts and bolster the Somali transitional government (United Nations Security Council, 2009). In 2013, United Nations Security Council Resolution 2124 further supported the intervention by increasing the previous number of AMISOM troops in Somalia from 17,731 to 22,126 and establishing a UN trust fund to support military stipends, equipment, and technical assistance (United Nations Security Council, 2013).

AMISOM's intervention brought military success and notably weakened Al-Shabaab's influence and military capabilities, but it failed to eradicate the group or create sustainable Somali civil institutions (Tadesse, 2023). The effort succeeded in liberating a significant amount of territory from Al-Shabaab, including the areas surrounding Mogadishu and in the regions of Galmudug, Hirshabelle, and Jubaland (Jumale, 2023). The effort also extended Mogadishu's sovereignty by establishing many of these territories as federal subjects (Jumale, 2023). While AMISOM has succeeded in weakening Al-Shabaab, it stopped short of creating a sufficient environment for the full transition of security responsibility to Somali forces (Tadesse, 2023).

The African Union, United Nations, and Federal Government of Somalia established a four-step plan known as the Somali Transition Plan (STP), which aimed to gradually hand over AU-controlled forward operating bases (FOBs) to Somali forces by the end of 2024 (Ajú, 2025).

Several factors offer explanations as to why AMISOM was not strong enough to lay the groundwork for full Somali security responsibility. A common theme in the literature surrounding the shortcomings of AMISOM's intervention was a lack of coordination among sponsors and troop supplying nations and how it exacerbated internal divisions between the Federal Government of Somalia (FGS) and local interests within the country. While sponsors had the potential to regulate local elite rivalries that hindered federal sovereignty over Somalia, their involvement also gave elites opportunities to further their own interests (Tadesse, 2023). For example, the United Arab Emirates' support for the breakaway region of Somaliland demonstrates how foreign powers have used political turmoil in Somalia for their own economic ends (Ajú, 2025). In addition, past literature questions the motives of intervening countries for providing troops. Since 2013, the UN Monitoring Group for Somalia and Eritrea have accused Kenyan Defense Forces (KDF) of participating in the illicit trade of goods such as sugar and charcoal by the (Rasmussen, 2017). Ethiopian contribution is still characterized as problematic by segments of the Somali public, as the unpopularity of its initial intervention in 2006-2009 is credited with growing support for Al-Shabaab among Somali civilians (Williams, 2014).

Scholars also emphasized financial, military, and logistical incompetence on the part of the UN and AU forces in policy making. UN procedures have developed in less volatile non-belligerent environments, making them less effective in the context of warfare (Liaga & Habib, 2024). AMISOM has also suffered from significant financial challenges, being allocated significantly fewer troops and only one-third of the funds allocated to previous UN interventions (Tadesse, 2023). Past literature also suggests that loyalties to Somalia's six kin-based clans, serve as an obstacle to centralized Somali statebuilding, as interclan tensions hinder the strength of civil institutions on a local and national level (Matthews, 2017). However, interclan tensions are rarely put into the context of their interactions with AU forces, and therefore fail to highlight how AU forces can serve as mediators in sectarian conflict.

While current past literature's explanations for AMISOM's shortcomings focus on institutional and logistical failures, scholars seldom place these realities in the context of each other. While increased coordination and material support are certainly important steps towards counterterrorism and statebuilding efforts in Somalia, past literature fails to provide a strategy for the AU to overcome divisions within Somali society and defeat Al-Shabaab.

Transition of AMISOM to ATMIS

On March 31, 2022, the AMISOM mandate expired, and the African Union Transition Mission in Somalia (ATMIS) was established (Tadesse, 2023). Existing research explains the context of AMISOM's shortcomings in military, political, and economic terms, leading up to the conclusion of its mandate by the UN Security Council. Furthermore, research evaluates the updated goals of ATMIS and the level of success, or lack thereof, it has had since its establishment.

As AMISOM transitioned to ATMIS in 2022, many of AMISOM's old vulnerabilities were continued or amplified. ATMIS prioritized the degradation of Al-Shabaab through African military and police personnel to construct peace in Somalia and strengthen the Somali government and security institutions. Their goal was to completely transfer peacekeeping operations and security responsibilities to the Somali Security Forces (SSF) by the end of 2024, which comprises all security institutions within the Federal Government of Somalia (FGS) (Tadesse, 2023). However, political fragmentation across the FGS, the Somali National Army (SNA), and the Troop Contributing Countries (TCC) continued to undermine peacebuilding by AMISOM military and police personnel (Tadesse, 2023).

Among these parallel forces, the FGS, the SNA, the SSF, and the TCCs, structural weaknesses, political rivalries, and competing national interests created persistent barriers to a successful handover of security and peacekeeping responsibilities. These divisions developed over years of fragmented state-building, in which different Somali political elites cultivated their own security networks, often aligned with clan loyalties rather than federal authority. At the same time, TCCs maintained distinct military priorities shaped by their domestic political considerations and threat perceptions, resulting in uneven commitment levels and inconsistent operational strategies. Together, these factors entrenched a fragmented security environment in which no single actor possessed uncontested authority or unified command, thereby complicating ATMIS's ability to coordinate operations and build a durable peace (Ajú, 2022). Furthermore, limited supplies, unknown terrain, and lack of funding were more barriers that ATMIS faced in completing its current mission (Ajú, 2025).

Crucially, the continued strength of Al-Shabaab does not simply present a security challenge; it fundamentally undermines the effectiveness of ATMIS's mission architecture. Even though ATMIS has increased its ground presence, which originally included 18,856 uniformed personnel, across Somalia and in neighboring countries, including Ethiopia, Uganda, and Kenya, Al-Shabaab has successfully carried out multiple terrorist activities, capitalizing on Somalia's political fragmentation and humanitarian crises (Tadesse, 2023). Somalia's humanitarian crisis greatly complicates stabilisation efforts. In 2023, about 8.3 million people required humanitarian assistance. Almost seven million people faced acute food insecurity, and nearly two million children faced malnutrition (UNICEF, 2023). Furthermore, prolonged droughts have forced 3.8 million people to flee their homes, while water scarcity, flood risk, disease outbreaks like cholera, and restricted access in territories controlled by Al-Shabaab have severely limited the reach of aid (UNICEF, 2023). Al-Shabaab has used these crises to launch terrorist attacks, but also embed itself in vulnerable communities and undermine ATMIS's capacity to build a sustainable peace.

Whereas AMISOM had an open-ended operation plan that left room for a multitude of logistical and political issues to take root, ATMIS set clearer deadlines, objectives, and an exit strategy (Tadesse, 2023). The mission's end goal was to transfer military responsibility to Somalia, ending the need for support from the AU. This way, Somalia could effectively defend itself against terrorist threats such as those from Al-Shabaab. ATMIS advanced this goal by creating joint operations with the Somalian military, providing military aid, and building up the Somalian infrastructure (Ajú, 2025). ATMIS's mission differed, as it provided a concrete timeline and contained an official end goal of drawing back from Somalia. Given that Somalia was undergoing political fragmentation, ATMIS was designed by the United Nations and the AU to integrate the statebuilding of Somali institutions, including fostering reconciliation among Somali elites, and restructuring how the government mediated and negotiated to promote compromise for a stronger, more unified security force. To avoid a complete reform of Somali institutions, learning from the shortcomings of AMISOM was a critical part of ATMIS's design. AMISOM's involvement in Somalia over a span of 15 years provided ATMIS a blueprint of where AMISOM succeeded and failed.

Role of ATMIS in Strengthening Somali Militia

ATMIS was crucial in helping Somalia maintain and pursue a higher level of political and societal stability. ATMIS has made noticeable progress in helping Somali officers improve their coordination, logistics, and tactical operations (Liaga & Habib, 2024). The UN, alongside the African Union, has also provided funding in the form of stipends, transportation, and essential military and intelligence equipment (International Peace Institute, 2024). Ethiopia was one of the few external entities that provided aid to Somalia, demonstrating its concern for regional security and the threat posed by Al-Shabaab beyond Somalia's borders (Hawaz & Xi, 2024).

The joint operations between ATMIS and Somali forces were successful. Offensives in Lower Shabelle, Hiiran, and Bay resulted in Somalia's reclamation of important routes and towns in the areas, including Jannaale, Sabiid, Barire, Awdheegle, Bulo-Burde, Mataban, and key sections of the Beledweyne-Mataban and Baidoa-Burhakaba roads (Amani Africa, 2022). These operations were led by Somali forces on the ground while ATMIS provided air and intelligence support for the missions. These joint missions focused on clearing Al-Shabaab positions, securing key corridors, and reestablishing control over towns and transport routes across the three regions. Cutting off Al-Shabaab's access to ground travel on roads and routes helped to disrupt the terrorists' network and reduce their mobility (Muibu, 2024). In these reclaimed or liberated areas, the AU worked side by side with the Somali government to rebuild and reinstitute the nation's political processes, including reestablishing district councils, restoring local administrative offices, and helping restart basic government structures (Jumale, 2023).

One critical aspect of ATMIS's Mission has been cooling forces—groups of Somali troops that have been trained to regain regions from Al-Shabaab control. They stabilized the area, oversaw the reintegration of Somali politics, and protected the land against further terrorist incursions (Jumale, 2023) to ensure that Al-Shabaab could not regain control. The cooling forces are another example of how ATMIS has evolved from AMISOM to create long-term solutions that Somalia could continue to utilize past ATMIS's withdrawal.

ATMIS has also weakened Al-Shabaab's operations by systematically targeting its financial and organizational networks. Al-Shabaab maintained an economic network of taxation and recruitment that sustained its terrorism. They imposed taxes on farmers, merchants, and transporters in the regions they occupied in southern Somalia. By cutting off key trade and transportation routes during reclamation offensives, ATMIS and Somali forces also cut off Al-Shabaab's revenue streams (Tadesse, 2023). Along with regaining trade routes from Al-Shabaab's control, those same Somali offensives have reclaimed agricultural land that Al-Shabaab had taxed, diminishing the terrorist group's legitimacy in the eyes of the farmers who pay them for "protection" (Tadesse, 2023). Therefore, Somalia's small victories against Al-Shabaab have impeded the terrorist organization's financial network and intimidation strategies.

Despite mounting victories by the Somali military and ATMIS, Al-Shabaab continued to adapt to maintain control over its territory. The group decentralized its activity between 2011 and 2012 following a series of successful offensives by ATMIS and Somalia. These losses enabled Al-Shabaab to split into a network of smaller insurgency groups rather than functioning as a single, connected entity across the land it controls (The Global Observatory, 2024).

ATMIS is both an extension of AMISOM and a supporter of Somalia's military sustainability. Through training, joint operations, and stabilizing programs, the mission has developed the SSF and derailed Al-Shabaab networks and operations. Nonetheless, offensives and military efforts led by ATMIS and Somalia are fragile and rely on continued funding from multiple sources besides the AU, political reconciliation, and Somali-led commitment to peace (The Global Observatory, 2024).

ATMIS has improved and advanced Somali security capabilities (Amani Africa, 2022). Current literature broadly covers the programs that ATMIS has established, the training they have provided to Somali forces, joint operations, ATMIS's reconnaissance and air support, and the economic aid (Liaga and Habib, 2024; International Peace Institute, 2024). AMISOM was proven to be shortsighted in its attempt to support Somalia. It left the SNA dependent on external aid because the mission lacked a focus on building self-sustainability (Tadesse, 2023). This shortcoming is what ATMIS aimed to deliver. Its training programs, planning oversight, and joint operations have put increased responsibility on the SNA to lead in the fight against Al-Shabaab (Muibu, 2024). ATMIS was limited by funding constraints as the mission faced delayed stipends as well as a lack of equipment, transportation, and logistical support (Moman, 2025). The AU's annual security budget totaled \$166.5 million, but ATMIS was only able to secure \$4.5 million, leaving it significantly underfunded.

This paper aims to build on the literature by further investigating ATMIS's limitations and examining the structural, financial, and political factors that shaped Somalia's transition toward full security responsibility. The analysis centers on financial pressures, political fragmentation, and institutional limitations that complicate the process of transferring defense responsibilities to the SNA. By emphasizing these constraints alongside ATMIS's contributions, the research provides a clearer understanding of what Somalia must overcome to maintain stability once the Mission withdraws.

Methodology

This paper employs a multi-method design to examine how the African Union Transition Mission in Somalia (ATMIS) has strengthened Somali military efforts against Al-Shabaab and the general political stability within the region. It utilizes both qualitative and quantitative data to analyze the statistical progress made by ATMIS and examines previous analyses by experts. This data allows us to identify numerical patterns in our research that demonstrate how well the mission has progressed, defined by a reduction in Al-Shabaab activity or improvements in Somali independence seen through political and structural changes. Together, these methods develop a comprehensive understanding of whether ATMIS's role has tangibly improved Somali security and stability while decreasing terrorist influences in the region.

Regarding qualitative data, this paper analyzes the UN Security Council's policies and resolutions, scholarly articles, book chapters, development theory, and think tank reports. This study examines intervention in Somalia from a variety of different lenses, including military, domestic institution building, and international policymaking. The goal of this evaluation is to understand the idiosyncrasies, strategies, and motives of international bodies such as the United Nations, troop-supplying African Union members, and foreign sponsors such as the European Union. This analysis weighs the efficacy of foreign intervention on the part of the African Union and United Nations with domestic socio-political dynamics within Somali society, from the rise of Al-Shabaab in 1991 until 2024.

In terms of quantitative analysis, this study examines quantitative indicators of security and operational performance drawn from UN and AU mission reports, the Armed Conflict Location and Event Data Project, Somali government security bulletins, and scholarly articles. This paper analyzes the number and geographic spread of Al-Shabaab attacks, as well as the resulting casualties among different groups, including Al-Shabaab members, ATMIS personnel, Somali civilians, and Somali government officials. It compares these trends before and after the 2022 transition to assess whether ATMIS's national security operations have become more effective since the transition. This paper also seeks to understand how UN foreign aid disbursements, troop deployments, and the frequency of operations were carried out to evaluate the capacity of ATMIS to complete its exit strategy and hand security operations to the Somali National Army (SNA). This paper defines successes as quantifiable reductions in Al-Shabaab activity, as well as refined SNA operational independence. It also defines ATMIS's failures as increasing attack rates of Al-Shabaab against any party, an increase in casualties in any party, and whether there has been an increase in dependency on ATMIS forces. The results will be evaluated using existing comparative statistical analysis of data from before the transition of AMISOM to after ATMIS was installed. This approach allows a quantitative assessment of whether the AMISOM to ATMIS transition tangibly strengthened Somali military efforts against Al-Shabaab.

Results and Findings

Somali Security Capacity Since the Transition

Somali security capabilities have grown significantly since AMISOM's transition to the African Trade Mission in Somalia (ATMIS) in 2022. ATMIS's training programs have helped the Somali National Army (SNA) improve in areas like logistical planning, intelligence and reconnaissance, counter-IED (Improvised Explosive Device) operations, and command discipline (Liaga & Habib, 2024). ATMIS helped to establish a standardized training program for officers, which it implemented at Somali bases in the major cities of Baidoa and Mogadishu (Liaga & Habib, 2024). Upwards of 1,500 Somali soldiers have completed logistical and tactical training between mid-2022 and late-2023, helping them to command small units in the field with less intervention or aid from the ATMIS (International Peace Institute, 2024). This training has been imperative to Somali success against Al-Shabaab, specifically in the offensives in Lower Shabelle and Hiiraan (Liaga and Habib, 2024). This is important because improved leadership, logistical, and technical skills allow Somali forces to plan and execute ground operations more independently, reducing their dependence on ATMIS support and strengthening Somalia's long-term path toward self-sustaining security (International Peace Institute 2024; Liaga & Habib 2024).

Addressing the need for self-sufficiency in its defense, Somalia's forces have taken command of more than a dozen military bases previously controlled by African Union (AU) forces (Amani Africa, 2022). Through these kinds of achievements, Somalia has demonstrated its growing ability to take control of and consistently oversee its military operations. These gains strengthened Somalia's ability to maintain continuous military pressure on Al-Shabaab. This is effectively illustrated by the drop in Somali troops' response time to Al-Shabaab attacks in Lower Shabelle, Bay, Hiiraan, and other regions, from up to 72 hours to as few as six (Muibu, 2024). In the Bay region, the joint operations between ATMIS and SNA in Operation Badbaado II pushed Al-Shabaab out of Baidoa and Diinsoor in 2023, allowing for the SSF and ATMIS to reopen Baidoa airport, which proved crucial for access to economic and humanitarian aid, as well as allowing civilian travel (Amani Africa, 2022; Muibu, 2024).

ATMIS-created stabilization forces, run by Somali troops, have also stabilized and consistently defended previously Al-Shabaab-controlled territories following such offensives (Jumale, 2023). Within the first six months of these groups' operations, the return rate, or the percentage of times that Al-Shabaab was able to reenter a region after being cleared, dropped from 40% to below 15% (Jumale, 2023). This has not been achieved through military strength alone; alongside ATMIS, the stabilization forces have politically reclaimed regions by creating joint committees composed of local elders, community leaders, district officials, and ATMIS liaisons (Jumale, 2023). These committees oversee three sets of security operations, two economic stabilization programs, and civilian-focused initiatives such as reintegration support, intelligence gathering, and the coordination of rapid-response teams against attacks (Jumale, 2023). Regarding civilian reintegration, the forces have helped reopen trade routes and markets to the public, stimulating local economies and allowing civilians to resume economic activity (Jumale, 2023). Another important accomplishment, notably never attained by AMISOM, was aiding Somali police in returning to a region within 30 days of clearing it of Al-Shabaab forces, thereby reestablishing local law enforcement far more quickly than what was previously possible (Jumale, 2023).

Major improvements have also been made in the SNA's intelligence infrastructure. With the help of ATMIS and the AU, Somali forces have gained access to drone and satellite surveillance programs that significantly exceed their previous capabilities (Amani Africa, 2022). This access, along with improved communication networks between field bases and SNA headquarters, has enabled the SSF to intercept arms shipments, track smuggling routes, and identify Al-Shabaab attacks before they occur (Amani Africa, 2022). At the beginning of the transition from AMISOM in 2022, ATMIS held full operational control over these reconnaissance programs and intelligence networks (Amani Africa, 2022). ATMIS initially provided Somali forces with intelligence they could act on, but over time, it has transferred increasing levels of operational control to Somali forces so that they can autonomously manage their defense (The Global Observatory, 2024). Crucially, these improvements in intelligence infrastructure have helped reduce the frequency of large-scale Al-Shabaab attacks by 35% since 2021 (Williams, 2023).

Operational Outcome Against Al-Shabaab

Findings indicate that, while Operation ATMIS had an initially net positive impact, it struggled to sustain the SSF against Al-Shabaab. ATMIS in Somalia was established to implement the Somalia Transition Plan (STP) with the goal of degrading Al-Shabaab and transferring security responsibility to the Somali Security Forces (SSF) (African Union Peace and Security Council, 2023). Specifically, the operational mandate between 2022 and 2023 focused on joint military offensives, area clearance, and stabilization of recovered territories (African Union Peace and Security Council, 2023). ATMIS was able to carry out these mandates against Al-Shabaab, but its inability to sustain these successes reveals that its strategy prioritized military presence over institutional resilience.

Between 2022 and 2023, Al-Shabaab achieved major offensive wins. On October 13 and 14, 2022, ATMIS and SSF engaged in a Joint Clearance Operation in Middle Shabeel to disrupt Al-Shabaab's occupation of Somali villages (African Union Peace and Security Council, 2023). The operation was extremely successful, as it led to the liberation of several towns and villages (Armed Conflict

Location and Event Data Project, 2023). Another Joint Clearance Operation was launched on December 1, 2022, in Adan Yabaal District; this was an extremely important operation, as there was a high concentration of Al-Shabaab members (African Union Peace and Security Council, 2023). Overall, ATMIS recovered over 200 settlements across Somalia by 2023 (Williams, 2024). These operations exemplify the SSF's ability to lead security operations in a targeted and organized manner. Previously, AMISOM struggled to execute organized attacks, though ATMIS has shown improved ability to steer its militia with clear objectives (Williams, 2024).

In addition, ATMIS has successfully implemented an extensive and organized training program for forces. The Somali Police Force (SPF), under AMISOM, struggled to work as a cohesive body, causing its presence on ground to be fragmented; most police forces were working in Mogadishu while leaving rural areas to struggle against Al-Shabaab (Williams, 2024). In the context of ATMIS, reforming and restructuring the SPF was critical for the long-term stabilization of Somalia. ATMIS established a Standard Operating Procedure (SOP), which provided a unified training, mentoring, and operational support to the SPF. ATMIS's implementation of standardized training ensured all troops were following the same methods, making the police force more unified and consistent when responding to threats. This training entailed coordination of routine patrols, helping escort key government workers, and night patrols in several cities, including Mogadishu, Baidoa, and Kisma (African Union Peace and Security Council, 2023). Expanding SPF training to other cities widened and enhanced the government's security presence across the entirety of the country, meaning rural areas are also protected. Under ATMIS, a training building in Jubaland was established to support the SOP, where 939 Somali police officers went through medical, security, and physical screening processes (African Union Peace and Security Council, 2023). These efforts demonstrated ATMIS's commitment to enhancing the professional and operational strength of the SPF.

Although ATMIS achieved several operational gains, it struggled to sustain them. ATMIS sought to slowly transfer security responsibility to local Somali forces, so they began withdrawing troops. During the drawback of ATMIS forces in June 2023, 2,000 troops withdrew from Somalia, and five Operating Bases were placed under the SSF's control (Armed Conflict Location and Event Data Project, 2023). Following this withdrawal of ATMIS forces, the Geriley base in the Gedo region was left in a compromising position. Between July 4, 2023, and July 13, 2023, Al-Shabaab launched two consecutive attacks on Gerily base, ultimately capturing and imposing control over the base (Armed Conflict Location & Event Data Project, 2023). The base's strategic position along the border placed Al-Shabaab in a desirable position territorially. As demonstrated in Figure 1, the group exploited the power vacuum and launched 90 acts of political violence across the border in the Lower Juba region, leading to increased Al-Shabaab activity in June and July 2023 when ATMIS had withdrawn (Armed Conflict Location & Event Data Project, 2023). Al-Shabaab's ability to capitalize on this power vacuum indicates that ATMIS's withdrawal created significant security gaps. When ATMIS troops withdrew, the SSF was unable to maintain control, revealing that earlier operational gains were unsustainable, as they heavily relied on ATMIS's presence. This outcome suggests either that there is inadequate training of the SSF or that the transition from the bases occurred prematurely. While ATMIS liberated several areas from Al-Shabaab's occupation, it failed to sustain those gains once troop levels were reduced. This indicates that ATMIS's control depends heavily on its continuous military presence, rather than long-term stability.

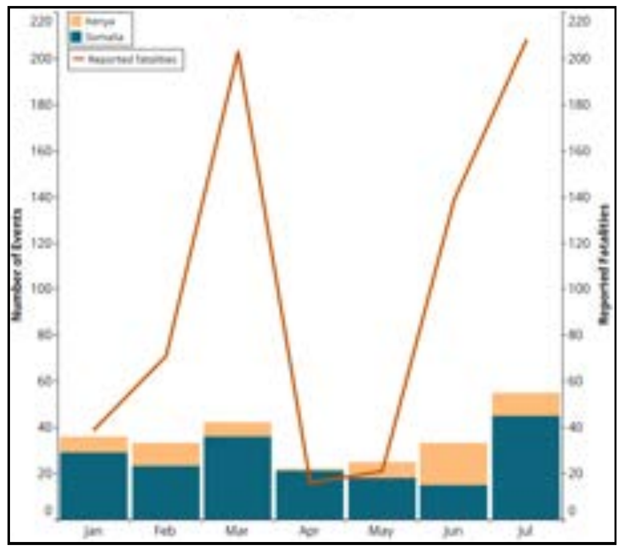


Figure 1: *Al-Shabaab Activity and Reported Fatalities Along the Kenya-Somalia Border from January 2023 - July 2023* (Armed Conflict Location & Event Data Project, 2023).

Al-Shabaab maintains a strong presence in Somalia today, with 7,000 to 12,000 active fighters in the nation (Williams, 2024). Despite suffering significant casualties through ATMIS, Al-Shabaab maintains its presence through its extensive recruitment of children, parents, and elders (Williams, 2024). In 2022 alone, it forced 663 Somalis to join its mission (Williams, 2024). Al-Shabaab effectively recruited citizens through manipulation tactics and physical harm (Williams, 2024). While ATMIS has effectively reduced Al-Shabaab's presence, it struggles to counter Al-Shabaab's recruitment, effectively diminishing its own gains. ATMIS struggles to implement a lasting plan that addresses the underlying factors that promote Al-Shabaab's growth.

Institutional and Structural Impact of ATMIS

Results suggest that ATMIS forces did not induce any major institutional or structural impact in Somalia. While ATMIS did contribute to some of the successes of the FGS and the SNA, Somali institutions still face challenges in overcoming the conflict, and have yet to make any changes that might contribute to the quickened removal of ATMIS and transition of security operations to the SSF.

On August 22, 2024, two non-profit organizations, the International Peace Institute and the Stimson Center, and the U.N. Security Council, engaged in a roundtable discussion regarding the ongoing mission of ATMIS, its success, and its shortcomings. This was in response to the FGS's request for a new AU-led, UN-authorized follow-up mission named the African Union Support and Stabilization Mission (AUSSOM). The workshop included discussions on formatting a comprehensive approach for the continuation of support for state-building and peace processes. Furthermore, the discussion included how to institute change and avoid prolonging the conflict, given evidence from the AMISOM-ATMIS transition. Participants stressed the imperative of avoiding a security vacuum during the transition and building on ATMIS's gains rather than allowing them to unravel. They debated how to shape the new mission's mandate, force posture, and capabilities: for example, emphasizing that AUSSOM will need more agile, mobile forces able to operate across fewer but more strategically located forward operating bases. There was particular concern about capability gaps, especially the lack of air assets in ATMIS, which have limited reach into remote or hard-to-access areas. To address this, participants called for logistical support and better provision for transport, mobility, and flexible operations in the successor force (Stimson Center, 2024).

In understanding the general mission of ATMIS to support state-building and peace processes, research by Paul Williams (2024), a professor at George Washington University, assessing whether the SNA or Al-Shabaab forces are stronger militarily, illuminates the real impact, or lack thereof, that ATMIS made on Somali institutions and policy. The research analyzed the SNA and Al-Shabaab forces on seven factors to make its determination on the military strength of both forces. Analysis of the first factor, size, found that despite amassing thousands of casualties throughout the conflict, the SNA has been able to regenerate its trained forces, growing from 7,000 troops in 2009 to around 19,000 in 2023 (Williams, 2024). This implies that the FGS has adopted changes sound enough to regenerate troops despite high losses since the inception of the conflict. However, assessments of the SNA's external support, material resources, and cohesion obscure what the size factor suggests. As shown in Figure 2, $255.6 million U.S. dollars, or 25% of the Somali federal budget, is for the SNA, increasing $60.6 million from the previous year (Williams, 2024). This suggests that the FGS has come to value the mission of the SNA and ATMIS more as the conflict has worsened or stalemated, therefore engendering institutional changes in the federal budget.

	2021	2022	2023	2024
Total Defense and Security Budget	**163.8**	**171**	**195**	**255.6**
Total disbursed by Ministry of Defense	*95.7*	*99.8*	*117.2*	*178.1*
Armed Forces	93	96.1	110.2	170.5
Total disbursed by Ministry of National Security	*68.1*	*71.15*	*77.4*	*77.5*
Police	44.1	45	46.4	46.7
National Security Force (NISA)	17.5	18.8	23.9	23.7

Table 1: *Somalia Defense and Security Budget in U.S. $ million*
(Armed Conflict Location & Event Data Project, 2023).

Furthermore, much of the budget and security assistance was sourced from outside of Somalia. In 2023, 70% of the annual budget was funded by external donors, like security assistance programs from the United States and the European Union, as well as a UN trust fund. Besides ATMIS, the SNA has over 10 security partners, including the African Union, the United States, Turkey, Eritrea, and the European Union, that provide them with air forces, artillery, and training regimes (Williams, 2024). This suggests that even without ATMIS, the SNA continued to have a considerable external security force. Consequently, this calls into question how much ATMIS itself contributed to institutional or structural change, as the persistence of such extensive external support indicates that many of the SNA's operational gains may reflect partner-driven capacity building rather than improvements rooted in Somali-led reforms or sustainable domestic security institutions.

The lack of institutional and structural change at the hands of ATMIS was also reflected in Al-Shabaab's force deployment, cohesion, and psychological operations. The FGS has developed its force employment over the course of the conflict, with goals to hold urban areas, secure the main supply routes, and extend stability through operating bases and the help of foreign partners (Williams, 2024). However, some of these goals were unmet, and some have been completed with large losses to military weaponry and troops (Williams, 2024). As a result, Al-Shabaab has strengthened its influence in areas it controls by framing the FGS and ATMIS as ineffective and lacking real power (Williams, 2024). Where Al-Shabaab has adapted its governance as a strategy to maintain power, Somali institutions have yet to yield. Persistent political deadlock between the federal government and member states, and stalled security sector reforms, have constrained the state's ability to modernize its institutions or expand legitimate governance. These unresolved structural problems stand in contrast to Al-Shabaab's ability to adjust its administrative practices and strengthen its local presence. For example, Al-Shabaab has employed extrajudicial mechanisms, meaning informal courts and arbitration practices that function outside any formal legal oversight or procedural safeguards, to resolve communal disputes that exploit formal Somali justice systems (Williams, 2024). This exemplifies not only a weakness in the FGS but also a gap in the mission success of ATMIS.

Findings also depict the importance of contextualizing Somali history to understand why ATMIS has struggled to create institutional or structural changes. ATMIS aimed to advance liberal peacebuilding, but the absence of liberal foundations in Somalia made these efforts challenging (Robinson, 2024). The Somali political environment, which consists mainly of clan loyalties, is not as strong as the nationalist mission of Al-Shabaab, which aims to expel all foreign forces and overthrow the FGS. Furthermore, clan loyalties have resulted in deep political divides in Somali institutions (Robinson, 2024). Where FGS is divided, the persuasiveness of Al-Shabaab's mission prevails. This demonstrates that Somalia has little history of a strong democracy, so they have no precedent for how to reform the federal government.

Lastly, ATMIS has had a significant humanitarian impact. Mandated by ATMIS, the Civilian Casualty Tracking Analysis Response Cell (CCTARC) monitored incidents of civilian casualties that were perpetrated by police and military personnel of ATMIS (African Union Peace and Security Council, 2023). ATMIS's use of an organized casualty-tracking system marked a major improvement in operational conduct, addressing a gap AMISON had previously failed to document. This documentation allowed Somalia to assess the real impacts of its efforts against Al-Shabaab, allowing for more informed and responsive decision-making. Between September 1, 2022, and December 31, 2022, CCTARC reported 733 civilian casualties, with 306 killed and 427 wounded. Al-Shabaab was the main perpetrator for 91.8% of these civilian casualties (African Union Peace and Security Council, 2023). The limited number of casualties from ATMIS shows improved operational restraint despite offensive operations against Al-Shabaab. Overall, this reflects ATMIS's ability to protect civilians while maintaining combat. While ATMIS has been safer operationally compared to AMISON, there is still a large number of casualties committed by Al-Shabaab, suggesting the group remains active and dangerous. ATMIS continues to struggle in minimizing civilian casualties despite a more disciplined approach.

Barriers to Long Term Stability

With the eventual goals of full Somali security responsibility and complete dismantling of Al-Shabaab still unfulfilled, the AU faced significant challenges in continued engagement in Somalia. Some of the largest challenges that the AU faces are a lack of financial support and a lack of cooperation between AU forces and local Somali civilian populations (Moman, 2025).

Since 2022, ATMIS has amassed a deficit of $150 million USD as the mission has lost support from donors, particularly the European Union as other security concerns, such as the war in Ukraine have shifted European Union support to focus on more immediate security concerns (International Peace Institute, 2024). While the AU's 2025-2026 budget was estimated at $166.5 million, only $4.5 million of the total has been confirmed, as sponsor momentum stalls (Moman, 2025). Many parties, including the EU, AU, and UK, have advocated for the implementation of United Nations Security Council Resolution 2719, a resolution passed in 2023 to allow the AU to draw funds directly from UN contributions; however, other parties, such as the U.S., have opposed the implementation of the resolution due to compliance and accountability concerns (Moman, 2025).

Another obstacle to continued AU operations in Somalia is a lack of cooperation with local populations. Cooperation with local Somali clans gave AU forces critical intelligence, which has proven vital in defending against Al-Shabaab attacks, particularly on forward operating bases (Moman, 2025). In June 2015, 300 Al-Shabaab fighters attacked a Burundian-controlled forward operating base located in Leego, resulting in the death of between 50 and 80 Burundian soldiers, extrication of military equipment, and temporary complete control of the base by Al-Shabaab (Williams, 2023). The FOB's location and relationship with clan politics explains the attack's success. The base was located in an area with a large population belonging to the Galjeel clan, a group with a disproportionately low representation in the Federal Government of Somalia, as well as a disproportionately high representation in Al-Shabaab (Williams, 2023). Thus, these tribal affiliations could have disenfranchised the group, as well as made it easier for Al-Shabaab to gain intelligence needed to carry out its attack.

In addition to AU forces, Somalia faces significant challenges that must be overcome to achieve full Somali security responsibility, including persistent logistical weakness and low trust in democratic institutions, exacerbated by affiliation to clan interest. The weakness of Somali forces against Al-Shabaab has slowed the pace of AU withdrawal from the country and eroded progress toward the goal of complete Somali security responsibility. In June 2023, ATMIS concluded its first stage of troop reductions, lowering its numbers by 2,000 troops; however, by September 2023, the Somali government requested a pause in troop withdrawals due to military Somali forces' setbacks in central regions (Muibu, 2024). Somalia also lacks a robust force generation process, forcing it to rely heavily on foreign military support (International Peace Institute, 2024). These realities illustrate how dependent Somali forces are on foreign support and would struggle to eliminate Al-Shabaab on their own.

Similar to the AU entanglement in sectarian conflict, intertribal tensions between various sub-clans and the Somali federal government were part of a wider pattern of a lack of trust in Somali institutions, which discouraged democratic institution building in the country (Muibu, 2024). One example of intertribal conflict taking an institutional toll includes tax-collection disputes in the Southwest, which led to interclan violence between predominantly Rahaweyne police forces and majority Hawiye members of the Somali armed forces. Another example is the turbulence between Ahmed Madobe, the President of Jubaland, and the Gedo regional administration, which hindered local cooperation against Al-Shabaab (Muibu, 2024). Sectarian conflict hindering institutional efficacy is present not only on a local level, but also on a national level. On July 25, 2020, former Prime Minister Hassan Ali Khaire voted out by parliament due to accusations of lacking a plan towards universal suffrage, ineffectiveness in resolving security concerns (Ajú, 2025). The following year, the new Prime Minister was suspended by the President due to corruption charges, and his refusal to comply increased tensions between the federal subjects of Jubaland and Puntland and the Federal Government (Ajú, 2025). This tension escalated to violence on the part of clan militias (Ajú, 2025).

In order to completely incapacitate Al-Shabaab, Somalia and its supporters must reform strategically as well as institutionally. Waning international support, a lack of cooperation with local populations, Somali dependence on foreign assistance, sectarian tension, and weak democratic institutions are all barriers to long term stability.

Discussion

This study confirms that Somalia's security progress under ATMIS, while significant, remains deeply fragile without parallel political and institutional reform. The findings demonstrate that although ATMIS enabled major territorial gains and weakened Al-Shabaab's operational capacity, Somalia continues to rely heavily on external military planning, logistics, and intelligence. Ultimately, Somalia's long-term stability depends not on continued AU support but rather on its ability to construct unified governance structures capable of holding territory and serving diverse communities.

Somali Institutional and Structural Changes

This paper focused on the military and security gains made under ATMIS as well as the challenges faced by AU forces. These challenges constitute logistical weakness, as ATMIS forces struggled to retain control over liberated territory, as well as political weakness as sectarian tensions made fighting Al-Shabaab more difficult. Despite these challenges, ATMIS has succeeded in weakening Al-Shabaab, both reducing the number of fighters and taking back territorial control of certain regions. However, while ATMIS presented an effective military strategy against Al-Shabaab, its control over liberated territories remained vulnerable, as evidenced by disruptive counterattacks by the group, supported by local populations. A common theme in building a robust counterinsurgency strategy against Al-Shabaab is overcoming division to build common opposition. Events such as ATMIS's withdrawal from its forward-operating base in Gerily, and Al-Shabaab's manipulation of clan rivalries, such as against Burundian forces in Leego in 2015, have proven that a lack of sensitivity to sectarian divisions in Somali society has set back AU efforts against Al-Shabaab. Thus, building a unified opposition that bridges divides between troop-supplying countries in addition to tribal and local factions is a necessary step towards defeating Al-Shabaab.

In addition to building a unified military effort, Somalia must overcome sectarianism to achieve institutional efficacy. One of the ways it could achieve this is by building more inclusive institutions that reach beyond sectarian divisions. Events such as Leego also show that cooperation with Al-Shabaab could be an outlet for disenfranchised groups in Somalia to act against a government that does not represent them. Thus, to defeat Al-Shabaab, Somalia should offer a political alternative as well as a military challenge. Notwithstanding the incorporation of new federal subjects under FGS control, ATMIS has done little to promote social cohesion or political pluralism. However, as outsiders to the complex sectarian relationships that characterize Somali society, counterinsurgents should make an effort to avoid sectarian conflicts and use their position to serve as mediators.

Future African Union and United Nations interventions should focus on building strong ties with diverse segments of the Somali population. Including diverse elements of the Somali population, will give Al-Shabaab less leverage to manipulate sectarian tensions in its own favor. Promoting diversity will also build stronger and more effective Somali democratic institutions, as all groups will have incentives to respect the sovereignty of the Federal government. This is as opposed to the current arrangement, where the federal government is used as a means to further clan interest over others.

While ATMIS has been effective militarily against Al-Shabaab, the intervention has lacked the institutional change necessary to build a robust political alternative to Al-Shabaab. As the future of the African Union's presence remains uncertain, and sponsors lose momentum for supporting counterinsurgency efforts, shifting focus towards institutional change is necessary to effectively eliminate Al-Shabaab.

Somalia's Dependence on ATMIS

The results show that the Somali military has become more autonomous in its fight against Al-Shabaab and in upholding political and social stability in the region. However, findings have also shown that the African Trade Mission in Somalia (ATMIS) has played such a crucial role in fighting against Al-Shabaab that security analysts at The Global Observatory have come to question Somalia's ability to defend itself after the ATMIS's withdrawal (The Global Observatory, 2024; Ajú, 2025). Therefore, the Somali National Army's (SNA) growth is imperative to maintaining political and economic stability in the region and eliminating Al-Shabaab. Specifically, the SNA has expanded its operational responsibilities by leading joint offensives, reclaiming key territories and supply routes, managing field bases, and overall coordinating missions with greater independence than in previous years. These changes reflect measurable progress toward the ATMIS and Somalia's goals of fully sustainable peacekeeping (African Union Peace and Security Council, 2023).

Since the transition from the African Union Mission in Somalia to the ATMIS, Somali forces have made military gains, such as taking control of more than a dozen operating field bases and headquarters and leading major offensives against terrorist operations in different regions across the nation, such as Lower Shabelle, Hiiraan, and Bay (Amani Africa, 2022; Williams, 2024). Although these achievements were assisted by the ATMIS, they were spearheaded by the SNA, displaying the Army's ability to lead, plan, and coordinate successful missions (Muibu, 2024). As a result of these successes, Somali troops have reopened vital supply and trade routes, stimulating the country's local and broader economies (Amani Africa, 2022). The regained control over these regions allowed the Somali military to constrain Al-Shabaab's movement, weakening the group by forcing it to decentralize power (The Global Observatory, 2024). As a result, the Somali army has restored political stability to former Al-Shabaab-controlled territories, helping increase the nation's sustainable defense of its lands (Jumale, 2023).

While these gains illustrated the Somali military's increasing ability to defend its people and fight Al-Shabaab, self-sustainability remains a concern due to significant support from ATMIS and other sources, such as the European Union and Ethiopia (Hawaz & Xi, 2024). The ATMIS has provided intelligence oversight, air support, operational planning assistance, and training programs to Somali forces (Liaga & Habib, 2024). These programs and support were all instituted to make the SNA stronger, but have also entrenched the ATMIS within the nation's military, making it harder for the mission to withdraw without a severe downturn in the SNA's capabilities, including the SNA's ability to coordinate large-scale offensives, maintain supply lines, generate reliable battlefield intelligence, and sustain logistics and command structures (International Peace Institute 2024; Liaga & Habib 2024; Muibu 2024). Funding shortages and the lack of political coordination between federal and regional authorities within the country have slowed the mission's progress drastically (International Peace Institute, 2024). Ultimately, this research is imperative to understanding if and how Somalia can become self-sufficient in defending itself. While ATMIS has provided significant support to Somalia in becoming more self-sustainable in its defense, it also highlights crucial weaknesses in the nation's ability to gain autonomy, due to an over-reliance on external support and oversights, such as funding shortages and political instability (Tadesse, 2023; International Peace Institute, 2024).

ATMIS's Operational Sustainability

The paper demonstrates that while ATMIS generated clear short-term operational gains, it struggled to create conditions for long-term security after troop withdrawal. Joint clearance operations between 2022 and 2023 liberated more than 200 settlements, demonstrating improved tactical coordination and execution compared to previous AMISOM efforts (Williams, 2024). ATMIS advanced the professionalism of the Somali Police Force through standardized training and expanded patrol capacity, creating a unified force with cohesive goals (African Union Peace and Security Council, 2023). These efforts demonstrated ATMIS's effectiveness at achieving immediate operational objectives

However, there is a central limitation of ATMIS despite its tactical success. The underlying institutions, such as the SSF, the SPF, insufficient counterrecruitment mechanisms, and fragile district-level governance, remain too underdeveloped to sustain ATMIS's operational gains without continued support from ATMIS. This illuminates a border systemic weakness, as Somalia entered the transition without strong, cohesive governmental institutions to maintain control. Since the missions were never rooted in a stable national foundation, they are vulnerable to Al-Shabaab once ATMIS support declined.

The core structural weakness lies in Somalia's inability to independently secure, govern, and hold territory without external military support. This structural weakness was revealed during the 2023 troop withdrawal of 2,000 ATMIS personnel and created immediate vulnerabilities. These vulnerabilities include short-term security gaps and exposed positions that armed groups can exploit before national forces or local governance can respond. Al-Shabaab quickly exploited the vulnerability along the Somli-Kenya border (Armed Conflict Location & Event Data Project, 2023). Al-Shabbab quickly usurped the Gerily base, exposing earlier victories' dependence on ATMIS's continued presence. Al-Shabaab's subsequent wave of 90 political violence incidents across Lower Juba following ATMIS's withdrawal demonstrated the group's ability to rapidly reclaim influence (Armed Conflict Location & Event Data Project, 2023). This shows that immediate battlefield victories do not translate into lasting stability without embedding institutional law and structure. Overall, ATMIS's tactical accomplishments were contingent on ATMIS's support rather than sustained governance, as seen through Al-Shabbab's continued presence of 7,000 to 12,000 fighters in Somalia (Williams, 2024).

Beyond military operations, the ATMIS has had a significant humanitarian impact. Between September 1 and December 31, 2022, Civilian Casualty Tracking, Analysis, and Response Cell (CCTARC) recorded 733 civilian casualties, with Al-Shabaab responsible for 91.8% of incidents (African Union Peace and Security Council, 2023). This relatively low number reflects the ATMIS's improved operation discipline and shift to increase protection for civilians; however, the high rate of casualties from Al-Shabbab demonstrated its limited protective capacity. This dual reality illustrates both the progress made in humanitarian accountability and the persistent limits of ATMIS's protective capacity. Overall, ATMIS was able to achieve both tactical and humanitarian improvements, but without a strong state structure, ATMIS victories remained vulnerable to reversal once support receded.

Limitations

While the paper effectively characterizes the impact of AU interventions in Somalia, several factors have limited the scale of the study. These limitations arise both from our position as undergraduate students and our attempt to analyze an insecure region over a recent timeframe, creating a consequent relative lack of information. The latter cause is especially worth highlighting because the AU's future engagement in Somalia remains unresolved.

The research and writing process were subject to several constraints. Limited time significantly affected the depth of our analysis, since this paper was assigned and completed over the course of one semester. Additionally, limited research experience and availability of fewer databases as undergraduate students posed a challenge to the paper's analysis and interpretation of data.

The most significant constraint was the lack of current and comprehensive reporting on the relationship between ATMIS and the SSF. Since ATMIS's mission ended on December 31, 2024, it was difficult to find official reports on its outcomes, as the results of the mission are still being actively documented by ATMIS. Therefore, much of this paper focused on the historical analysis of the ATMIS mission, forcing us to predict how effective the ATMIS was in strengthening Somali military efforts against Al-Shabaab. Furthermore, we encountered a limited number of sources, consequently, there was a lack of diversifying perspectives. The conflict in Somalia is ongoing; therefore, the paper was constrained by research from a select few organizations, rather than perspectives from multiple academic sources. Lastly, many existing literature sources lacked statistics, such as structural changes to the Somali government, casualties, and military forces that would strengthen our understanding because they have not yet been documented. Despite these limitations, we have full confidence that our research provides a comprehensive analysis of our stated research question.

Conclusion

While the African Union Transition Mission in Somalia (ATMIS) has weakened Al-Shabaab and contributed to notable improvements in Somalia's security capabilities, these gains remain insufficient for long-term stability. The preceding African Union Mission in Somalia (AMISOM) struggled to achieve lasting success due to its overreliance on external military forces, limited coordination with Somali federal and local authorities, inadequate troop numbers, and a mandate that prioritized short-term military objectives over long-term governance. After AMISOM failed to decisively degrade the power of Al-Shabaab, the Somali government and the African Union restructured the mission as ATMIS. It aimed to establish a more sustainable strategy by gradually transferring security responsibilities to Somali forces, strengthening governance efforts, supporting institutional reforms, and improving coordination between federal and regional authorities. In its early stages, ATMIS expanded government-controlled territory, supported offensive operations against Al-Shabaab, and contributed to the professionalization of segments of the Somali National Army. However, these gains proved short-lived and unsustainable. ATMIS did not fully account for Al-Shabaab's entrenched networks and financial resources, which continue to sustain its presence.

These dynamics underscore Al-Shabaab's resilience and highlight the fragility of counterinsurgency efforts in Somalia. Somalia remains deeply divided along clan lines and struggles to establish effective national institutions. These tensions continue to hinder Somalia's development, obstructing efforts to build a cohesive and unified front.

Given the assessment of logistical, material, and social factors hindering the African Union Transition mission in Somalia, future research should emphasize how future African Union involvement could build strong institutional alternatives to military threats such as Al-Shabaab. Future research should also focus on providing a comprehensive analysis of the shortcomings of ATMIS to better assess ways future missions can be improved to create sustainable and impactful advances against Al-Shabaab.

References

African Union Peace and Security Council. (2023). *Report of the Chairperson of the Commission on the situation in Somalia and the implementation of the ATMIS mandate (PSC/PR/RPT.1143 (2023))*. Peace and Security Council, 1143rd Meeting. https://amaniafrica-et.org/wp-content/uploads/2023/06/1143-Report-of-the-Chairperson-on-ATMIS-EN.pdf?utm_source

Ajú, M. M. (2025). African Union's quest for peace in Somalia. In J. Záhořík & A. Ylönen, *The Horn of Africa since 2018* (1st ed., pp. 196–210). Routledge.https://doi.org/10.4324/9781003531999-14

Amani Africa. (2022). Situation in Somalia and operations of ATMIS. https://amaniafrica-et.org/situation-in-somalia-and-operations-of-atmis/

Anzalone, C. (2014). The rise and decline of Al-Shabaab in Somalia. *Turkish Review*, *4*(4), 386-395. https://d1wqtxts1xzle7.cloudfront.net/34828720/

Armed Conflict Location & Event Data Project. (2023). *Special report | Kenya-Somalia border: Rising Al-Shabaab threat in the wake of ATMIS drawdown.* Retrieved from https://acleddata.com/report/special-report-kenya-somalia-border-rising-al-shabaab-threat-wake-atmis-drawdown

Hawaz, N., & Xi, C. (2024). *The drive behind Ethiopia's intervention and engagement with AMISOM and ATMIS in Somalia*. Journal of Somali Studies, 11(3), 9–25. https://doi.org/10.31920/2056-5682/2024/v11n3a1

Ingiriis, M. H. (2018). The invention of Al-Shabaab in Somalia: Emulating the anti-colonial dervishes movement. *African Affairs*, *117*(467),217-236. https://academic.oup.com/afraf/article-abstract/117/467/217/4833880?redirectedFrom

International Peace Institute. (2024). ATMIS Transition and Post-ATMIS security arrangements in Somalia [Report]. https://www.ipinst.org/wp-content/uploads/2024/10/IPI-E-RPT-ATMIS-Transition-final.pdf

Jumale, M.G. (2023). *The role of ATMIS in conflict resolution and reconciliation in Somalia* (pp.112-134). East Africa Association for Research and Development https://eastafricas.org/wp-content/uploads/2025/03/The-Role-of-ATMIS-in-Conflict-Resolution-and-Reconciliation-in Somalia.pdf

Liaga, E. A., & Habib, H. M. (2024). *A critical assessment of the challenges of the African Union Transition Mission in Somalia (ATMIS)*. 51–64. Switzerland: Palgrave Macmillan https://doi.org/10.1007/978-3-031-56695-0_4

Matthews, K. (2017). Crisis of statehood in Somalia. In *The Horn of Africa since the 1960s* (1st Edition). https://www.taylorfrancis.com/chapters/edit/10.4324/9781315557083-10/crisis-statehood-somalia-mathews?context=ubx&refId=91eab058-139a-4b01-9d13-ad70a47c0be3

Moman, P. (2025). *What next for African Union peace operations in Somalia?* London School of Economics and Political Science. https://www.lse.ac.uk/ideas/Assets/Documents/updates/2025-SU-PMomanSomalia04.pdf

Muibu, D. (2024). *Somalia's stalled offensive against Al-Shabaab: Taking stock of obstacles.* CTC Sentinel https://ctc.westpoint.edu/wp-content/uploads/2024/02/CTC-SENTINEL-022024_article-3.pdf

Rasmussen, J. (2017). *Sweet secrets: Sugar smuggling and state formation in the Kenya-Somalia borderlands*. DIIS, Danish Institute for International Studies https://www.jstor.org/stable/pdf/resrep13466.pdf?acceptTC=true&coverpage=false&addFooter=false

Robinson, C. (2024). *As ATMIS looks to withdraw, the risk of large-scale Al-Shabaab success in southern Somalia is high*. International Peace Institute Global Observatory.https://theglobalobservatory.org/2024/12/as-atmis-looks-to-withdraw-the-risk-of-large-scale-al-shabaab-success-in-southern somalia-is-high/

Stimson Center. (2024). *ATMIS transition and post-ATMIS security arrangements in Somalia: Evaluating the current and future role of African Union peace operations in Somalia* [Project note] https://www.stimson.org/2024/atmis-transition-and-post-atmis-security-arrangements-in-somalia/

Tadesse, B. (2023). Countering terrorism through Peace Support Operations, Lessons from the African Union Mission in Somalia. *Journal of International Peacekeeping*, *26*(4), 350-367. https://brill.com/view/journals/joup/26/4/article-p350_006.xm

The Global Observatory. (2024). As ATMIS looks to withdraw, the risk of large-scale Al-Shabaab success in southern Somalia is high. https://theglobalobservatory.org/2024/12/as-atmis-looks-to-withdraw-the-risk-of-large-scale-al-shabaab-success-in-southernsomalia-is-high/

UNICEF. (2023). *Situation in numbers: Somalia humanitarian situation, report no. 3* [PDF]. United Nations Children's Fund. https://www.unicef.org/somalia/media/3801/file

United Nations Security Council. (2009). *Resolution 2124 (2009) — [Document No. 646262]*[S/RES/2124 (2013)]. United Nations Digital Library.https://digitallibrary.un.org/record/646262?v=pdf

United Nations Security Council. (2013). *S/RES/2124 (2013) — Requests the Secretary-General and his Special Representative to raise awareness amongst relevant Member States on their requirements to abide by the charcoal ban*. United Nations. https://main.un.org/securitycouncil/en/s/res/2124%282013%29#:~:text=Requests%20the%20Secretary%2DGeneral%20and,abide%20by%20the%20charcoal%20ban

Williams, P. D. (2014). *Stabilising Somalia: The African Union Mission and the next stage in the war against Al-Shabaab. The RUSI Journal*, *159*(2), 52–60. https://doi.org/10.1080/03071847.2014.912803

Williams, P. D. (2023). Conventional insurgents: Understanding Al-Shabaab's mass attacks against African Union bases in Somalia. *Studies in Conflict & Terrorism*, 1–23. https://doi.org/10.1080/1057610X.2023.2207234

Williams, P. D. (2024). *The Somali National Army versus al-Shabaab: A net assessment. CTC Sentinel, 17*(4), 35–44. https://ctc.westpoint.edu/wp-content/uploads/2024/04/CTC-SENTINEL-042024_article-4.pd

Wise, R. (2011). *Al Shabaab* (Research Report No. 2). Center for Strategic and International Studies. http://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/110

Seeing Suffering: How Visual Imagery Shaped Western Responses to the Darfur Conflict (2003-2008)

Logan Marcum, Joanne Koulet-Vickot, Melinda Platt, Salma Abdelale, Sandra Kariuki

This study investigates whether visual imagery in Western news coverage of the Darfur conflict in Sudan (2003-2008) generated stronger humanitarian and political responses than textual reporting alone. Using a mixed-method qualitative design, the research combines a framing analysis of news coverage, a cross-national comparison of U.S. and European coverage, and a correlational assessment comparing peaks in media visibility with moments of public advocacy and policy activity. Our media sample includes visual and textual coverage of the conflict from major newspapers, broadcasters and humanitarian organizations such as Amnesty International, *The NewYork Times* and the BBC between 2003 and 2008, with particular attention to periods of both intense and declining coverage. The analysis shows that visual imagery consistently produced stronger and more immediate emotional reactions than text, as it prompted emotions like grief, outrage, and shock which audiences consistently expressed towards lawmakers. Visual media heightened moral urgency and contributed significantly to the humanitarian frame through which Western audiences encountered the conflict. Yet this influence was fragile as the emotional impact proved short-lived. As the volume of images declined, public attention and advocacy activity also diminished, suggesting that visual exposure generated awareness but rarely sustained it. Textual reporting played a complementary role by providing political and historical explanation that images lacked. Yet even when paired, visual and textual media tended to frame the conflict mainly as a humanitarian crisis, emphasizing suffering over structural causes. This framing helped mobilize relief efforts but did not lead to substantial diplomatic or military action. Overall, media influence on policy emerged as conditional: visual coverage heightened public awareness and concern, but meaningful and lasting intervention required political will and institutional coordination beyond what media alone could influence.

Introduction

The conflict in Darfur (2003-2008) emerged during a period in which global media had an increasing ability to shape public understanding of global events, bringing distant crises to the forefront of people's screens and minds from thousands of miles away; what people used to be able to look away from, they no longer could. This research paper analyzes whether the "CNN effect" or usage of emotionally charged visual reporting to mobilize stronger international and political responses to crises is indeed successful or just an abstract concept. This is achieved through examination of how both visual and textual coverage of the Darfur conflict (2003-2008) shaped Western aid, advocacy, and policy responses, to better understand whether visual media was more effective than solely textual reporting in garnering attention and action towards Darfur.

At the height of the crisis in Darfur, Western news outlets focused their reporting of the conflict on circulating a cultivated stream of imagery designed to grab readers attention: emaciated bodies, displaced families, burning villages and more topped media outlets online and in print. These visuals often accompanied or competed with textual reporting that provided a more nuanced view of the conflict, detailing the political and legal background of the ongoing conflict. Though the visuals garnered strong emotional responses and mobilization from advocacy groups and politicians in the West, policy responses remained uneven, delayed, or constrained by competing foreign policy priorities.

Review of the Literature

Scholarship on media representations of the Darfur conflict (2003-2008) has consistently shown that news coverage played a central role in shaping international understandings of the violence, yet the mechanisms through which different media forms influence public and political responses remain contested. Early analyses such as Davenport and Ball (2002) demonstrate that media narratives of human rights abuses depend heavily on the selection and framing of sources, which determine the kinds of violence that are made legible to global audiences. Similarly, Wahutu (2018) finds that African newspapers emphasized ethnic conflict and localized interpretations, illustrating that representations of Darfur were not uniform but deeply shaped by regional contexts and editorial priorities. These studies collectively highlight that media is an active agent in constructing humanitarian crises rather than a neutral conduit of information.

A substantial portion of the literature examines how Western newspapers and broadcasters framed Darfur for international audiences. Gruley and Duvall (2010), analyzing coverage in major U.S. newspapers, identify recurring themes of humanitarian suffering, tribal violence, and genocide, noting that such frames often relied on reductive or stereotypical imagery that tended to distance rather than engage readers. Campbell (2007) similarly argues that photojournalistic portrayals of the conflict, though emotionally charged, sometimes reinforced geopolitical narratives that framed Darfur primarily through Western imaginaries of African suffering. Kothari (2010) expands on this by showing how U.S. reporting simplified Darfur into an "Arab versus black" genocide narrative, obscuring structural factors such as land politics and state manipulation. Studies by Kim, Su, and Hong (2007) further demonstrate that textual coverage differed across national contexts: U.S. reporting emphasized elite politics, whereas Canadian coverage foregrounded humanitarian themes and multilateralism. Collectively, these analyses suggest that textual reporting often reproduced national identity and foreign policy priorities, potentially limiting its ability to generate sustained public mobilization.

Alongside textual framing, scholars have examined the distinctive power of visual media to evoke emotional and moral responses. Joyce (2010) argues that photographic documentation of atrocities is frequently deployed as evidence meant to produce empathy and moral urgency, though it also risks desensitization or ethical compromise. Psychological studies reviewed by Smith-Rodden and Ash (2012) underscore that emotionally charged images can heighten comprehension, intensify cognitive biases, and shape collective memory in ways that influence public opinion and, potentially, policy outcomes. Parks's (2009) analysis of the "Crisis in Darfur" Google Earth initiative illustrates how satellite imagery expanded global awareness by visualizing destruction at scale, yet also demonstrates that visibility alone did not translate into meaningful policy action. Together, these works indicate that images can generate strong emotional reactions but do not guarantee political or humanitarian intervention, raising questions about when and why visual media succeed- or fail-in prompting material responses.

The relationship between media coverage and political action is further contextualized within research on agenda-setting and the "CNN effect." Robinson (1999) argues that real-time media influence on foreign policy is most evident when government agendas are uncertain and coverage is framed to promote specific courses of action. Sidahmed, Soderlund, and Briggs (2010) apply this framework to Darfur, concluding that U.S. media helped elevate the conflict within debates surrounding the Responsibility to Protect (R2P), although heightened awareness did not correlate with decisive intervention. Their findings reinforce the broader scholarly consensus that media attention is necessary but insufficient for producing substantive governmental action.

Other strands of literature investigate how humanitarian, legal, and activist organizations shaped public narratives of Darfur. Savelsberg (2015b) shows that multiple actors-the International Criminal Court, the UN Security Council, humanitarian NGOs, human rights groups, and scholars-generated competing interpretations of the violence. His cross-national analysis demonstrates that the judicial "crime frame" ultimately dominated Western media coverage and was particularly effective in eliciting political and public responses. Although Savelsberg acknowledges the importance of humanitarian imagery as a source for journalists, his findings highlight ongoing disagreements about which types of media representations most strongly influence international reactions.

Finally, scholarship on NGO communication, such as Zacher et al. (2014), underscores that civil society organizations varied widely in how they presented Darfur, particularly in their use of victimization narratives, references to judicial interventions, and willingness to label the conflict as genocide. While these studies largely focus on textual and organizational framing rather than visual media, they demonstrate that representational choices directly affected advocacy strategies and public engagement. Research critical of media accuracy, such as Hoile (2005), points to the presence of sensationalism and inconsistent reporting across outlets, though these critiques primarily concern factual interpretation rather than comparative effects of visual and textual media.

Across the literature, several clear gaps remain. Existing research offers robust analyses of framing, narrative construction, and agenda-setting but rarely compares the specific impacts of visual versus textual reporting. Studies acknowledge the emotional force of imagery, yet empirical tests of whether images had greater influence on humanitarian action, advocacy mobilization, or political responses are limited. Moreover, much scholarship relies on a narrow set of media sources-most frequently the New York Times- leaving questions about cross-platform coverage and audience reception underexplored. These gaps underscore the need for systematic research that examines how different media modalities shaped Western responses to Darfur, particularly during a period when visual communication was becoming increasingly central to global advocacy.

Methodology

This study employed a mixed-methods qualitative comparative design to examine how visual media in Western reporting on the Darfur conflict (2003-2008) shaped emotional engagement, public understanding, and the potential for humanitarian or policy response.

The central question was whether visual imagery mobilized stronger reactions than textual reporting did. The methodology integrated framing analysis, cross-national comparison, and correlational assessment of media visibility and response indicators. Together, these approaches allowed the investigation to evaluate how images and text constructed narratives of the conflict and how those narratives aligned with patterns of Western advocacy and institutional action.

The chosen methodology is appropriate because it makes it possible to trace not only what messages were conveyed, but also how different types of media coverage corresponded to differences in international engagement.

To build a comprehensive media sample, we analyzed visual and textual coverage from major Western outlets including The New York Times, The Washington Post, BBC, The Guardian, and Time, alongside humanitarian communications from organizations such as Amnesty International and the Save Darfur Coalition. These outlets were chosen because, in comparison to other media sources, they had consistent accessibility to information, and enough international prestige and recognition to influence policy decisions. Visual materials consisted of photographs, television news footage, and advocacy imagery, while textual sources included news articles, editorials, and NGO reports. Sampling across the 2003-2008 period ensured representation of moments of both heightened and diminished international attention, providing variation necessary for assessing potential links between media visibility and external response.

The analysis began with a comparative framing study informed by Gruley and Duvall, Savelsberg, and visual communication scholarship. Visual materials were examined for emotional intensity, composition, and the presence of humanitarian or political cues, while textual materials were evaluated for narrative depth, tone, and contextual explanation. Visual coding allowed direct comparison of how images and text framed the conflict, particularly regarding depictions of victimhood, attribution of responsibility, and the balance between emotional appeal and structural analysis. This approach enabled us to identify whether visual media presented Darfur in ways more likely to evoke empathy or moral urgency than textual reporting alone. Reliability was ensured in their analyses through several mechanisms. For instance, researchers ensured the outlets had on-site reporters to provide first-hand data. They also had standardized procedures, including excluding articles that didn't explicitly refer to the conflict.

Building on this foundation, the investigation incorporated a cross-national framework to assess how media portrayal varied across Western contexts and institutional actors. Drawing on Savelsberg's work identifying key gatekeepers in atrocity reporting, we examined differences in how U.S. and European outlets used images versus text, the narrative strategies they emphasized, and the extent to which NGOs shaped or supplied visual framing. This comparison helped contextualize how imagery was used by non-state actors and revealed how national media systems may influence the prominence and interpretation of visual narratives.

To evaluate whether visual coverage aligned with patterns of Western advocacy and governmental action, we integrated a correlational analysis into the design. Using Davenport and Ball's sourcing model and insights from agenda-setting research, we compared fluctuations in media visibility-measured through image frequency, emotional intensity, and reporting volume- with indicators such as NGO campaign launches, governmental statements, policy initiatives (e.g., sanctions, aid programs), and changes in humanitarian aid allocations between 2003 and 2008. While not designed to establish causation, this method allowed us to assess whether media exposure and international responses were temporally correlated.

Since direct measurement was not feasible, a final qualitative component examined expected audience reception using visual communication theory and existing research on empathy and moral response. This included assessing recurring visual strategies, such as depictions of vulnerability, displacement, or bodily suffering-and their potential to intensify humanitarian concern compared to text-based narratives. By situating these strategies within broader patterns of media framing, we evaluated the role of imagery in transforming distant suffering into perceived urgency.

Across all stages of the research, we employed triangulation to integrate findings from framing analysis, cross-national comparison, and correlational assessment. This strengthened the interpretive validity of our conclusions and enabled a more holistic assessment of how visual and textual media contributed to Western responses during the Darfur crisis. Although the selection and interpretation of imagery was deliberate, the investigation acknowledges the inherent risks in representing suffering. The study systematically evaluated how different forms of media representation shaped Western knowledge, emotion, and engagement, providing a rigorous foundation for interpreting the relationship between visibility, humanitarian concern, and potential policy response during the Darfur conflict.

Results and Findings

The following section presents the central findings from our qualitative analysis of how visual and textual media shaped Western responses to the Darfur conflict from 2003 to 2008. Guided by our research question, whether the visual imagery used in international coverage of Darfur drove stronger Western aid and advocacy responses than textual reporting alone, the results illustrate both the power and the limitations of visual representation in humanitarian communication.

The findings are organized into three areas. The first examines emotional responses and the extent to which visual media translated affect into action. The second compares textual and visual reporting, analyzing how each influenced narrative framing, audience engagement, and public interpretation of the conflict. The third assesses media influence on policy, tracing how visual moral appeals interacted with political agendas and international decision-making. Together, these three strands illuminate the mechanisms through which media shaped public perception, advocacy, and governmental action during the crisis.

Emotional Response and the Impact of Media on Action

This section examines the role of visual imagery in shaping emotional and cognitive responses to the Darfur conflict (2003-2008), focusing particularly on the correlational relationship between the presence of visual media and its effect on international responses to the crisis. The evidence highlights how visuals depicting suffering and violence, satellite visualizations of affected regions, and the framing of the conflict by journalists across global outlets collectively heightened public awareness. However, the findings also indicate that increased visibility did not necessarily translate into sustained engagement or significant policy action.

The emotional impact of visual reporting is reflected in the recurring strategies used across photojournalistic and humanitarian imagery. Photographs depicting victims of violence or displacement were frequently employed to evoke empathy, legitimacy, and moral responsibility, often eliciting strong emotional responses among Western audiences (Joyce, 2010). However, repeated exposure to such imagery risked producing ethical fatigue; the exhaustion from repeatedly being subjected with media concerning ethical dilemmas people may have no ability to solve, overwhelming the viewer over time (Joyce, 2010). Analysis of visual materials revealed recurring emotional themes centered on victimhood, helplessness, and humanitarian suffering. Images featuring children, emaciated figures, and refugee encampments appeared most frequently, and were often paired with captions invoking moral obligation or global responsibility (Campbell, 2007). The overall tone of these visuals was a sad one, emphasizing loss and vulnerability over agency. While this framing effectively captured attention and created empathy, it also reinforced a singular narrative of African suffering and dependency on other nations (Campbell, 2007). In some cases, the use of extreme close-ups and contrasts of light and shadow intensified the sense of intimacy and urgency, suggesting that visual proximity itself was used as a rhetorical device to emphasize the viewer's sense of power, and thus responsibility to act (Campbell, 2007).

As for public opinion, a Pew Research study found that public awareness of Darfur was closely tied to both perceived moral responsibility and support for U.S. intervention. Americans who were extensively exposed to media about Darfur were more likely to believe the U.S. had a duty to get involved in the conflict than those with little to no awareness of the conflict. A substantial number of Americans also felt the conflict was not adequately reported on and there was a need for more reporting on the situation (Rosentiel, 2007). The study also showed that as media attention moved towards domestic politics, support for intervention declined, showing that support and interest waned as media coverage decreased. Looking at the specific numbers, the study found that 72% of respondents who had been exposed extensively to media believed the U.S. had a duty to intervene in the crisis, compared to only 32% of those who had not been exposed (Rosentiel, 2007). 49% of Americans believed the conflict was underreported though public support for intervention and general interest in the conflict decreased as media reporting focused more on domestic politics with support going from 53% to 45% (Rosentiel, 2007).

Similarly, surveys by the University of Maryland revealed strong public support for international intervention to stop genocide, with nearly 70% of Americans endorsing participation in a multilateral force to prevent atrocities in Darfur (University of Maryland, 2005). The pro-intervention sentiment was particularly pronounced among respondents who had been more exposed to media coverage of the conflict (Rosentiel, 2007). These findings reinforce the link between visual exposure and moral engagement, suggesting that the circulation of distressing imagery and humanitarian narratives was crucial in shaping public expectations for government action. While the survey did not directly measure media exposure, these attitudes emerged amid extensive visual and humanitarian coverage of Darfur, suggesting that such imagery likely reinforced public perceptions of moral responsibility, as shown by Pew Research. However, despite this widespread support, policy responses remained limited, indicating that media-induced empathy was not sufficient to sustain long-term political commitment once visual coverage diminished (University of Maryland, 2005; Rosentiel, 2007). Complementary evidence on the psychological effects of visual framing demonstrates that emotionally-charged images can enhance memory retention and empathy while, at the same time, distorting comprehension by reinforcing stereotypes about race, violence, and moral hierarchy (Smith-Rodden & Ash, 2012). Findings indicate that image selection and editing processes often relied on subjective or intuitive judgment rather than evidence-based understanding of audience psychology, further extending emotional engagement while introducing bias (Smith-Rodden & Ash, 2012).

The sensationalization of events by major international media outlets contributed to widespread misunderstanding of the conflict, as discrepancies in reporting inflated death tolls and relied heavily on correspondents unfamiliar with the local context (Hoile, 2005). While these portrayals captured attention, they also distorted public perception of the conflict's scale and nature. Although these findings do not directly address visual media, they reveal the broader risks of emotionally-dramatized narratives, often accompanied by visual imagery, that can compromised accuracy and blur the line between response and reliability.

Visual documentation initiatives, such as the "Crisis in Darfur" project, further illustrate this pattern. Satellite imagery of destroyed villages and refugee camps succeeded in increasing global visibility of the conflict, generating moral urgency. However, this visibility did not correspond to significant shifts in humanitarian intervention or foreign policy (Parks, 2009). Sensational framing compromised accuracy (Hoile, 2005), satellite visualizations increased attention without generating intervention (Parks, 2009), photographic imagery revealed empathy as both a catalyst and a constraint (Joyce, 2010; Campbell, 2007), and psychological studies exposed the biases and strengths of visual framing (Smith-Rodden & Ash, 2012). Overall, the evidence demonstrated that while visual media amplified emotional resonance, its influence on humanitarian and political responses remained inconsistent, constrained by audience fatigue, editorial framing, and ethical limitations. The tension between visibility and efficacy are made clear, images are successful in capturing moral attention, but often fail to maintain concrete lasting engagement.

Visual Media Framing

This section examines how visual media framed the Darfur conflict between 2003 and 2008, emphasizing the interpretive mechanisms through which imagery shaped Western aid response. Framing matters for policy outcomes because they shape how the public understands an issue, by signaling what to pay attention to and how to interpret it. Framing also helps politicians gauge public opinion and adjust their positions accordingly, and affects how urgent an issue appears. The visual framing of Darfur directly shaped which policy responses were seen as legitimate and how quickly those responses emerged. Building on prior frameworks linking the framing of evidence to patterns of humanitarian understanding, these findings demonstrate that the framing of visual imagery in international media did not solely illustrate key details but was highly constitutive, as it actively constructed the moral meaning of the crisis (Davenport & Ball, 2002). Images did not function as a neutral medium; they framed Darfur through selective visual cues that guided audiences toward specific emotional, ethical readings. The genocide and humanitarianism frame proved the most prominent and influential, generating strong emotional engagement, shaping political debates, and constructing a clear moral divide that heightened pressure for policy. However, the frames also guided the perception that conflict stemmed from age-old ethnic/religious hatred, which can make violence seem inevitable, decreasing policy urgency and success (Güven, 2024). The following paragraphs investigate the impact of recurring frames used to present the crisis in Darfur and draw patterns between peaks in media visibility of Darfur and notable international policy outcomes.

The dominant visual frames identified across coverage in The New York Times, The Washington Post, and The Guardian reflected three recurring themes: humanitarian crisis, ethnic violence, and moral urgency. The humanitarian frame portrays crises as distant, complex, and widespread (Campbell, 2007). The ethnic violence frame conveys crises as fueled by old ethnic or religious tensions (Gruley & Duvall, 2010). The moral or tribalist frames presents crises as belonging to a binary moral universe with clear victims and perpetrators (Gruley & Duvall, 2010). These themes manifested in a range of recurring visual patterns. For instance, the repetition of imagery depicting starving children, displaced women, and desolate landscapes produced a consistent narrative that genocide was occurring (Campbell, 2007; Gruley & Duvall, 2010). This framing universalized suffering while obscuring its political and structural causes, such as unmet demands for a power-sharing government and better infrastructure in the region. By foregrounding victims and erasing perpetrators or state actors from view, visual media decontextualized Darfur, turning it into a moral issue with clear victims and perpetrators, rather than a political crisis on the world's stage.

Analysis of image composition and captioning further detailed that framing often relied on the simplification of emotional appeal. Photographs favored close-ups of faces and bodies over wide shots of environment or context, amplifying impact while minimizing the complexity or scale of the conflict (Campbell, 2007). The captions and presentation of the images frequently invoked terms such as "innocent victims," "mass atrocities," or "genocide," reinforcing a moral frame of good versus evil (Campbell, 2007). Through the reductionist imagery, audiences were guided to feel for the victims rather than to reflect on the nature of the conflict overall. The imagery likely became reductionist because photojournalists were largely confined to refugee camps, where such scenes were most accessible and abundant (Campbell, 2007). These visuals also served as powerful tools for guiding how the international community should feel and respond to the crisis (Campbell, 2007), a significant motive for producing and publishing the images in the first place. In this sense, the use of visuals replaced political explanation with humanitarian sentiment, rendering the conflict intelligible primarily through Western moral categories of rescue and compassion (Campbell, 2007). Visual imagery largely omitted the political drivers of the conflict, including the redrawing of administrative borders that elevated certain elites; the nature of the conflict, such as the complex and fluid identities of Darfurians that cannot be reduced to simple binaries; and the flaws of previous intervention, such as how the ambiguous political structure of rebel groups made coordinated solutions difficult to implement (Campbell, 2007). By omitting these dynamics, the imagery narrowed the range of policy responses, elevating humanitarian work over structural or military intervention (Campbell, 2007).

The framing practices also aligned with broader institutional motives. Photo editors encouraged the inclusion of images that conveyed immediacy and visual drama, prioritizing audience engagement over contextual accuracy (Gruley & Duvall, 2010). Oftentimes, the initial preference for dramatic visuals can be traced back to colonial beliefs about African cultures, accessibility constraints, and the conditions of the conflict including whether violations were coordinated or dispersed (Gruley & Duvall, 2010). Similarly, dramatic framing proved to be a deliberate tool for the Sudanese government to deny their involvement in the atrocities, much like how Libya's Muammar Gaddafi reduced violence to a tribal narrative to reject international intervention (Gruley & Duvall, 2010). As a result, recurring themes, such as desert landscapes, camps, and crying children became shorthand for the crisis itself. As content analyses of conflict coverage demonstrate, the tribalist visual discourse of suffering bodies in isolation perpetuated stereotypes of African victimhood and Western benevolence (Gruley & Duvall, 2010), further contributing to the simplification of the conflict.

Furthermore, in the investigation, notable correlations emerged between peaks in media visibility and significant responses of the international community. At the onset of the Darfur crisis in 2003, there were consistently fewer than 200 monthly media coverage reports (LexisNexis, 2003). Similarly, a study found that major U.S. television networks largely overlooked the conflict between 2003-2004, a period that saw the most intense violence (Sniderman, 2011). As international media coverage generally increased in 2003 from its lowest at 8 reports in February to its highest at 191 in December (LexisNexis, 2003), some advocacy responses emerged, namely the UN World Food Program for Darfur starting operations. Likewise, there was some international condemnation of the conflict, notably the UN Under-Secretary General labeling the conflict as one of the worst global humanitarian situations in December (U.S. Government Accountability Office, 2006). Despite the severity of the violence, the limited coverage of the conflict led to delayed international responses that were also largely logistical and peripheral.

By contrast, 2004 saw an exponential increase in international media coverage. As media volume ramped up exponentially throughout the year, important policy responses emerged from influential international actors, including the United Nations, the United States, and the African Union. As media coverage intensified from over 300 reports in January to 1,254 in April (LexisNexis, 2004), several key humanitarian initiatives occurred. Amnesty International published one of the first full-length reports on Darfur (United States Holocaust Memorial Museum, n.d.); the UN Security Council convened its first meeting on Darfur (United Nations Security Council, 2022); and USAID's Office of Foreign Disaster Assistance deployed a Disaster Assistance Response Team to address humanitarian needs in the wake of a ceasefire agreement (U.S. Government Accountability Office, 2006). On a broader note, from April 2004 to July 2006, international aid presence expanded drastically, from just over 200 personnel to 13,500 across 84 NGOs and 13 UN agencies (U.S. Government Accountability Office, 2006). The sharp rise in media volume prompted the international community to treat the conflict with greater urgency and consideration. Moreover, with an average of 2,026 reports from May to June, (LexisNexis, 2004), the United States began providing aid to support the African Union Mission in Sudan's monitoring of the 2004 ceasefire agreement. Moreover, from July to October, international media coverage averaged over 6,000 reports per month (LexisNexis, 2004). During this period, the U.S. Congress and Bush Administration passed multiple resolutions that condemned the mass atrocities and labeled them a genocide (*Peace, Justice, Humanitarian Aid - United States Holocaust Memorial Museum*, n.d.); the UN Secretary-General issuing a joint communiqué with the Sudanese government for peace in Darfur (United Nations Security Council, 2022); and the Secretary-General opened an investigation into the atrocities in Darfur (U.S. Government Accountability Office, 2006). The significant increase in media visibility of the conflict influenced the international community to prioritize the conflict in their foreign policy agendas. Despite a decrease in press coverage between October and December, with an average of about 3,293 reports (LexisNexis, 2004), intervention efforts still occurred. The African Union established a humanitarian mission for Darfur; international donors providing about $890 million in aid; the Ceasefire Commission reported on the 2004 ceasefire violations; and USAID donating about $113 million in food aid through the UN World Food Program and International Committee of the Red Cross (U.S. Government Accountability Office, 2006). In all, in 2004, increased press coverage temporally correlated to a significant rise in international aid and advocacy responses.

In 2005, press coverage remained about the sustained Darfur conflict. From February to March, with an average of 2,236 press reports (LexisNexis, 2005), the crisis was referred to the International Criminal Court (ICC). Likewise, the UN Security Council placed travel bans and froze assets for Sudanese actors reported to perpetrate human rights violations (U.S. Government Accountability Office, 2006). The sustained level of a large volume of media reports coincided with increased notable UN action. Afterwards, from April to August, the number of press reports fluctuated and ultimately decreased to 982 reports in August (LexisNexis, 2005). Despite the fluctuations, the United Nations continued training and deploying troops for the African Union Mission in Sudan (U.S. Government Accountability Office, 2006), showing how, although small, sustained press coverage of the conflict had an impact on policy. From September to December, international press coverage slightly increased to an average of 1,229 reports per month (LexisNexis, 2005). At the time, USAID contributed about $324 million in food aid, which was a 58% increase in humanitarian aid from 2004 (U.S. Government Accountability Office, 2006). Once more demonstrating how more international media visibility coincided with more improved aid efforts. Ultimately, 2005 was characterized by fluctuations in media volume, temporally correlated to both progress and setbacks in peace negotiations, backed by international support (United Nations Security Council, 2022).

In 2006, a second surge of media coverage of civil mobilization paralleled international legislative action. In April, press coverage of the Darfur crisis surged to 3,784 reports, most notably because of a rally organized by the Save Darfur Coalition (LexisNexis, 2006). The rally, organized in Washington D.C., was sponsored by over 160 organizations and featured prominent speakers, including Senator Barack Obama, activist and Holocaust survivor Elie Wiesel, and American actor George Clooney (Chmela, 2006). Visual coverage of the rally, the first anti-genocide demonstration in American history, garnered significant attention and invited comparisons to the international community's failure to prevent earlier atrocities, such as the Rwandan genocide (Sniderman, 2011). Despite notable media coverage in early 2006, there were limited peaks in international humanitarian action. However, following a peak in May with over 5,000 press reports, in June the African Union's Peace and Security Council decided to place targeted sanctions on individuals violating the 2006 Darfur Peace Agreement (LexisNexis, 2006; United Nations Security Council, 2022). The increased press coverage paralleled a major UN legislative development. Furthermore, with an average of 2,336 reports from June to August (LexisNexis, 2006), the United Nations adopted Resolution 1706, which expanded the UN Mission in Sudan (UNMIS)'s mandate (United Nations Security Council, 2022). It reaffirms how more media visibility can sustain international political commitment and help evaluate the success of a UN mandate thus far. Moreover, following an average of over 3,000 press reports between August to November (LexisNexis, 2006), the United States passed the Darfur Peace and Accountability Act, which imposed sanctions against individuals responsible for genocide, war crimes, and crimes against humanity in Darfur; and supported peace and humanitarian operations in Darfur (U.S. Government Accountability Office, 2006). It demonstrates how increased media volume coincided with substantial policy action. Further, in November with nearly 4,000 press reports (LexisNexis, 2006), the UN Secretary-General, P5 member countries, the Arab League, the European Union, and several African countries agreed to a joint operation in Darfur (United Nations Security Council, 2022). In all, in 2006, surges in media volume of the Darfur conflict, most notably coverage of mobilization, attracted international action, paralleling significant developments in international legislation.

In 2007, there was a continued high in international press coverage, which led to several institutionalized commitments. Between January to December, there was an average of about 4,243 monthly press reports (LexisNexis, 2007). During this period, the United Nations-African Union Mission in Darfur (UNAMID) was established in July as a peacekeeping mission (United Nations Security Council, 2022). The establishment of a peacekeeping mission, intended to maintain peace and security in conflict-ridden areas, helped reaffirm international commitment to resolving the Darfur crisis. Moreover, the period was defined by growing concerns from the international community, including the ICC and European Union, over Sudan's lack of cooperation with international resolutions (United Nations Security Council, 2022). In all, the continued high coverage since the surges in 2004 coincided with increasing international commitment and affirmative action in intervening in the Darfur crisis.

Similarly, in 2008, high media coverage coincided with several formal international responses and judicial action. Between January to December, press coverage averaged nearly 3,200 reports per month (LexisNexis, 2008). Several significant humanitarian and political developments occurred during this period. In January, UNAMID assumed full control of peacekeeping operations from the African Union Mission in Sudan (United Nations Security Council, 2022). In March, the "Friends of UNAMID", composed of the European Union, Canada, Tanzania, the United Kingdom, and the United States, pledged logistical and training support to the mission (United Nations Security Council, 2022). In July, the ICC issued an arrest warrant for Sudanese President Omar Hassan al-Bashir, and the UN Security Council extended UNAMID's mandate (United Nations Security Council, 2022). In particular, the ICC arrest warrant helped further perpetuate the framing of the Darfur crisis from a genocide and humanitarian lens. Furthermore, in September, the Arab League announced a plan to form a six-member committee to mediate peace talks between the Sudanese government and rebel groups (United Nations Security Council, 2022). Ultimately, the large volume of media coverage coincided with international developments for aid.

Collectively, these findings demonstrate that visual framing in the global coverage of the Darfur conflict (2003-2008) was a powerful yet limiting interpretive mechanism. By centering emotionally-driven representation over political explanation, it framed the conflict in ways that elicited empathy but constrained comprehension. The power of visual framing is then not simply what was shown to the audience, but in what it left unseen, such as the geopolitical actors, power structures, and systemic causes that might have transformed moral response into political understanding. In this sense, visual media framing shaped Western advocacy through a logic of emotional immediacy, increasing awareness of the conflict, but not necessarily lending to better understanding.

Relative Impact of Media in Reporting the Darfur Conflict (2003-2008)

This section examines how textual and visual media influenced awareness, interpretation, and response to the Darfur conflict between 2003 and 2008. The findings demonstrate that imagery played a central role in shaping emotional perception of urgency, while textual reporting contributed to cognitive understanding and policy framing. Rather than functioning in tandem, the two mediums produced distinct effects on public engagement and humanitarian discourse; imagery provoked immediate emotional responses from audiences, though often sacrificed the context needed for nuanced understanding which could only be provided by textual analysis, therefore when text and media were used together they were most successful in providing a full picture of the conflict.

Across the coverage analyzed, visual imagery proved more effective at capturing attention and evoking empathy than text alone (Coleman, 2010). Photographs and televised footage translated distant suffering into immediate emotional experience, bridging geographic and psychological distance by allowing the reader to visually experience the textual headlines they could have only imagined, making it much harder to turn away from and ignore what they were seeing in regards to the conflict. In contrast, textual reporting demanded higher cognitive engagement and was processed through more deliberate, analytical evaluation. This distinction is reflected in findings that audiences tend to process textual information through higher-effort analytical reasoning, while images are more readily absorbed through affective and intuitive pathways. As a result, visual imagery often achieved stronger initial impact, prompting empathy and moral concern even among audiences with limited prior knowledge of the conflict (Coleman, 2010).

The evidence from content analyses of major Western outlets further supports this relationship. Reporting in The New York Times combined graphic imagery of violence and displacement with articles emphasizing U.S. humanitarian aid and leadership (Kothari, 2010). This pairing of emotionally charged visuals with text reinforcing Western moral responsibility created a recurring narrative frame that positioned the U.S. and its allies as active agents of rescue, while portraying the people of the Darfur conflict primarily as victims. The result was a layered discourse in which emotional engagement from images was reinforced by textual narratives that justified policy responses and humanitarian involvement (Kothari, 2010).

Taken together, the findings suggest that visual and textual reporting on Darfur operated in complementary but uneven ways. Imagery was more effective at mobilizing empathy and awareness, while text provided the analytical framing required for comprehension. However, the dominance of visual storytelling often overshadowed textual nuance, producing narratives that were emotionally persuasive but politically simplified. However, it is evident that the interplay between image and text effectively shaped Western humanitarian perception as one of visible suffering, leading to a moral response. The role of visual imagery, then, contributed uniquely to human understanding which was highly excluded from textual reporting alone and directly contributed to Western responses and decisions regarding Darfur, as imagery was especially effective in garnering emotional responses from Western citizens which was compelling to lawmakers. (Coleman, 2010; Kothari, 2010).

Media Influence and Policy

This section assesses whether media framing, coverage patterns, and agenda-setting translated into policy mobilization during the Darfur conflict (2003–2008), namely the establishment of legislative action at a national and international level. Examining correlations between policy responses, media coverage, and the intensity of reporting demonstrated that while the media was central in generating international awareness and moral discourse, its capacity to drive concrete policy action was conditional and context dependent. The evidence also shows that coverage of the conflict amplified emotional engagement and public concern. However, despite increasing visibility and moral urgency, whether media sustained policy intervention remained limited.

The media's ability to drive foreign policy is conditional rather than universal. Previous scholarship has asserted a strong direct connection between media coverage and foreign policy, suggesting that reporting on foreign policy issues can directly lead to policy changes or universal adoption of policy positions advocated for by the media. However, there is limited evidence to instantiate this direct causal relationship. Although media coverage does not directly influence policy shifts, the media can indirectly shape government policy in specific contexts and under certain conditions.

When the government policy on an issue is uncertain or ambiguous, and coverage is emotively framed around civilian suffering to encourage a particular course of action, the media can sustain domestic and foreign policy aims (Robinson, 1999). The media also could have indirect influence on foreign policy through agenda-setting. By focusing coverage on human suffering, such as violence and famine, the media can contribute to mobilizing public consciousness, thus shaping public opinion of humanitarian issues by calling for humanitarian intervention on grounds of moral urgency (Cohen, 1994). Through increased coverage of humanitarian crises, especially through an emotive lens that emphasizes human suffering, media coverage can elevate crises to public visibility thus influencing public opinion. Increased public support for humanitarian intervention can bring the issue to the forefront of foreign policy agenda, assuming policymakers are responsive to public opinion. Therefore, by raising issues to public visibility, the media can place an issue on the foreign policy agenda (Gowing, 1994). The case of Darfur aligns with these findings. The media, especially American reporting, helped play an agenda-setting role that advanced the Responsibility to Protect (R2P) doctrine and mobilized public concern (Sidahmed et al., 2010).

The specific framing that the media adopted was critical in guiding policy responses on Darfur. Western media coverage of the Darfur conflict reflected framing battles by different institutional actors but was dominated by the crime frame, which emphasized the war crimes and crimes against humanity taking place in Darfur. This was due to its institutional backing by the ICC and the UN Security Council which amplified its policy traction. Further, the crime frame was the most effective in engendering public concern (Savelsberg, 2015c). Increased public concern and support for intervention prioritizes issues in foreign policy agendas. Government response to increased public support for intervention against the violence and crimes against humanity could be more prominent in contexts where policy responses to the Darfur crisis were ambiguous prior to increased coverage.

It cannot be disputed that at least in part imagery along with media framing was effective at garnering the attention of Western audiences and governments as evidenced by the prevalence of media reporting being mentioned during governmental sessions, hearings, and committees when addressing the events in Darfur (2003-2008). From 2004 to 2007 the British Parliament heard oral arguments on how best to address the ongoing crisis in Darfur, some members were eager to jump to action to help a foreign country, while others were emphatic that the British people and government could not stand idly by while people were murdered and starved. Foreign citizens consistently saw shocking and upsetting media imagery of Darfur, calling on them to advocate for the British government to act (Hansard, 2007). Thus, media coverage helped amplify emotional engagement, and support for international intervention. Media coverage of Darfur in England when using imagery was successful at garnering attention to the crisis and portraying the events in a light that would attract the most shock and outrage, compelling any empathetic person to call on their lawmakers to act. The media was a notable actor in driving the response to the crisis.

Focusing on the types of media reporting on the conflict, the roles played by visual content are significant. Visual documentation of the conflict through Google Earth satellite images dedicated to the Crisis in Darfur Initiative raised global awareness of the conflict (Parks, 2009). This finding is in line with prior research which shows that imagery of conflict is effective in generating emotional responses from the public (Joyce, 2010). However, the success of this initiative in driving international policy intervention was limited. Zogby International polling between 2004 and 2006 recorded fluctuations in public sentiment similar to previously mentioned polling, with support for U.S. involvement in Sudan peaking during periods of heightened media attention and declining as coverage waned (International Crisis Group, 2005). The peaks in fluctuations correlated with concrete policy actions; however, were less substantial compared to action taken during consistent highs of attention. In 2004, roughly half of Americans believed the United States had a moral obligation to act in Darfur, but by 2006 that proportion had dropped significantly as the crisis receded from mainstream news (International Crisis Group, 2005). These findings illustrate that while visual and narrative exposure can mobilize short-term policy support, the effect is unstable without sustained visibility. This shows that although visual imagery was crucial in producing short-term emotional responses in the public, surges in visibility did not reliably translate into sustained policy intervention (Parks, 2009).

Taken together, these findings illustrate that the influence of the media on foreign policy is best understood as conditional, indirect, and context-dependent. While coverage, particularly when emotively framed, can elevate humanitarian crises to international prominence, place them on the foreign policy agenda and mobilize public concern, its ability to compel concrete or sustained policy change remains limited. The media's influence primarily lies in agenda-setting and framing moral narratives. This influence is most pronounced when governmental policy is uncertain, and when coverage sustains public attention long enough to maintain political pressure. Policy responses on Darfur demonstrate that while surges in media attention can generate immediate awareness and temporary moral urgency, they can only produce enduring policy transformation when accompanied with strategic or institutional alignment. Thus, rather than serving as an autonomous driver of foreign policy, the media functions as a conditional amplifier, functioning as one of several competing influences within a complex decision environment, capable of shaping discourse and timing, but not of determining outcomes in isolation. It implies that media pressure can amplify issues and accelerate consideration for intervention already underway but cannot redirect policy in ways that contradict existing priorities.

Conclusion

In all, the findings suggested that neither visual nor textual reporting produced clearly superior aid or advocacy outcomes in regards to the Darfur conflict (2003-2008). Although visual reporting evoked visceral emotional reactions that sparked immediate emotional investment, it did not translate into significant and effective policy responses, and largely limited understanding of the conflict. As corroborated in past literature, including Campbell (2007), Gruley and Duvall (2010), Wahutu (2018), Kothari (2010), Smith-Rodden and Ash (2012), and Savelsberg (2015a), visual imagery in media coverage was anchored in specific frames, often ones evoking sorrowful and unsettling emotions, in order to attract a certain audience or achieve a certain aim. By limiting awareness of the conflict to these frames, visual reporting often led to incomplete understandings of the crisis, which then likely curtailed proper international responses. Therefore, while visual media coverage was more significant than textual coverage in creating emotional response, in and of itself, the humanitarian responses prompted by the visuals were generally weak in reducing or resolving the conflict.

While media coverage, especially visual imagery, played a substantial role in shaping public opinion and generating moral urgency around Darfur, several external political and structural factors likely constrained the extent to which this media driven pressure translated into policy action. Media coverage, especially visual imagery, shaped public opinion and generated moral urgency around Darfur, but its policy impact was limited by a set of political, geopolitical, and institutional constraints. First, Western governments faced competing foreign policy priorities during the early and mid 2000s particularly the wars in Iraq and Afghanistan which consumed diplomatic attention, military capacity and budgetary resources. These ongoing conflicts reduced the likelihood that even strong public advocacy could mobilize large scale intervention. Second, the international response was structurally constrained by geopolitical considerations: Sudan's cooperation on counterterrorism, China's economic investments in Sudanese oil and divisions within the UN security council all created political disincentives for forceful action. Additionally humanitarian access was routinely restricted by the Sudanese government, limiting the operational pathways through which states or international organizations could respond even if they were politically willing. Finally, the bureaucratic and institutional mechanisms required to authorize intervention, such as the responsibility to protect (R2P) UN peacekeeping mandates and international legal processes moved slowly compared to the rapid visibility spikes created by media attention. These constraints suggested that limited policy responses were not only a product of insufficient media influence but also broader structural barriers that inhibited state's ability or willingness to convert media induced moral concern into decisive action. In this sense media influence operated within a larger system of geopolitical institutional and strategic limitations that often overrode or diluted its policy impact.

Discussion

Our findings demonstrate the complex and often paradoxical role that visual media played in shaping both public perception and international responses to humanitarian crises. In the context of the Darfur conflict between 2003 and 2008, visual imagery emerged not only as a representational tool but as an active force in constructing the moral and emotional dimensions of global understanding. Through strategic framing of suffering and victimhood, visual media translated distant violence into proximate emotional experience, positioning Western audiences as moral witnesses. Yet in doing so, these representations often reduced the political and structural complexities of the conflict to visibility without sustained comprehension or action. The following discussion situates these findings within broader debates about the power and limits of visual communication in humanitarian narratives. It proceeds across five key arguments that consider first how visual imagery functions as a unique type of media, second its emotional impact, going on to then establish a framework for moral interpretation. Following this framing, the research then entails the distinction between textual and visual media, and finally visual imagery and its impact on policy and the conversations surrounding them. Throughout, these five key arguments shape not only what is seen but how it is felt, remembered, and acted upon.

Visual Imagery as a Distinct and Constructive Source of Media

Visual imagery, considered here as a mode of mediation rather than mere documentation, carried distinct interpretive influence. When exposed to substantial media coverage of Darfur, nearly three-quarters of American respondents reported heightened concern for Darfurians, which increased public pressure for humanitarian intervention (Rosenstiel, 2007; University of Maryland, 2005). The images did not circulate as neutral depictions but as interpretive artifacts that constructed meaning. This supports Davenport and Ball's (2002) argument that visual media structures the moral grammar through which audiences understand crises. Our results also show that when visual coverage of the crisis declined and journalists shifted attention to domestic politics, particularly by 2006, public confidence that intervention would take place decreased (Rosentiel, 2007; University of Maryland, 2005; International Crisis Group, 2005). These findings indicate a correlational relationship between the viewer and the media, as audience engagement depended not only on initial exposure but on sustained visibility. Thus, while visual imagery served as a powerful catalyst for humanitarian awareness, polling addresses its correlational influence that was temporally fragile and closely tied to peaks in media attention.

Simultaneously operating as evidence and narrative, this investigation entails that visual imagery mediated between the realities of conflict and the expectations of Western spectatorship. Rather than contextual depth, editors and journalists favored visuals that met aesthetic and emotional criteria such as clarity, immediacy, and impact. In England, for example, coverage emphasized killings, displacement, and severe malnutrition (Hansard, 2007). This visual rhetoric rendered distant suffering an immediate moral concern. However, media coverage rarely engaged the political complexity of the conflict. As noted by Campbell (2007) and Gruley and Duvall (2010), visual coverage relied heavily on recurring motifs such as crying children, burned landscapes, displaced families, that condensed the conflict into familiar tropes of African suffering and Western compassion (Hansard, 2007). The emphasis on these recurring motifs framed the crisis primarily through humanitarian rather than political lenses, limiting public understanding and narrowing possible responses.

Overall, by privileging immediacy the media translated complex political realities into widely legible moral narratives. Visual recognition substituted for deeper political comprehension, creating an aesthetic of visibility that encouraged empathy but discouraged analytical engagement. Establishing visual imagery as a form of media therefore requires recognizing its dual functions: it reveals suffering while obscuring causality, generates attention yet can dissipate critical understanding. Examining visual media means looking not just at what appears in an image, but at the power, editorial choices, and cultural norms that decide what gets shown in the first place.

Unique Emotional Responses Elicited by Visual Imagery

We also found that visual imagery evoked distinct emotional responses that distinguished it from textual reporting. Across our results, images consistently evoked empathy, moral urgency, and heightened awareness in ways that text alone could not. As Hansard (2007) notes, repeated exposure to emotionally charged visual material demonstrated the media's agenda-setting power by directing public concern and framing moral priorities. These emotional cues informed calls for action aimed at policymakers, confirmed by immense coverage and conversation within government (Congressional Record, 2004). Consistent with prior work, our findings show that photographs of victims of violence, displacement, and loss translated the distant reality of the conflict into immediate human experience, activating visceral responses among Western audiences (Joyce, 2010; Campbell, 2007).

Visual imagery also confronted international audiences with the realization that earlier failures, most notably in Rwanda, were being echoed in Darfur. The recurrence of familiar visual motifs intensified this effect, as humanitarian photographs from Darfur resembled the widely circulated images from Rwanda a decade earlier, making the comparison immediate and emotionally charged. Because those Rwandan images had come to symbolize a profound moral failure, their visual reappearance in the context of Darfur amplified feelings of guilt and heightened demands for intervention (Congressional Record, 2004). The visual parallel did more than elicit memories of failures like Rwanda, it framed inaction in Darfur as a repetition of past ethical lapses.

Emotionally charged visuals mobilized attention quickly, but their influence proved to be short-lived. Evidence from surveys showed that while media coverage initially heightened empathy, this response rarely translated into sustained political engagement as attention shifted elsewhere (University of Maryland, 2005; Rosentiel, 2007). The pattern suggested a mechanism of early emotional activation followed by decline, as repeated exposure produced diminishing returns, limiting how likely it was that viewers would shift awareness into advocacy or policy pressure. Thus, visual media humanized the conflict but could not overcome the broader gap between momentary emotional impact and durable mobilization.

The power of imagery lies in its ability to universalize emotional responses while isolating suffering from its broader geopolitical contexts. Close-up portraits invited empathy and proximity yet detached subjects from the structural forces shaping their experiences. Although this mechanism effectively raised awareness, it narrowed how audiences understood the conflict, reinforcing short-term compassion over deeper political engagement. The influence of visual media therefore rests not simply in what it shows but in how it organizes perception and defines the contours of humanitarian engagement.

Visual Media Framing

Our findings further demonstrate that media coverage framed the Darfur conflict in ways that shaped Western understanding but did not translate into sustained aid or advocacy. A number of major U.S. media outlets depicted Darfur as a genocide- though depicted in various ways, with many other similar outlets not at all depicting the conflict as such- through both implicit visual associations such as imagery reminiscent of Rwanda (Congressional Record, 2004), and explicit references in reporting, contributing to policy responses including several U.S. resolutions in 2004 (*United States Holocaust Memorial Museum*, n.d.). Visual media intensified this framing by presenting the conflict as a profound moral crisis, consistent with frameworks identified by Campbell (2007) and Gruley and Duvall (2010). Journalistic choices regarding tone, composition, captions, and the use of the genocide label all reinforced a humanitarian framing designed to evoke empathy (Smith-Rodden and Ash, 2012).

Before analyzing the data, the expectation was that- drawing on the work of Smith-Rodden as well as Ash (2012) and Robinson (1999)- that the humanitarian framing in visual media would exert some influence on foreign policy. This assumption guided the research process and its initial focus on how images might generate political pressure. However, the evidence is ultimately better aligned with Sidahmed, Soderlund, and Briggs (2010), Parks (2009), and Kothari (2010), who find that media coverage rarely produces meaningful intervention.

Although visual coverage exerted a greater influence than textual reporting, neither medium yielded substantial diplomatic nor military responses. Even during peak coverage in 2004, international responses were largely bureaucratic, consisting of reports and condemnations. These reports focused heavily on atrocities, such as the strategic use of hunger. While such reporting raised awareness, it shaped international interventions toward mitigation-most notably extensive food aid-rather than preventive or structural measures. This pattern reflects a broader dynamic in which the type of coverage influences the type of intervention: when reporting emphasizes immediate suffering, responses tend to focus on short-term relief; when structural or political drivers are deemphasized, prevention or protection policies remain underdeveloped. Thus, media framing not only shapes perceptions but also channels the forms of action considered appropriate or possible.

Taken together, these findings highlight the limits of media influence. While visual imagery can create compelling moral narratives, concrete intervention requires additional factors, including political will, strategic considerations, and institutional capacity. Future reporting on crises should pair the humanitarian frame with more explicit attention to structural causes and intervention pathways. For example, by linking individual suffering to specific political actors, explaining the mechanisms that enable or block international response, and outlining feasible policy options. Pairing as such would help translate emotional engagement into a clearer understanding of what meaningful action would entail.

Distinguishing Visual and Textual Media and Their Complementary Influences

Our research shows that textual and visual media produced different forms of audience engagement and elicited distinct responses when used separately or in tandem. Visual imagery successfully captured immediate attention and conveyed the emotional stakes of the conflict, prompting strong affective responses (Coleman, 2010). Textual media, by contrast, offered broader contextual understanding and deeper explanation, expanding on themes of violence, displacement, and loss introduced by images in a more comprehensive but less emotionally charged way. Text and imagery thus compensated for each other's limitations: text provided essential background for interpreting visuals, while visuals brought textual accounts to life and enabled audiences to form more immediate emotional connections with events in Darfur.

We expected imagery and text to shape readers' perceptions in distinct ways, though the significance of their interaction was less certain. Our analysis shows that, when combined, visual and textual elements often reinforced a narrative that cast the U.S. as a potential savior- a motif documented in contemporaneous coverage, such as portrayals of U.S. officials as uniquely positioned to "stop genocide" (Kothari, 2010). This framing helped legitimize U.S. and broader Western responses and illustrates how media narratives structured public understanding of the conflict.

Findings highlight the complementary but limited capacities of different media forms. Visual reporting offered emotional immediacy but often reduced political complexity, while text provided context yet lacked the affective force to sustain public attention. Even combined, they struggled to fully capture the conflict's political, social, and economic aspects. Still, visual media added a vital human element which helped audiences imagine the lived experiences of Darfuri civilians and deepened emotional understanding alongside factual information.

The Role of Visual Media on Policy Enaction and Conversation

Our findings demonstrate that although media, in particular visual media, played a critical role in setting the agenda for international discourse, generating emotional reactions, and articulating the humanitarian dimensions of the Darfur conflict, its ability to catalyze sustained policy intervention was conditional and context-dependent. Visual media mobilized public concern but did not consistently translate awareness into concrete or durable policy responses. This calls for a closer examination of the conditions that convert public concern into concrete political outcomes.

The conditional nature of media influence supports Robinson's interpretation of the CNN effect, which holds that media can shape foreign policy only when government policy is uncertain (Robinson, 1999). Visual representations of conflict are typically selected for their emotional impact rather than their capacity to advocate for specific policy measures. As a result, they provoke strong short-term responses but rarely drive long-term intervention. This gap between public concern and policy action is evident in examples such as the Google Earth Crisis in Darfur Initiative, which raised significant awareness but did not lead to sustained foreign policy engagement (Parks, 2009).

The tension between the generative capacity of visual media and its limited influence on policy is also reflected in the media's role as an institutional actor. Visual imagery shaped the humanitarian frame by centering depictions of suffering, which became reference points for aid agencies and journalists (Savelsberg, 2015c). However, Savelsberg's findings show that the framings adopted from justice actors, emphasizing criminal accountability, were more effective in prompting Western policy responses due to their institutional backing and the clear moral and legal signals they provided. This suggests that visual media must operate alongside other institutional actors whose messaging provides concrete pathways for action.

While visual media significantly shaped public awareness and moral urgency, it was not sufficient to generate sustained policy intervention. Effective action required coordination with other institutional actors and consistent framing that linked emotional responses to specific intervention strategies. Thus, although visual imagery played an essential role in the Darfur conflict, lasting change depended on its integration with the practice of holding political leaders criminally responsible for failures, called the justice cascade, and other institutional frameworks.

Limitations

As undergraduate researchers, we encountered several limitations that shaped the scope and depth of our study on media coverage of the Darfur conflict from 2003-2008. These constraints fell into three broad categories: time, sources and methodology.

Time and Data Constraints

One of the most significant challenges was time constraints, which limited our ability to collect and analyze quantitative data that could have strengthened the findings. Because much of our evidence relied on qualitative analysis of news coverage and framing, we were unable to conduct quantitative analysis or measure correlations. As a result, our analysis shifted toward exploring plausible causal mechanisms rather than empirically testing relationships through statistical methods.

Source Limitations and Gaps in Coverage

Another limitation was the nature of available sources. Most of the materials examined were published during or shortly after the Darfur crisis, which provided valuable contemporaneous perspectives but lacked the benefit of hindsight or longitudinal analysis. There were additionally notable gaps in media coverage, particularly long stretches where major Western outlets such as The New York Times provided little to no reporting on Darfur, reflecting shifts in political attention and audience fatigue. This uneven coverage limited the ability to construct a continuous timeline of media influence. Moreover, our focus on western advocacy and aid responses excluded nonwestern perspectives and regional interventions narrowing the global scope of the study.

Methodological Constraints and Future Directions

Methodologically, this study leaned heavily on qualitative interpretation, leaving room for future research to integrate quantitative content analysis, cross-regional comparison, and broader source inclusion. Incorporating african, middle eastern and non English media sources would allow future studies to more comprehensively assess how different information environments shape humanitarian engagement and foreign policy responses. Integrating these methods would help address the core research question with greater empirical depth and global representation.

Conclusion

Between 2003 and 2008, international coverage of the Darfur conflict expanded rapidly with major spikes in reporting and visual documentation as two distinct but interconnected forms of attention, as the crisis gained prominence on Western agendas. This increase in media attention was marked not only by a greater volume of news articles and NGO reports, but also by imagery depicting victims, displacement, and destruction. Our research finds that while this growth in visual coverage significantly heightened awareness, empathy, and short-term advocacy in Western contexts, it did not consistently translate into robust or sustained foreign policy intervention. By distinguishing the differential impacts of visual and textual coverage our study offers new insight into how media attention shaped, but ultimately fell short of transforming, policy outcomes.

Visual imagery consistently generated stronger emotional engagement than text alone, produced increased empathy, moral urgency, and short-term public attention during periods of intense coverage. Images of suffering and displacement functioned as powerful humanitarian signals, making the crisis feel immediate and prompting temporary increases in advocacy activity and public concern. However, this emotional impact was fragile: as visual attention declined, so did public engagement, indicating that imagery could spark awareness but rarely sustain it. Yet these emotional effects were highly temporal: once visual attention declined so did public engagement, indicating that imagery could catalyze awareness but rarely sustain it.

Textual reporting, in contrast, provided essential political and historical context that visual media often lacked. While text was less emotionally resonant, it supplied the analytical foundations through which audiences and policymakers could understand the actors, structures, and causes behind the conflict. When combined, visual and textual coverage worked together to construct a humanitarian frame that emphasized victimhood and moral obligation. Yet this frame also narrowed the range of responses, directing international action primarily toward short-term relief rather than structural or preventative measures. Our findings show that neither medium alone produced substantial diplomatic or military intervention, and the influence of both was constrained by broader political forces, such as shifting US foreign policy priorities, divisions within the UN security council and limited institutional enforcement capacity.

Across our analyses, media influence on policy emerged as conditional rather than determinative. Visual imagery helped bring Darfur onto the international agenda and framed it as a moral crisis, but it could not overcome geopolitical interests, divided international institutions, or inconsistent governmental will. In many cases, justice-oriented framing from institutions such as the ICC exerted greater influence on concrete policy decisions than humanitarian imagery itself.

Future communication strategies around humanitarian crises may benefit from pairing emotionally powerful imagery with clearer structural explanation and more explicit pathways for policy engagement. In the case of Darfur, media coverage succeeded in making suffering visible, but meaningful and lasting intervention ultimately required political will, institutional coordination, and policy frameworks that extended beyond what media alone could achieve.

References

Campbell, D. (2007). Geopolitics and visuality: Sighting the Darfur conflict. Political Geography, 26(4), 357–382. https://doi.org/10.1016/j.polgeo.2006.11.005

Chmela, H. (2006, May 1). Thousands rally in support of American aid to Darfur. The New York Times. https://www.nytimes.com/2006/05/01/us/01rally.html

Cohen, B. (1994). A view from the academy. In W. L. Bennett & D. L. Paletz (Eds.), *Taken by storm: The media, public opinion, and U.S. foreign policy in the Gulf War.* (pp. 8–11). University of Chicago Press.

Coleman, R. (2010). Framing the pictures in our heads: Exploring the framing and agenda-setting effects of visual images. *Doing News Framing Analysis.* (pp. 233–261). Routledge. https://doi.org/10.4324/9780203864463

Congressional Record. (2004, June 25). June 25, 2004 - Issue: Vol. 150, No. 90 — Daily Edition. https://www.congress.gov/congressional-record/volume-150/issue-90/house-section

Davenport, C., & Ball, P. (2002). Views to a kill: Exploring the implications of source selection in the case of Guatemalan state terror, 1977-1995. Journal of Conflict Resolution, 46(3), 427-450. https://doi.org/10.1177/0022002702046003005

Gowing, N. (1994). *Real time television coverage of armed conflicts and diplomatic crises: Does it pressure or distort foreign policy decisions.* Harvard Kennedy School Shorenstein Center on Media, Politics, and Public Policy. https://dash.harvard.edu/entities/publication/8859324c-40eb-43b2-882e-241f9be16561

Gruley, J., & Duvall, C. S. (2010). The evolving narrative of the Darfur conflict as represented in The New York Times and The Washington Post, 2003–2009. GeoJournal, 77(1), 29-46. https://doi.org/10.1007/s10708-010-9384-4

Güven, İ. (2024). Revisiting ethnic framing in conflicts: Challenging the concept of ethnic conflict. *Journal of Humanity, Peace and Justice*, 1(1), 49–64. https://doi.org/10.26650/hupej.2024.10.1.1459672

Hansard - House of Commons. (2007, June 5). Volume 461: debated on Tuesday 5 June 2007. https://hansard.parliament.uk/commons/2007-06-05/debates/07060541000003/Darfur

Hoile, David. (2005). *The media and Darfur: Sensationalism and irresponsibility*. The European Sudanese Public Affairs Council: Working for Peace in Sudan. https://www.espac.org/darfur/the-media-and-darfur.asp

International Crisis Group. (2005, June). *Sudan: Poll shows Americans support U.S. role in Darfur.* Reliefweb. https://reliefweb.int/node/412334

Joyce, D. (2010). Photography and the image-making of international justice. Law and Humanities, 4(2), 229-249. https://doi.org/10.5235/175214810793153896

Kim, J. H., Su, T.-Y., & Hong, J. (2007). The influence of geopolitics and foreign policy on the U.S. and Canadian media: An analysis of newspaper coverage of Sudan's Darfur conflict. Harvard International Journal of Press/Politics, 12(3). https://doi.org/10.1177/1081180X07302972

Kothari, A. (2010). The Framing of the Darfur conflict in The New York Times: 2003–2006. Journalism Studies, 209-224. https://doi.org/10.1080/14616700903481978

LexisNexis. (2003). Search results for "Darfur" (News, January 1-December 31, 2003) [Database search results]. https://www.lexisnexis.com/en-us/products/nexis-uni.page

LexisNexis. (2004). Search results for "Darfur" (News, January 1-December 31, 2004) [Database search results]. https://www.lexisnexis.com/en-us/products/nexis-uni.page

LexisNexis. (2005). Search results for "Darfur" (News, January 1-December 31, 2005) [Database search results]. https://www.lexisnexis.com/en-us/products/nexis-uni.page

LexisNexis. (2006). Search results for "Darfur" (News, January 1-December 31, 2006) [Database search results]. https://www.lexisnexis.com/en-us/products/nexis-uni.page

LexisNexis. (2007). Search results for "Darfur" (News, January 1-December 31, 2007) [Database search results]. https://www.lexisnexis.com/en-us/products/nexis-uni.page

LexisNexis. (2008). Search results for "Darfur" (News, January 1-December 31, 2008) [Database search results]. https://www.lexisnexis.com/en-us/products/nexis-uni.page

Parks, L. (2009). Digging into Google Earth: An analysis of "Crisis in Darfur." Geoforum, 40(4), 535–545. https://doi.org/10.1016/j.geoforum.2009.04.004

United States Holocaust Memorial Museum. (n.d.). Peace, Justice, Humanitarian Aid. https://www.ushmm.org/genocide-prevention/countries/sudan/peace-justice-humanitarian-aid

Robinson, P. (1999). The CNN effect: Can the news media drive foreign policy? Review of International Studies, 25(2), 301–309.

Rosentiel, T. (2007, March 12). State of the American news media, 2007: Mainstream media go niche. Pew Research Center. https://www.pewresearch.org/2007/03/12/state-of-the-american-news-media-2007-mainstream-media-go-niche/

Savelsberg, J. J. (2015a). Conclusions: Fields, the Global versus the National, and Representations of Mass Violence. In Representing Mass Violence (pp. 265–282). University of California Press. https://www.jstor.org/stable/10.1525/j.ctt1ffjn3g.16

Savelsberg, J. J. (2015b). Representing Mass Violence: Conflicting Responses to Human Rights Violations in Darfur. University of California Press. https://www.jstor.org/stable/10.1525/j.ctt1ffjn3g

Savelsberg, J. J. (2015c). Rules of the Journalistic Game, Autonomy, and the Habitus of Africa Correspondents. In Representing Mass Violence (pp. 205–221). University of California Press. https://www.jstor.org/stable/10.1525/j.ctt1ffjn3g.14

Sidahmed, A. S., Briggs, D. C., & Sidahmed, A. S., Walter C. (2010). *The responsibility to protect in Darfur: The role of mass media.* Bloomsbury. doi:10.5771/9780739138083

Smith-Rodden, M., & Ash, I. K. (2012). Investigating the psychological effects of news imagery: A case for evidence-based decision making and practices. Visual Communication Quarterly, 19(1), 20–32. https://doi.org/10.1080/15551393.2012.656056

Sniderman, A. S. (2011, March 16). A Brief History of "Save Darfur." Columbia Journalism Review. https://www.cjr.org/behind_the_news/a_brief_history_of_save_darfur.php

World Public Opinion. (2005, January 24). Americans on the Darfur crisis. https://worldpublicopinion.net/americans-on-the-darfur-crisis/

United Nations Security Council. (2022). *"Sudan." Security Council Report 2022*. Security Council Report. https://www.securitycouncilreport.org/chronology/sudan.php

United States Government Accountability Office. (2006, November 9). Darfur crisis: Progress in aid and peace monitoring threatened by ongoing violence and operational challenges. https://www.gao.gov/products/gao-07-9

Wahutu, J. S. (2018). What African media? Rethinking research on Africa's press. Global Media and Communication, 14(1), 31–45. https://doi.org/10.1177/1742766517734252

Zacher, M., Brehm, H. N., & Savelsberg, J. J. (2014). NGOs, IOs, and the ICC: Diagnosing and framing Darfur. Sociological Forum, 29(1), 29–51. doi:10.1111/socf.12068

POLICY PROPOSALS

Institutionalizing a Trilateral Deterrence Framework in the Indo-Pacific: the U.S.–Japan–ROK Defense Coalition

Jason Baek

This policy proposal discusses the progression of U.S.-Japan-R.O.K. defense cooperation since the 2016 THAAD deployment and the 2019 GSOMIA renewal, and assesses how these developments contribute to an effective collective defense strategy against China. Using qualitative analysis of major diplomatic milestones, including the 2023 Camp David Summit and the 2024 Freedom Edge exercises, this study recognizes growing alignment in threat perception, interoperability, and strategic planning among the three states. The findings show that although trilateral coordination has deepened, the absence of a formal institutional structure limits its ability to respond to rapidly escalating and multiplying military and geopolitical challenges. To address this chasm, the proposal recommends establishing a permanent trilateral defense framework by 2027 to enhance deterrence, crisis management, and a cohesive long-term alliance in the Indo-Pacific.

Introduction

Over the past decade, the strategic environment in the Indo-Pacific has shifted dramatically as China, Russia, and North Korea have renewed and leveled up their military and political cooperation. During this time period, the United States, Japan, and the Republic of Korea have also taken notable steps to expand the trilateral security coordination architecture, beginning with the 2016 THAAD deployment and reinforced through the 2019 renewal of GSOMIA. These developments laid the foundation for deeper collaboration, culminating in the 2023 Camp David Summit, which established the first stable, leader-level framework for annual trilateral exercises (Freedom Edge 2024), information-sharing, and real-time missile-warning integration (Govella, 2024; Cha, 2025). Together, these milestones reflect a growing recognition that no single state can handle the scale and complexity of regional security challenges alone. This proposal evaluates how trilateral defense ties have evolved and argues that the United States, Japan, and South Korea must coalesce around a shared denial strategy to prevent unilateral attempts to alter the regional balance of power through force. It lays out key elements of such an approach, such as enhancing interoperability, strengthening coordinated planning, and leveraging the complementary strategic roles each state plays. With the United States as the lead architect of this coalition, Japan as the frontline base of U.S. power projection, and South Korea as a strategic platform for surveillance, logistics, and peninsula-based deterrence. Understanding how these components fit together supports the argument of why institutionalizing trilateral defense cooperation has now become an inevitable step for ensuring long-term stability in the Indo-Pacific.

Policy Motivation

Problem Definition

In East Asia, one of the most strategically contested regions in the world today, shifts in economic influence, technological rivalry, and military capabilities are reshaping the regional security landscape. China's rise as the world's second-largest great power and its firm resolve to challenge and overthrow the existing U.S.-led order have accelerated strategic great-power competition across the Indo-Pacific (Braands & Gaddis, 2021; Colby, 2021a). In this situation, the geopolitical balance of power is shifting following China's People's Liberation Army's (PLA) successful military modernization and North Korea's rapid expansion of its nuclear weapons program and missile capabilities (U.S. Department of War, 2022; Cha, 2025). For example, Chinese Leader Xi Jinping has reportedly ordered the PLA to be completely prepared to invade Taiwan by 2027 (U.S. Department of War, 2025). While the U.S., Japan, and the ROK have begun to coalesce more closely in response, their cooperation still has considerable room for improvement. Moreover, the simultaneous alignment of China, North Korea, and Russia, which can be seen in their diplomatic, military, and technological cooperation, creates a strategic environment in which the lack of an institutionalized trilateral defense framework will leave the three states unable and unready to deter any one of these powers from gaining dominance in the region. (Colby, 2021a).

As the significance of trilateral cooperation has grown more than ever before over the past decade, the central problem these three states must grapple with is how to build a structural lattice for an effective denial strategy. Such a framework that consists of shared operational processes, command systems, and permanent mechanisms would help support a long-term joint defense posture. Colby, 2021b; Govella, 2024). This architecture is integral for implementing a denial strategy, which aims to prevent China or North Korea from achieving a rapid, decisive military advantage by ensuring the allies coordinate quickly, share intelligence without interruption, and impose costs immediately on any attempt at coercion or aggression (Colby, 2021a). Despite notable progress since 2016, the trilateral security cooperation remains weak with many loopholes and challenges. Initiatives such as the General Security of Military Information Agreement (GSOMIA), the 2023 Camp David Summit, and the 2024 Freedom Edge Drill stand as important milestones–facilitating real-time intelligence sharing, formalizing annual exercises, and launching the first large-scale maritime–air trilateral drill. However, they still fall short of creating an institutionalized framework powerful enough to effectively balance the unprecedented challenge that China poses to the region (Govella, 2024; Cha, 2025). Moreover, these efforts are subject to change as they could easily be affected by how the domestic political dynamics evolve both in Japan and South Korea. In a situation where China accelerates military modernization and pursues a "focused and sequential strategy" to weaken U.S. allies, and where North Korea's expanding nuclear program adds more volatility, the absence of a binding trilateral defense pact leaves all three states vulnerable in deterrence (Colby, 2021a; Cha, 2025).

For all three states, the stakes are unprecedented and truly existential. For Washington, failing to prevent China from dominating the most important region in the world, where roughly 30-40 percent of global GDP is produced each year, would not only damage its reputation as the greatest global power but also might directly endanger American interests for freedom and prosperity (Colby, 2021a; Brands & Gaddis, 2021). In 2022, the U.S. Department of War officially designated the People's Republic of China (PRC) as the "overall pacing challenge" (the primary competitor that challenges U.S. defense planning across the region), making alliance integration in Northeast Asia central to deterrence (U.S. Department of War, 2022). Recently, this rhetoric was echoed once more. In the Interim National Defense Strategic Guidance, circulated at the Pentagon in March 2025, Secretary of War Pete Hegseth designated China as "the Department's sole pacing threat" and the "denial of a Chinese fait accompli seizure of Taiwan while simultaneously defending the U.S. homeland" as "the Department's sole pacing scenario" (U.S. Department of War, 2025). For Tokyo, a hegemonic China controlling the region would jeopardize its freedom of maritime communication and trade, which would ultimately risk Tokyo's sovereignty over its sea lanes (Laimou-Maniati, 2001; Smith, 2020). Japan's 2022 National Security Strategy explicitly mentioned China as the greatest strategic challenge, echoing the need for its rapid defense normalization (Government of Japan, 2022a). For Seoul, Chinese hegemony would embolden Pyongyang, drive the U.S. security umbrella out of the Korean peninsula, and systematically endanger Seoul's security autonomy. In addition, there's a possibility of simultaneous aggression if China, North Korea, and even Russia can coordinate in multiple theaters (Cha, 2025; Brands & Gaddis, 2021). In such a scenario, which could distract and deplete the resources of the U.S. and its allies, a strong and well-prepared trilateral security pact would be significant in order to navigate these challenges with other regional partners.

Causes and Origins

The fragility of the US-Japan-ROK security cooperation is contextualized by the historical trajectory of East Asia. Unlike Europe, where it was possible to bring multiple states together to create a multilateral defense treaty (NATO), it has been both politically and historically unrealistic to form an analogous system in East Asia, and especially between Japan and South Korea. Their relationship has long been strained by unresolved historical grievances, ongoing territorial disputes, and deep-seated ideological divisions (Park, 2024; Bronza & Podoler, 2025). (Park, 2024; Bronza & Podoler, 2025). Being aware of these limitations, the U.S. has designed the Indo-Pacific security contour around "bilateral" alliances with Japan and South Korea, rather than finding ways for a collective multilateral framework (Pickett, 2005; Govella, 2024). While this structure helped the U.S. to deepen its ties with each ally individually, it shut the doors to developing stronger trilateral coordination groundworks. However, the strength of China in the modern day has made coordination a primary focus of strategists (Brands & Gaddis, 2021). For both South Korea and Japan, the cost of remaining trapped in the past is no longer affordable; it has become increasingly important for both states to assess security challenges that surround them and prepare for the combined regional contingencies of China's accelerating military modernization and North Korea's expanding nuclear capabilities.

The deployment of the Terminal High Altitude Area Defense (THAAD) system in 2016 was intended to counter North Korea's advancing missile program for purely defensive purposes (Watts, 2018). However, the Chinese retaliation that followed sent a clear sign to all three states, highlighting the importance of strengthening trilateral cooperation in the face of coercive pressure (Watts, 2018; U.S.–China Economic and Security Review Commission, 2017). Originally made by the U.S. in the 1990s, the THAAD system was designed to intercept short- and medium-range ballistic missiles during their terminal phase of flight (Congressional Research Service, 2024). Although the objective of this missile defense system was not to threaten or even psychologically intimidate China, the Chinese perceived it as a threat to its national security (Watts, 2018). In response, China expressed its grievances by using its considerable influence to place pressure on the export-oriented South Korean economy, which depends heavily on the Chinese market, orchestrating a series of retaliatory measures such as tourism restrictions, consumer boycotts, and banning Korean cultural exports (U.S.–China Economic and Security Review Commission, 2017). This aggressiveness was an extension of China's "focused and sequential strategy," which was aimed at punishing one U.S. ally, South Korea, to deter others from closely aligning with the U.S. (Colby, 2021a). Although Washington backed Seoul by imposing harsher economic sanctions on Beijing, this event once again echoed the urgency of a solid trilateral cooperation structure to stand against China's policy of deterring cooperation among the three nations.

In 2016, the same year that the THAAD response was progressing, Japan and South Korea agreed to sign the General Security of Military Information Agreement (GSOMIA), as North Korea's missile capabilities had become a serious threat to both South Korea and Japan. The GSOMIA opened up a direct intelligence-sharing channel between the two states on North Korea's missile launches without direct intervention from America (Bronza & Podoler, 2025). However, in 2019, the agreement was in danger of being terminated only three years after coming into effect due to a fissure between the two governments. The disagreement stemmed from unresolved historical divisions over forced labor and wartime sexual slavery during Japanese colonial rule (Bronza & Podoler, 2025; Park, 2024). This issue remains highly sensitive in South Korea, where many disapprove of Japan's past efforts to apologize and compensate the victims as insufficient. The Moon Jae-in administration of South Korea officially expressed its intentions to put an end to the agreement following Japan's decision to impose restrictions on exports vital to Korea's economy. This decision demonstrated how historical tensions continue to hinder contemporary strategic alignment between South Korea and Japan (Govella, 2024; Park, 2024). For China and North Korea, this was music to their ears; there was no need for them to act directly to dismantle the GSOMIA, thanks to the division that had happened internally (Bronza & Podoler, 2025).

In 2022, the détente of the two new governments in Japan and South Korea surprised the world. The new president of South Korea, Yoon Suk-yeol, and the new prime minister of Japan, Kishida Fumio, drew their countries closer than ever before in the 21st century. Both leaders prioritized strengthening their partnership over addressing their unresolved historical grievances to confront their shared regional security challenges (Park, 2024). This newly formed partnership marked a watershed moment in opening up a new pathway for a new era of rapprochement between the two states. Unlike their predecessors' approach, both leaders ensured they were aligned on recognizing the importance of expanding their bilateral relationship in economic, military, and cultural areas (Park, 2024). For the U.S., this could not have come at a better moment. The closer ties of Japan and South Korea could work hand-in-hand with the U.S.' Indo-Pacific strategy, which has been the U.S.'s prioritized theater since the Obama administration announced the "Pivot to Asia" policy in 2011 (Shambaugh, 2013). This momentum reached its peak in the 2023 Camp David summit, which was the first official trilateral leaders' meeting under a sole objective: deepening trilateral ties in all possible fields. The joint communiqué held after the meeting laid out four important notable accomplishments: a duty-to-consult mechanism in times of crisis, the activation of real-time missile-warning sharing, a long-term plan for trilateral exercises, and an early warning system for supply-chain disruptions (Govella, 2024). For Japan, South Korea, and the U.S., the Camp David ethos built the first milestone of institutionalized cooperation, moving beyond formal military drills toward a comprehensive framework that could effectively deter China's rapid military modernization, growing naval power, and wedge-driving tactics (Colby, 2021b; Cha, 2025; Govella, 2024).

Despite these historic advancements that have unfolded over the past decade, whether this momentum will be continued in 2025 remains an unanswered question. Domestic politics continue to be the biggest variable and obstacle: the impeachment of Yoon Suk-yeol following his declaration of martial law in December 2024 and the subsequent rise of Lee Jae-myung's left-wing government in South Korea have brought uncertainty again. Although President Lee has stated that he will center his diplomacy on pragmatism and has pledged to maintain "ROK–U.S.–Japan cooperation as the central pillar" of his foreign policy while managing relations with neighboring states, it remains unclear whether these words will be kept. But still, his initial remarks offer a meaningful signal that trilateral cooperation may not be hindered under the new administration. Yet there are concerns around the current landscape of the regional political environment. Right-wing nationalist voices in Tokyo have been rising in the most recent election in 2025, threatening to undo the efforts to normalize relations with South Korea under prime ministers Kishida Fumio and Ishiba Shigeru (Park, 2024). China has utilized this opportunity to reach out to Seoul. By using both incentives and coercive measures, Beijing has attempted to bring the Lee Jae-myung administration under its sphere. The strategy Xi Jinping is envisioning is similar to the "Greater East Asia Co-Prosperity Sphere," which was a pan-Asian economic sphere that imperial Japan tried and failed to construct in 1941 (Fisher, 1950; Colby, 2021a). This would ultimately pave the way for establishing a new regional order in Beijing's favor (Brands & Gaddis, 2021). At the same time, North Korea has continued to test the limits of the trilateral unity through continuous nuclear weapons tests and missile launches, forcing Japan and South Korea to rely on America's mediation to sustain cooperation (Cha, 2012, 2025). This fragility was further exposed during China's most recent Victory Day military parade in September, where the symbolic alignment among the current leaders of Russia, China, and North Korea echoed the spirit of the Mao–Stalin–Kim Il-sung bloc. The display not only showed their tightening strategic coordination but also the possibility of a greater nexus across multiple theaters of tension. Such circumstances threaten U.S. and allied security architectures across multiple regions, raising the possibility of simultaneous crises in the Taiwan Strait, the Korean Peninsula, and Eastern Europe (Brands & Gaddis, 2021; Colby, 2021a).

Impacted Parties and Actors

U.S.

As a principal architect and cornerstone of Indo-Pacific security, the U.S. is committed to maintaining the balance of power in East Asia to safeguard its key interests. It therefore prioritizes working closely with its allies and partners to keep the region stable and prosperous (Colby, 2021a). Since the end of World War II in 1945, the United States has increasingly prioritized East Asia, recognizing its strategic importance and potential to become the world's most contested region. Its bilateral defense treaties with Japan in 1960 and the Republic of Korea in 1953 were designed during the Cold War to prevent the expansion of communism and bring the regional power balance in its favor (Pickett, 2005). These relationships evolved into the so-called "hub-and-spokes" model, in which Washington serves as the central hub coordinating individually with each ally rather than through establishing a multilateral framework (Govella, 2024). This structure worked quite effectively during the Cold War but now has become an obstacle in navigating diversified and multiplied regional threats, especially in an era where the U.S. is facing an unprecedented rival with formidable manpower and productivity, China. Since pursuing bilateralism splits coordination into separate channels, it prevents the U.S., Japan, and South Korea from building the integrated planning, information-sharing, and joint operational framework required to address multiple transregional threats rather than just individual bilateral relationships. Furthermore, the United States now must grapple with the simultaneous challenge of deterring Chinese coercion, countering North Korean aggression, and managing the growing alignment among Russia and Iran, which increasingly coordinate with China and North Korea across multiple theaters.

From the United States' point of view, an institutionalized trilateral defense coalition with its two closest and most powerful regional allies, Japan and South Korea, is needed more than ever before. In the absence of the trilateral defense pact, which can bring more sophisticated command and control, intelligence sharing, shared reconnaissance, and crisis management, it will be directly exposed to adversarial powers that are constantly seeking to sow division. In the 2022 *National Defense Strategy*, for the first time, the United States explicitly designated the People's Republic of China (PRC) as the "pacing challenge" for U.S. defense planning, which means the primary competitor whose military modernization and strategic ambitions directly clash with American force deployment in the region. This reaffirms the importance of integrated deterrence with allies as the foundation of U.S. power projection in the Indo-Pacific (U.S. Department of War, 2022). While initiatives such as the *Camp David Summit* in 2023 and the *Freedom Edge* exercises starting in 2024 are significant pillars in expanding multilateral coordination, the absence of a formalized institutional nexus hinders the sustainability of these efforts (Cha, 2025). The U.S. aims to institutionalize interoperability and burden sharing among its allies, ensuring that deterrence does not rest solely on American military dominance but on a shared strategic latticework of cooperation (Colby, 2021a). Given East Asia's power as an economic powerhouse and geostrategic significance, securing it has become Washington's main foreign policy task that directly ties into not only its regional interests but also to its fundamental values of freedom and prosperity. Because U.S. strategy now places primary emphasis on deterring China's rise as a challenger, the U.S. is well-situated to construct a more coherent trilateral defense structure that supports a balanced regional order.

Japan

Given its economic power and influence on the world stage as a member of the G7, Japan is the most important regional ally of the United States, which is integral to East Asian security. Japan has shared interests in participating in defense structures in tandem with Washington. It directly faces the East China Sea and sits within range of North Korean ballistic missiles, placing it at the center of regional flashpoints, from Taiwan's security to the stability of the Korean Peninsula (Smith, 2020). Japan's postwar pacifist orientation, stated in Article 9 of its Constitution, has long shackled its ability to build up its own military capabilities and actively be a part of collective defense. However, the regional landscape is changing with the accelerating pace of Chinese military expansion and North Korea's ongoing and escalating missile provocations. Due to evolving circumstances, the U.S. and Europe have been considering changing the status quo and allowing Japan's military to modernize to play a pivotal role as the linchpin of Indo-Pacific security. The country's 2022 National Security Strategy (NSS) and National Defense Strategy laid out a major turning point in Japanese defense policy, identifying the People's Republic of China as "the greatest strategic challenge Japan has ever faced" and calling for strengthened coordination with the United States and the Republic of Korea (Government of Japan, 2022a, 2022b).

Japan's evolving defense doctrine reflects a recognition that the regional balance of power can no longer be sustained through purely bilateral ties with Washington because the threats it faces at the moment stem from multiple actors. Under Prime Minister Kishida Fumio's leadership, Japan has embraced the concept of "pragmatic diplomacy," which emphasizes pragmatic cooperation with regional neighbors over past tensions to secure its sovereignty and maritime security (Park, 2024). This shift explains Japan's largest defense modernization plan since World War II, outlined in its 2022 National Security Strategy, which identifies China as "the greatest strategic challenge Japan has ever faced" and commits Tokyo to doubling defense spending to 2 percent of GDP by 2027 (Government of Japan, 2022a, 2022b). These policy directions reflect both domestic perceptions of Japan's vulnerability along the first island chain and a realist logic of strengthening deterrence through expanded capabilities amid China's military rise and North Korea's advancing capabilities (Colby, 2021a; Mearsheimer, 2001). Yet despite this progress, Japan still faces practical limitations in working with South Korea. Intelligence sharing remains uncertain due to political uncertainty surrounding GSOMIA, joint training cycles are irregular and sensitive to leadership changes in both capitals, and supply-chain coordination depends on temporary measures rather than lasting agreements (Bronza & Podoler, 2025; Govella, 2024). These limitations harm Japan's ability to plan and encounter contingencies on multiple fronts, and working closely with Seoul is a prerequisite.

Republic of Korea (ROK, South Korea)

As a bridge connecting continental and maritime Asia and one of the largest regional military and economic powers, South Korea has become an indispensable actor in both shaping and strengthening the Indo-Pacific security contour. Since the end of the Korean War in 1953, Seoul has relied on its bilateral alliance with the United States as the foundation of its national security while also sustaining economic ties with China, its largest trading partner, which has bought a great number of exports from South Korea. Yet, in the era of fierce U.S.-China competition, this dual dependence has created a structural dilemma: South Korea's security relies on the U.S. alliance network, but its economy is deeply tied to Chinese markets. Many experts have echoed the fact that now it's the time for Seoul to choose one side, as it's becoming nearly impossible to keep walking a tightrope between the United States and China (Govella, 2024; Brands & Gaddis, 2021). The ROK's 2023 National Security Strategy and 2022 Defense White Paper both emphasize the principle of "comprehensive deterrence," calling for closer trilateral coordination with the United States and Japan to address evolving threats from North Korea and the People's Republic of China (Republic of Korea, 2023a, 2023b). Considering how the regional order has been changing, South Korea has increasingly acknowledged that the scope of its national security can no longer be limited to the Korean Peninsula. The rise of long-range missile threats, maritime disruptions, and supply-chain vulnerabilities has pushed South Korea to shape its policy not only as an individual nation but as one of the key regional leaders. In this context, participation in trilateral frameworks, such as missile-warning sharing, anti-submarine warfare drills, and the Freedom Edge exercises, reflects South Korea's gradual transition from a defense only focused on its direct threat from the Northern part of the peninsula toward a regional security contributor (Cha, 2025).

However, there is one obstacle that could hinder this effort: the fact that domestic politics continue to shape Seoul's engagement with its allies and affect foreign policy. Historical disputes with Japan over forced labor and wartime issues have periodically disrupted the overall pragmatic rapprochement progress, as seen in the 2019 GSOMIA dispute (Bronza & Podoler, 2025; Park, 2024). The reconciliation between President Yoon Suk-yeol and Prime Minister Kishida Fumio in 2022 marked a significant departure from previous administrations, allowing for renewed cooperation under shared strategic objectives (Park, 2024). Yet deep ideological divisions within South Korea's political landscape remain a serious challenge for a consistent foreign policy position. Certain far-left progressive factions within the Democratic Party have developed increasingly sympathetic stances toward North Korea and the People's Republic of China, rooted in an idealistic worldview that prioritizes engagement with North Korea and economic dependence on China over security alignment with the United States and Japan (Govella, 2024). These groups, due to a regime change and the election of a new President, Lee Jae-myung, have risen to the surface and are increasingly shaping public discourse and framing foreign policy debates. Their growing assertiveness has contributed to policy inconsistency and a deteriorating bipartisan consensus on national security priorities, hindering sustained trilateral cooperation, which directly aligns with South Korean interests at the moment (Govella, 2024). Meanwhile, conservative administrations have emphasized alliance-based deterrence and greater defense interoperability, producing sharp policy swings between successive governments. This remains a serious threat since, in recent years, China has sought to apply similar tactics used in Hong Kong: economic coercion, political messaging, and cultural diplomacy in order to draw Seoul closer to its sphere and weaken its alliance with the U.S. and the rest of the free world (Colby, 2021a; Brands & Gaddis, 2021).

China

Since President Xi Jinping came to power in 2013, the People's Liberation Army (PLA) has rapidly and aggressively accelerated its military modernization and expanded its economic power on the world stage. He has sought to pursue his long-term hegemonic ambitions to overthrow the United States as a global dominant power and become the "center" of the world once again (Mearsheimer, 2001; Jalil, 2019; Brands & Gaddis, 2021). For example, his vision, encapsulated in Xi's repeated calls for the "great rejuvenation of the Chinese nation," reflects Beijing's determination to restore what it perceives as its position at the center of global affairs (Brands & Gaddis, 2021). Under Xi's leadership, China has sought to transform its growing material power into geopolitical influence through a combination of military assertiveness, economic leverage, and political coercion. The PLA has undergone sweeping reforms to strengthen joint command structures, enhance regional power projection, and integrate advanced technologies such as artificial intelligence and cyber warfare capabilities (U.S. Department of War, 2022). These measures aim to develop the ability to deter, and if necessary defeat, U.S. intervention in regional contingencies, particularly in the Taiwan Strait, the East China Sea, and the South China Sea (Mearsheimer, 2001; Shambaugh, 2013).

China's behavior ties into the predictions of offensive realism: rising powers seek dominance in their region as the most secure path to survival (Mearsheimer, 2001; Jalil, 2019). Under Xi Jinping, Beijing's strategy is guided by a "focused and sequential approach" designed to undermine U.S. alliances and prevent the formation of countervailing coalitions (Colby, 2021a). This has been evident across East Asia, where China has relied on coercive economic measures and diplomatic pressure to isolate U.S. allies one at a time rather than confronting them collectively. The 2016 retaliation against South Korea over the THAAD missile defense system is a prime example of this pattern: China imposed unofficial sanctions, restricted tourism, and curtailed cultural exchanges to signal the costs of siding with America (U.S.–China Economic and Security Review Commission, 2017; Watts, 2018). Similarly, Japan has faced waves of economic retaliation and maritime harassment whenever bilateral tensions over the Senkaku/Diaoyu Islands or defense cooperation with the U.S. intensified (Laimou-Maniati, 2001; Smith, 2020).

Beyond overt coercion, China employs smarter tools to build its influence, such as economic dependence, gray-zone attacks, political penetration, and narrative control, to reshape the strategic landscape in its favor (Brands & Gaddis, 2021; Colby, 2021a). The tactics the Chinese crafted to gradually strip Hong Kong of its autonomy through economic entanglement, elite co-optation, and legal manipulation now serve as a model for its broader regional playbook. Similar methods are observed in China's outreach to South Korea, where China has leveraged its market dominance, cultural diplomacy, and media influence to interrupt South Korea's ties with the U.S. and Japan (Colby, 2021a; Govella, 2024). Recently, after Lee Jae-myung became president, Chinese activities and influence operations have become more assertive, raising concerns among South Korean security officials, analysts, political leaders, and the broader public. These concerns stem from an uptick in Chinese intelligence and targeted cyber activities infiltrating key sectors such as telecommunications and defense infrastructure—an escalation that reflects a more explicit form of political and technological encroachment following the recent political transition in South Korea (Doe, 2025; Govella, 2024). These activities manifest a consistent pattern in China's approach. Rather than relying solely on military power, China employs carefully crafted non-military tools that gradually erode the autonomy of its neighbors and weaken their capacity to resist Chinese pressure. China's rationale is clear: driving wedges within U.S.–Japan–ROK cooperation, fragmenting the U.S. forward presence, and preserving the strategic maneuvering space needed to coerce Taiwan while shaping a regional order aligned with Chinese interests. By weakening allied coordination, China aims to minimize the political and military costs of pursuing its long-term ambition, which is about becoming a regional hegemon (Colby, 2021a; CSIS, 2024).

North Korea (Democratic People's Republic of Korea)

North Korea stands out as a major destabilizing actor whose motivations, capabilities, and political aims directly clash with the United States, Japan, and South Korea. Under Kim Jong-un, the DPRK has accelerated nuclear weapons development, expanded its missile arsenal, and diversified delivery platforms, including hypersonic glide vehicles, submarine-launched ballistic missiles (SLBMs), and long-range ICBMs capable of reaching the U.S. homeland (Republic of Korea, 2023a; U.S. Department of War, 2022; Cha, 2012). These developments highlight North Korea's primary objective: pursuing "forced reunification under communist rule" and regime survival simultaneously through a nuclear deterrent, while gaining leverage over South Korea, Japan, and the United States (Cha, 2012). North Korea's motivations are deeply rooted in its ideology and political structure. Based on *"Juche,"* the doctrine of political self-reliance, and *"Songun,"* or "military-first politics," which elevates the armed forces as the core of the state's identity and survival, the regime views nuclear weapons as the only reliable guarantee against external intervention and internal instability (Cha, 2012). Nuclear capability also helps the regime maintain domestic legitimacy, preserve the Kim family's authority, and justify economic catastrophes. To maintain this posture, North Korea repeatedly tests missiles near Japan, flies UAVs over South Korea, and escalates artillery provocations near the Northern Limit Line (Cha, 2025; Republic of Korea Ministry of National Defense, 2023b). These are all calculated maneuvers to add uncertainty, generate crises, and force Seoul and Tokyo to rely heavily on U.S. extended deterrence.

North Korea's influence on the world stage has grown significantly due to its deepening partnership with Russia. Since 2022, North Korea has supplied Russia with artillery shells, ballistic missiles, and other munitions in violation of multiple UN Security Council resolutions (Asian Society Policy Institute, 2024). In addition to that, North Korea has sent more than 10,000 troops to help Russia in the Ukraine war. This deepening relationship culminated in leader-level summits and a mutual defense treaty signed in 2024 (Asian Society Policy Institute, 2024). In return, Russia has reportedly provided food assistance, military technology, satellite launch support, and energy supplies. Their partnership has broadened into economic and scientific cooperation, reviving joint energy projects and enabling new forms of defense and technology sharing (Cha, 2025). This relationship strengthens North Korea's resilience against international pressure and broadens its operational freedom to provoke crises in East Asia. As North Korea expands its nuclear and missile capabilities while aligning more closely with Russia and China, it acts both as an autonomous threat and a strategic asset for the region's authoritarian bloc. Each provocation adds pressure on Japan's missile defenses, sows internal political divisions in South Korea, and places additional burdens and contingencies on America's shoulders (Cha, 2012, 2025; Brands & Gaddis, 2021). From North Korea's perspective, anything that strains Japan–South Korea relations or complicates U.S.–allied coordination advances its interests. Taken together, North Korea's behavior echoes the importance of a robust and institutionalized trilateral defense framework stronger than ever.

Methodology

This proposal aims to analyze how the U.S.-Japan-ROK defense cooperation has developed after the 2016 THAAD deployment and the 2019 GSOMIA renewal, and to sketch concrete steps that need to be taken to institutionalize a pragmatic trilateral denial structure in response to China's attempt to break the regional balance of power by 2027. To do so, it explores a mixed-methods approach that combines qualitative historical trajectory with quantitative indicators. The qualitative analysis builds on key diplomatic and military developments between 2016 and 2025, such as GSOMIA, the 2023 Camp David summit, and the Freedom Edge drills that have begun since 2024, using official government documents, joint statements, white papers, and press releases. This helps identify the causal connections between external shocks, such as THAAD backlash, GSOMIA strain and renewal, as well as the recent efforts to deepen trilateral cooperation that have followed through. In addition, the quantitative analysis will further strengthen this by coding measurable indicators of alliance institutionalization. These encompass the frequency of trilateral military exercises, the establishment of joint command and control structures, the frequency of defense ministerial meetings, and the number of formalized agreements on intelligence-sharing, logistics, and interoperability. Each category is scored on a three-point scale to create a "Trilateral Institutionalization Index," allowing a clearer comparison across three separate time periods: 2016–2019, 2019-2024, and post-2024. Finally, to craft 2027 policy recommendations, the proposal applies a comparative evaluation framework using five standards: denial effectiveness, political and legal feasibility, cost and resource burden, alliance cohesion, and escalation risk. Data are drawn from defense white papers (U.S. Department of War, Japan's *Defense of Japan*, and ROK Ministry of National Defense), academic journals, and multiple reports from credible regional security institutes such as CSIS. Overall, this proposal combines both empirical trends and qualitative insights that lead to effective recommendations for strengthening the trilateral security framework. Taken together, this paper ties strategic theories rooted in the realist school of thought with empirical data to propose actionable and effective steps for institutionalizing trilateral deterrence by 2027.

Policy Recommendation

Policy Statement

This policy aims to institutionalize a permanent U.S.–Japan–Republic of Korea (ROK) defense coalition as the foundational basis of trilateral cooperation in Northeast Asia. As China, Russia, and North Korea intensify their strategic coordination through expanded military cooperation, diplomatic alignment, and shared opposition to the U.S.-led regional order, their partnership increasingly resembles the authoritarian axis that framed the early Cold War (Brands & Gaddis, 2021; Cha, 2025). This moment raises the urgency of realistically and pragmatically assessing the threats posed by China's rapid military modernization and North Korea's nuclear buildup, both of which have been going hand-in-hand with Russian support (U.S. Department of War, 2022). To prevent China from strong-arming its way to regional hegemony, the US and its allies and partners, especially the US-Japan-ROK, must come up with a denial defense model that is strong enough to persuade Beijing that it is ill-advised to change the regional status quo through force (Colby, 2021a). This will put emphasis on deterring adversaries' quick, decisive victories by raising the risks and costs of aggression (Colby, 2021a). No single state, even the U.S. can achieve this effort alone. It is only possible with the help of its powerful allies, sophisticated interoperability, codified command-and-control systems, and shared intelligence. Yet without formal institutionalization, or at least building a framework at the coalitional level, these capabilities would only remain as ideas in vain, which might ultimately end up giving China more room to maneuver around and exploit this structural weakness by driving wedges between U.S. partners and allies (Cha, 2025; Govella, 2024). Building on the works of the 2023 Camp David Summit and the 2024 Freedom Edge exercises, this initiative is committed to transforming the current coordination system into a formalized, treaty-based structure by 2027. Its core mission is to operationalize a collective denial strategy against China's coercive One-China Policy, under which China claims the right to pursue "reunification" with Taiwan by force, and to ensure credible, integrated deterrence across the first and second island chains (Colby, 2021a).

This proposal recognizes the Indo-Pacific, which is a global economic powerhouse that produces about 40 percent of global GDP and two-thirds of global economic growth, as the central theater of great-power competition in the 21st century (Colby, 2021a; Brands & Gaddis, 2021). If China becomes a regional hegemon, it could leverage its economic, military, and technological clout to surpass U.S. and allied influence. Nearly one-third of annual global trade, over $3 trillion, passes through the Taiwan Strait (CSIS, 2024), making Taiwan's security inseparable from Japan's and South Korea's economic survival. Allowing Taiwan to fall under Beijing's sphere of influence would create a gradual chain reaction: China would gain access to the world's most advanced semiconductor manufacturing base (TSMC), strengthen its hold over the first island chain, and expand its ability to project power into the East and South China Seas. This would place Japan, South Korea, and the broader Indo-Pacific under growing Chinese coercive pressure. Given these circumstances, the coalition's purpose is not to provoke confrontation by adopting offensive measures but to prevent China from imposing unilateral outcomes through coercive means, which are consistent with the principles of the 2022 and 2025 U.S. National Defense Strategy (Department of War, 2022, 2025).

Furthermore, the Chinese Communist Party's playbook of gray-zone attacks, economic retaliation, disinformation, and political influence operations is designed to sow division among U.S. allies (Brands & Gaddis, 2021; Colby, 2021a). China has repeatedly targeted South Korea's progressive and labor-aligned groups with injecting anti-American narratives, exploited trade dependence during the 2016 THAAD crisis, and engaged in coercive industrial practices such as dumping low-cost goods to disrupt integrated global supply chains (U.S.–China Economic and Security Review Commission, 2017; Watts, 2018; Govella, 2024). Chinese intelligence proxies, including students filming U.S. installations at Osan Air Base and attempts to infiltrate telecommunications networks, reflect a willingness to challenge Korean sovereignty directly (The Korea Times, 2025; Doe, 2025). China's construction of artificial installations within the Provisional Measures Zone of the West Sea (Yellow Sea) further reveals its intent to gradually shift administrative and military control in contested waters bordering the Korean Peninsula (Kraska, 2022).

China has pursued similar tactics against Japan, through escalating maritime incursions around the Senkaku Islands, an uninhabited island chain administered by Japan but claimed by the People's Republic of China as the Diaoyu Islands. Due to their strategic location in the East China Sea and their symbolic importance for territorial sovereignty, the dispute has become a key flashpoint in Japan–China relations

(Smith, 2020; Laimou-Maniati, 2001). China has increased the use of maritime militias and coast guard vessels to challenge Japanese administrative control, and has been conducting aggressive PLA Air Force sorties near Japan's Air Defense Identification Zone, prompting record numbers of JASDF scrambles (Smith, 2020; Laimou-Maniati, 2001). Chinese intelligence activities have also expanded cyber intrusions targeting Japanese defense companies, government ministries, and semiconductor firms. Together, these actions demonstrate how Beijing is attempting to restructure the regional order and erode U.S. alliances below the threshold of direct confrontation. The primary objective of institutionalizing a trilateral coalition is to deny China the capability to be able to consummate a swift, fait accompli victory. (Colby, 2021a; U.S. Department of War, 2025). Denial defense requires tightly integrated command-and-control systems, codified interoperability, and shared intelligence networks capable of rapidly countering Chinese or North Korean aggression. Without formal institutionalization, even advanced bilateral coordination remains vulnerable to political change, diverging threat perceptions, and manipulation by adversaries. To operationalize this goal, the coalition would consist of four institutional pillars:

1. **A Trilateral Defense Council**, comprising the U.S. Secretary of War, Japan's Minister of Defense, and the ROK Minister of National Defense, aimed at harmonizing and overseeing the overall doctrines, logistics, and threat assessments.

2. **A Joint Strategic Command (JSC)** headquartered in Yokosuka, Japan, plays the role of a "control tower" for integrated operations under the U.S. Indo-Pacific Command, Japan's Self-Defense Forces, and the ROK military.

3. **A Peninsula Security Task Force**, headquartered near Kunsan, South Korea, to enhance homeland defense and ensure independent rapid response against North Korean or Chinese provocations in the West (Yellow) Sea, where China has recently built artificial installations within the Provisional Measures Zone, continually raising legitimate concerns of militarization and jurisdictional encroachment.

4. **A Defense Technology and Logistics Forum**, designed to expand joint R&D on missile defense, cybersecurity, and satellite communication systems.

Policy Analysis

Strengths

The institutionalization of a U.S.–Japan–ROK defense coalition offers the most strategically coherent and politically durable blueprint for sustaining the regional balance of power. The mixed-method analysis used in this study, which combines historical tracing from THAAD (2016) to GSOMIA (2019), the 2023 Camp David Summit, and the 2024 Freedom Edge exercises, along with a Trilateral Institutionalization Index, reveals that trilateral cooperation has progressed from coordination toward a more consistent security alignment. Formalizing this progress through a permanent, treaty-based structure would lock in this momentum, ensure continuity across political transitions in South Korea, Japan, and the U.S., and defy setbacks driven by leadership changes or domestic politics (Govella, 2024; Park, 2024). This matters because China and North Korea increasingly try to take advantage of political divisions among U.S. allies rather than relying solely on conventional military threats (Colby, 2021a; Cha, 2012, 2025). This proposal advances and expands the three foundational pillars of American Indo-Pacific defense strategy: prioritization, strategic flexibility, and alliance modernization (Colby, 2021a).

Prioritization

The importance of "prioritization" is rooted in the threats and missions the United States and its allies must focus on, rather than trying to respond to every challenge it encounters. Without clear priorities, all three countries, especially the United States, risk strategic overstretch, where limited resources, attention, and forces are spread widely but too thin across multiple theaters. In a situation where China is rapidly modernizing its military and North Korea continues expanding its nuclear program, the U.S., Japan, and South Korea need a clear division of labor system that maximizes their strengths and avoids overlapping efforts. Institutionalizing the coalition helps clarify these roles. Japan, located along the first island chain, is best positioned to take the wheel in maritime and air operations related to Taiwan and the East China Sea. South Korea, facing a constant threat from North Korea and escalating pressure in the West Sea from China, remains the central anchor for homeland defense. The United States, as the coalition's cornerstone, combines these missions under a unified denial strategy and focuses its limited forward forces where they are most strategically impactful. Setting clear priorities reduces the burden on U.S. forces, prevents unnecessary overstretch, ensures resources are directed where they matter most, and aligns the coalition toward a shared objective: denying China or North Korea the opportunity to execute quick and decisive aggression.

Strategic Flexibility

The second pillar, strategic flexibility, gives Washington greater room to employ its bases in both Korea and Japan, depending on the nature of regional contingencies. Historically, U.S. Forces Korea (USFK) were restricted to operations tied exclusively to the Korean Peninsula, but an institutionalized coalition framework would legitimize their broader role in responding to threats posed by China. Bases such as Camp Humphreys, Osan, and Kunsan, supported by Yokosuka, Iwakuni, and Kadena in Japan, would form a coherent network capable of rapid deployment toward Taiwan, the East China Sea, or the South China Sea while still maintaining credible readiness against North Korea. From Washington's perspective, Japan functions as the coalition's "control tower" for maritime and air operations along the first island chain, while the Korean peninsula serves as an effective front operating "aircraft carrier" positioned at the center of Asia. As USFK Commander General Xavier Brunson mentioned, the peninsula "sits right in the center" of the region, forming a strategic triangle with Japan and the Philippines through mutual defense treaties. This geography gives the U.S. a clear operational advantage to shift forces quickly in multiple directions without overstretching its posture. Strategic flexibility, therefore, enhances deterrence by creating uncertainty for China and North Korea, making it harder for them to anticipate and respond to U.S. military posture changes, and exploiting gaps in allied posture. It also ensures the U.S. military can handle simultaneous contingencies, whether a PLA move first against Taiwan or a DPRK provocation comes first, without being forced into an either/or choice. It provides the coalition with the adaptability and depth needed to sustain a denial strategy across the Indo-Pacific.

Alliance Modernization

Modernizing the alliance would further strengthen both Japan and South Korea's ability and resolve to defend themselves while contributing more meaningfully to shared objectives of the coalition. For Japan, the current defense buildup marks a historic break from decades of military restraint. Japan's plan to raise defense spending to two percent of GDP, acquire U.S.-made Tomahawk cruise missiles, expand stand-off strike systems, and modernize missile and air defenses represents far more than incremental change. It reflects Japan's transition into a leading actor along the first island chain. Japan is also reorganizing the JSDF into a more agile, joint-ready force, expanding munition stockpiles, improving rapid deployment units in Kyushu and Okinawa, and strengthening integrated air and missile defense around the Nansei Islands. Together, these steps give Japan credible counterstrike and early-response capabilities essential for Taiwan or East China maritime contingency.

South Korea is undergoing an unprecedented modernization as we speak. It continues strengthening its Kill Chain preemptive strike system, which detects, tracks, and neutralizes imminent missile threats, and its Korea Air and Missile Defense (KAMD) system, a layered missile-defense architecture designed to intercept North Korean ballistic and cruise missiles. On top of that, recently, during the 2025 APEC summit, the United States gave permission to South Korea to build a nuclear-powered submarine, which is an unprecedented shift in U.S. policy and a major endorsement of Korea's role in coalition deterrence. Nuclear attack submarines dramatically enhance the ROK Navy's endurance, stealth, and range, allowing it to track PLA and DPRK naval activities across the Yellow Sea, East China Sea, and even near Taiwan without refueling. This expands the coalition's undersea surveillance network and complicates Chinese naval planning. South Korea's defense industry adds another strategic advantage. Through the MASGA initiative, Korean shipyards—HD Hyundai, Hanwha Ocean, and Samsung Heavy Industries—can help revive America's shipbuilding capabilities, accelerate maintenance cycles, and bolster wartime surge capacity. Japan's own industrial base also plays a role: Mitsubishi Heavy, Kawasaki, and Japanese shipyards are ramping up production of destroyers, submarines, and missile systems under Tokyo's expanded defense budget. Alliance modernization also eases the problem of U.S. overstretch. As Japan and South Korea together become more militarily self-reliant, the United States no longer should bear the heavy burden of frontline deterrence. Burden-sharing allows Washington to use its finite resources more efficiently while keeping a stable posture against China and North Korea. A modernized alliance, with stronger ISR networks, expanded strike capabilities, resilient shipbuilding capacity, and more capable frontline militaries, will form the backbone of an effective denial strategy. By reinforcing their own defense capacities, both states will be well-prepared for the coalition's deterrence posture, reduce pressure on U.S. forces, and close possibilities that China and North Korea could otherwise exploit.

Weaknesses

Political Challenges

In South Korea, progressive parties, labor-aligned organizations, and anti-alliance networks remain deeply skeptical of expanding trilateral security cooperation, especially when it involves closer coordination with Japan. This skepticism is further intensified by China's demonstrated capacity for economic retaliation—as seen during the 2016 THAAD crisis—which continues to shape South Korean public opinion and domestic politics. As a result, future administrations may face pressure to distance themselves from U.S.-aligned initiatives. These dynamics make long-term institutionalization fragile and underscore the need for sustained bipartisan consensus in South Korea, which remains difficult in the aftermath of heightened political polarization following the martial-law crisis. Japan faces its own political uncertainties as well. The rise of Prime Minister Takaichi Sanae in October 2025, along with her pledges to accelerate defense reforms, reinterpret constitutional constraints, and adopt a more unapologetic stance on historical issues, has introduced new tension into Japan–South Korea relations. Her revisionist rhetoric and firm positions on the Dokdo/Takeshima dispute could reignite nationalist backlash in South Korea, undermining domestic support for deeper trilateral institutionalization. The territorial dispute remains a red line with virtually no room for compromise for either side, and provocative statements from Tokyo risk spilling over into the security domain. Even if both governments share a strategic consensus view on deterring China, historical grievances have repeatedly resurfaced during political transitions, slowing intelligence-sharing and delaying coordination mechanisms.

Diplomatic Risks

A formal trilateral defense coalition would almost certainly provoke intensified countermeasures from China. Beijing may escalate military demonstrations near Taiwan and the Senkaku Islands, increase cyberattacks against Japanese and Korean critical infrastructure, or expand gray-zone operations in areas such as the Yellow Sea, including regions where China has constructed artificial installations within the Provisional Measures Zone. Moreover, China's political warfare apparatus is likely to exploit alliance vulnerabilities by inflaming Japan–Korea historical grievances, amplifying anti-American narratives among South Korean progressives, and pressuring Southeast Asian states to avoid supporting trilateral initiatives. These actions would require coordinated allied messaging and careful escalation management to prevent crises from spiraling into broader regional instability.

Structural & Operational Loopholes

Integrating three militaries with distinct procurement systems, command doctrines, and legal constraints also add substantial long-term obstacles. Establishing interoperable C4ISR systems for a Joint Strategic Command in Yokosuka, expanding intelligence-sharing beyond existing bilateral channels, and harmonizing rules of engagement for multi-domain operations are all complex tasks requiring sustained investment and bureaucratic alignment. Additionally, burden-sharing, which already is a politically sensitive issue in all three states, may bring financial, logistical, and strategic tensions that hinder domestic support for deeper cooperation. Without a stable political and diplomatic foundation, these structural and operational demands may exceed each country's willingness or capacity to commit further resources

Policy Alternatives

Alternative 1: A Pan-Asian NATO ("Asian NATO")

There is one widely discussed alternative: creating an Asian version of NATO. In theory, such a framework sounds brilliant. It would help bring all democratic and the U.S.-aligned Indo-Pacific states encompassing Japan, South Korea, Australia, the Philippines, and potentially certain ASEAN members, under a single Article 5-style mutual defense commitment. Proponents argue that only a broad Indo-Pacific security bloc could credibly deter China across multiple domains, prevent strategic fragmentation, and distribute burdens across a larger network of regional partners (Shambaugh, 2013; Colby, 2021b). On paper, this model promises numerical strength, pooled capabilities, and a unified political message. In practice, however, an "Asian NATO" is structurally impossible. The region lacks Europe's historical preconditions: shared threat perceptions, similar political systems, and a common experience of external invasion. East Asia instead hasn't totally healed from a painful legacy of colonialism, unresolved historical grievances, and intense sovereignty issues, especially between Japan, South Korea, and Southeast Asian states (Bronza & Podoler, 2025; Park, 2024). Furthermore, major and middle regional powers do not share the same view on either the scale or the immediacy of the China threat. Even U.S. treaty allies differ on how far they are willing to counter China: South Korea remains constrained by its economic dependence on China, while the Philippines has shown a far more hawkish attitude due to recurring maritime clashes in the South China Sea. In contrast, Indonesia, Thailand, and Singapore each have deeper economic ties to China that will likely push them to avoid binding security commitments (Govella, 2024). ASEAN itself has struggled to maintain a unified stance on China. While the Philippines and Vietnam consistently push for stronger responses to Chinese coercion, Indonesia, Cambodia, Laos, and Thailand prefer diplomatic caution or outright accommodation. Ultimately, ASEAN members will end up in a cyclical deadlock in ASEAN forums whenever China-related issues must be settled. This fissure is big enough to persuade the proponents of an "Asian NATO" that it is an ill-advised idea. The core objective of ASEAN is to manage regional disputes. Yet, if ASEAN cannot align even on basic threat perceptions or collective defense, a regional Article 5-style alliance becomes even more unrealistic. In other words, East Asia simply does not have the political cohesion, mutual trust, or shared worldview necessary to sustain a NATO-like multilateral organization.

Furthermore, China has actively weaponized economic leverage, political pressure, and coercive diplomacy to punish states that move too closely toward U.S. security structures—seen clearly in the THAAD retaliation against South Korea (U.S.–China Economic and Security Review Commission, 2017; Watts, 2018). A NATO-style pact would expose member states to far more severe and coordinated retaliation. For many governments, especially in Southeast Asia, the political and economic costs would outweigh potential security gains. Ultimately, an Asian NATO remains infeasible because Asia does not possess the political cohesion, institutional trust, or shared strategic culture needed for a collective defense system. Compared to the proposed U.S.–Japan–ROK trilateral framework, it is overly ambitious, diplomatically unrealistic, and strategically vulnerable to China's wedge-driving tactics (Colby, 2021b; Govella, 2024). The trilateral coalition succeeds precisely because it focuses narrowly on the core alignment already strongest in the region—U.S., Japan, and South Korea—rather than attempting to force a NATO-style multilateralism onto an environment that cannot sustain it.

Alternative 2: Strengthening Existing Bilateral Alliances (Status Quo Plus)

Another alternative is to maintain the current "hub-and-spokes" system centered on bilateral alliances with the United States, such as the U.S.–Japan, U.S.–ROK, and U.S.–Philippines, while incrementally improving interoperability and information-sharing between individual relationships. This approach reflects the structure America intentionally built during the Cold War to avoid regional tensions, manage historical grievances, and keep allies dependent on U.S. leadership (Pickett, 2005; Govella, 2024). Supporters will claim that bilateral alliances could give Washington maximum flexibility. It can not only adjust commitments up or down without being trapped in a complicated multilateral treaty, but also manage crises without the political complications of a larger alliance structure. This status quo model does indeed have strengths. It could avoid the domestic political resistance in Japan and South Korea toward a formal multilayered coalition, preserve diplomatic maneuvering space, and reduce legislative burdens. It also fits into the decades of established doctrine, infrastructure, and legal agreements, without the need to revise them. For example, the U.S.–Japan alliance infrastructure in Yokosuka, Kadena, and Misawa can easily integrate more joint drills without changing its legal status, and U.S.–ROK coordination mechanisms such as the Combined Forces Command already stand firmly as a foundational apparatus for crisis management (Govella, 2024; Cha, 2025).

However, the benefits coming out of this approach do not outweigh the limitations. It cannot solve the core structural problem identified in this proposal: China's "focused and sequential strategy" of isolating U.S. allies one at a time (Colby, 2021a). By keeping bilateral coordination, the U.S. unintentionally reinforces the very fragmentation Beijing exploits. These gaps were visible during the 2016 THAAD backlash, the 2019 GSOMIA crisis, and repeated moments of political tension between Japan and South Korea (Bronza & Podoler, 2025; Park, 2024; Govella, 2024). Without a trilateral command structure, intelligence-sharing remains vulnerable to political shifts, joint exercises remain episodic, and crisis response depends on ad hoc coordination rather than permanent systems. A bilateral architecture may be easier to maintain, but it is too slow and disjointed to counter China's fast-moving coercive behavior or North Korea's escalating nuclear program (Cha, 2025; U.S. Department of War, 2022).

The limitations would become even larger in a Taiwan contingency. A sudden PLA move to seize Taiwan, an island China claims as an inalienable part of the PRC, would require rapid coordination between U.S. forces in Japan and U.S. forces in Korea. Under the current bilateral system, however, there is no integrated mechanism ensuring that assets in the Korean Peninsula can be redirected without political delay, domestic debate, or hesitation in South Korea. In other words, it will generate severe operational confusion in such a crucial moment since each state's role is unclear. This challenge will create further ramifications due to the U.S.'s longstanding policy of "strategic ambiguity," under which the U.S. deliberately avoids stating whether it would intervene militarily on Taiwan's behalf. While the U.S. pursues ambiguity to deal with both Chinese aggression and Taiwanese unilateralism, it also leaves allies without clarity on operational expectations or established protocols. In a crisis, this uncertainty could create overwhelming hesitation and misalignment at the exact moment when a decisive and swift response is needed.

Ultimately, this bilateral structure makes the entire U.S. regional posture slower, more rigid, and far more predictable to China. This will enable China to pursue a rapid fait accompli attempt across the Taiwan Strait. A bilateral architecture may be easier to maintain, but it is too slow and disconnected to counter China's fast-moving coercive behavior or North Korea's escalating nuclear program (Cha, 2025). While preserving the status quo sounds convenient and less politically challenging, it cannot deliver the capabilities needed for an effective denial strategy.

In contrast, the proposed trilateral coalition fills in these loopholes directly by synchronizing the command-and-control structures, codifying interoperability, and reducing vulnerability to domestic political fluctuations in either South Korea or Japan (Colby, 2021a; Govella, 2024).

Policy Recommendation

The proposed institutionalized U.S.–Japan–ROK defense coalition is the most effective and strategically feasible solution because it directly tackles the core structural weaknesses that neither bilateral alliances nor loose multilateral forums can grapple with. The great-power competition in East Asia has changed far more rapidly than the alliance architecture built to manage it. China's rapid military modernization, North Korea's expanding nuclear arsenal, and the intensifying Russia–China–DPRK alignment have reshaped the regional threat environment into something fundamentally different from what the existing alliance structure was designed to contend with. Moving beyond the symbolic or loosely coordinated cooperation of the past, this new landscape demands speed, cohesion, and political durability (Colby, 2021a; Cha, 2025; Brands & Gaddis, 2021). Unlike the alternatives, this coalition provides a clear operational blueprint. It institutionalizes decision-making through a Trilateral Defense Council, solves command-and-control gaps through a Joint Strategic Command in Yokosuka, and creates specialized structures for Korean Peninsula contingencies and defense technology cooperation. Most importantly, it transforms coordination from something leaders choose to do into something their institutions are required to do. This is integral because the greatest vulnerability in the current system has never been military capability but rather has always been political fluctuation. The coalition's strength is grounded in its ability to paralyze the tactics that are in China's and North Korea's hands, such as wedge-driving, coercion, gray-zone pressure, and timing. A codified structure makes it much harder for Beijing to sabotage the relationship between Seoul or Tokyo or isolate them, as seen during the 2016 THAAD retaliation or the 2019 GSOMIA crisis (Watts, 2018; Bronza & Podoler, 2025). It also eliminates the slow, fragmented crisis responses that would undermine allied decision-making in a Taiwan contingency or a sudden North Korean attack. Because the coalition brings the three powerful militaries together into a coherent denial defense system, it will add uncertainty for adversaries, raise the operational costs of aggression, and toughen deterrence across the first and second island chains (Colby, 2021a; U.S. Department of War, 2022).

Compared to the alternatives, such as pursuing an Asia-NATO model or maintaining bilateral alliances as it is, this proposal offers the best solution based on realistic, feasible, and strategic measures. A NATO-style pact is simply not realistic in East Asia's historical and political environment. It demands full mutual defense commitments that neither Japan nor South Korea can credibly produce due to constitutional limits, domestic politics, remaining historical disputes, and the fear of getting stuck in a Taiwan war (Park, 2024; Shambaugh, 2013). On the other hand, bilateral alliances preserve flexibility but are structurally vulnerable to match the speed and scale required for multiple regional contingencies. The proposed trilateral coalition avoids both extremes by not being overreached, binding, and institutionalized without requiring a full Article 5-style mutual defense burden. It provides each state agency, preserves strategic flexibility for the U.S., respects constitutional constraints in Japan, and reassures South Korean policymakers that their military will not be dragged into a Taiwan conflict while still supporting regional stability. In short, it is the most optimal option that matches the reality of Northeast Asia while fully addressing the demands of a 2020s-era denial strategy. While this policy does also come with weaknesses, such as potential political backlash among far-left political interest groups in South Korea, nationalist currents in Japan, or intensified coercion from China, its strategic benefits outweigh them. Given the high stakes of a Taiwan contingency or simultaneous crises in the Taiwan Strait and Korean Peninsula, institutionalizing the U.S.–Japan–ROK defense coalition by 2027 is the most realistic, strategically sound, and durable pathway to maintaining a stable balance of power and preventing Beijing or Pyongyang from making the Indo-Pacific into a conflict zone through force.

Conclusion

While the evolution of the U.S.–Japan–ROK defense cooperation over the past decade has demonstrated a clear and tangible movement toward deeper strategic alignment, the Indo-Pacific's rapidly changing security landscape requires a more permanent and institutionalized structure. China's accelerating military modernization, gray-zone attacks, and political influence operations—combined with North Korea's expanding nuclear program and Russia's renewed willingness to support both states through technology transfers—have outpaced the current ad hoc coordination system (Colby, 2021a; U.S. Department of War, 2022; Cha, 2025). To prudently face this situation, the proposal recommends establishing a formal trilateral defense coalition by 2027, centered on a Joint Strategic Command in Yokosuka, a Peninsula Security Task Force near Kunsan, a Trilateral Defense Council, and a Defense Technology and Logistics Forum. These institutional components directly respond to the core problem identified: the lack of a unified, legally grounded, and politically durable framework capable of denying swift or unilateral aggression and ensuring long-term stability in the region (Govella, 2024). Key statistics, including the fact that nearly one-third of global trade passes through the Taiwan Strait and that Asia now accounts for roughly 40 percent of global GDP, underscore the stakes of an unstable regional balance of power (CSIS, 2023; Colby, 2021a). These findings not only reinforce but also expand the existing scholarship that highlights rising trilateral alignment, showing that shared threat perception alone is insufficient without codified structures (Park, 2024; Govella, 2024).

While this study demonstrates a clear strategic rationale for institutionalization, future research should examine quantitative modeling of force posture under the proposed framework, resource burdens associated with maintaining a Joint Strategic Command, and long-term industrial integration through trilateral initiatives. The broader real-world implications are substantial: a permanent coalition would safeguard supply-chain security, strengthen allied defense industries, and create a political and operational architecture resilient to leadership changes in South Korea, Japan, or the United States (Brands & Gaddis, 2021). The key takeaway from this policy proposal is straightforward: cooperation without institutional structure is no longer enough. To preserve deterrence, manage crises, and maintain a stable Indo-Pacific order, the United States, Japan, and South Korea must shift from episodic coordination to a codified, enduring defense coalition (Colby, 2021a; Cha, 2025).

References

Asia Society Policy Institute. (2025). *The China–Russia–North Korea nexus: Implications for regional security and the war in Ukraine*. Asia Society. http://www.jstor.org/stable/resrep71870

Bronza, R., & Podoler, G. (2025). Historical gulfs, strategic bridges: A pragmatic-symbolic analysis of the GSOMIA between Japan and South Korea. *East Asia,* 42, 131-155. https://doi.org/10.1007/s12140-025-09446-2

Cha, V. (2012). *The impossible state: North Korea, past and future.* HarperCollins. https://doi.org/10.1080/10803920.2014.925343

Cha, V. (2025, March 26). *Shared threats: Indo-Pacific alliances and burden sharing in today's geopolitical environment* [Testimony]. Center for Strategic and International Studies (CSIS). https://www.csis.org/analysis/shared-threats-indo-pacific-alliances-and-burden-sharing-todays-geopolitical-environment

Chhabra, T. (2019). *The China challenge, democracy, and U.S. grand strategy* (Policy Brief). Brookings Institution. https://www.brookings.edu/wp-content/uploads/2019/02/FP_20190311_us_grand_strategy_chhabra.pdf

Colby, E. (2021a). *The strategy of denial: American defense in an age of great power conflict*. Yale University Press. https://doi.org/10.2307/j.ctv1vbd1b7

Colby, E. (2021b). US defence strategy and alliances in the Indo-Pacific. *Alliances, nuclear weapons and escalation: Managing deterrence in the 21st century*. In Frühling, S., & O'Neil, A (Eds.). 1, 13–24. ANU Press. http://www.jstor.org/stable/j.ctv25m8dp0.6

Fisher, C. A. (1950). The expansion of Japan: A study in oriental geopolitics: Part II. The greater East Asia co-prosperity sphere. *The Geographical Journal*, *115*(4/6), 179–193. https://doi.org/10.2307/1790152

Government of Japan. (2022a). *National security strategy of Japan*. Prime Minister's Office of Japan. https://www.cas.go.jp/jp/siryou/221216anzenhoshou/nss-e.pdf

Government of Japan. (2022b). *National defense strategy*. Ministry of Defense - Japan. https://www.mod.go.jp/j/policy/agenda/guideline/strategy/pdf/strategy_en.pdf

Govella, K. (2024). *Institutionalizing US-ROK-Japan trilateral cooperation: Recent progress and future prospects*. Seoul National University Institute for Peace and Unification Studies and George Washington University Institute for Korean Studies. https://ora.ox.ac.uk/objects/uuid:cbb24023-5970-4af0-9f1d-3d62384447bb

Jalil, G. Y. (2019). China's rise: Offensive or defensive realism. *Strategic Studies*, *39*(1), 41–58. https://www.jstor.org/stable/48544287

Laimou-Maniati, I. (2001). The management of the sea lanes of communication in South East Asia and the ASEAN regional forum's performance. Hellenic Foundation for European and Foreign Policy (ELIAMEP). https://www.files.ethz.ch/isn/23243/Management%20of%20the%20Sea%20Lanes%20of%20Communication%20in%20SE%20Asia.pdf

Mearsheimer, J. J. (2001). *The tragedy of Great Power politics*. W. W. Norton & Company.

Park, H. (2024). What made South Korea–Japan security cooperation possible? *Journal of Asian Security and International Affairs*, *11*(1). https://doi.org/10.1177/23477970241230374

Pickett, W. B. (2005). New look or containment? George F. Kennan and the making of Republican national security strategy. *The Princeton University Library Chronicle*, *66*(2), 303–312. https://doi.org/10.25290/prinunivlibrchro.66.2.0303

Rashid, R. (2025, October 7). China hacked South Korea's government, but was it really North Korea? *The Diplomat*. https://thediplomat.com/2025/10/china-hacked-south-koreas-government-but-was-it-really-north-korea/

Republic of Korea. (2023a). *National security strategy of the Republic of Korea*. Office of the President. https://eng.president.go.kr/download/national-security-strategy-2023.pdf

Republic of Korea Ministry of National Defense. (2023b). *2022 Defense white paper*. Ministry of National Defense. https://www.mnd.go.kr/mbshome/mbs/mndEN/subview.jsp?id=mndEN_030500000000

Shambaugh, D. (2013). Assessing the U.S. "pivot" to Asia. *Strategic Studies Quarterly*, *7*(2), 10-19. http://www.jstor.org/stable/26270763

Smith, S. A. (2020). *China's coast guard and maritime militia activities in the East China Sea.* Center for Strategic and International Studies. https://www.csis.org/analysis/chinas-coast-guard-and-maritime-militia-activities-east-china-sea

U.S.–China Economic and Security Review Commission. (2017, July 26). *China's response to U.S.–South Korean missile defense system deployment and its implications*. https://www.uscc.gov/research/chinas-response-us-south-korean-missile-defense-system-deployment-and-its-implications

U.S. Department of War. (2025). *Xi Jinping's Taiwan dashboard*. https://media.defense.gov/2025/Apr/29/2003700710/-1/-1/1/FEATURE%20-%20MOORE%20DISCLAIMER.PDF

U.S. Department of War. (2022). *2022 National defense strategy of the United States of America, including the 2022 nuclear posture review and the 2022 missile defense review*. https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF

Watts IV, R. C. (2018). "ROCKETS' RED GLARE": Why does China oppose THAAD in South Korea, and what does it mean for U.S. policy? *Naval War College Review*, *71*(2), 79–108. https://www.jstor.org/stable/26607047

Northern Nigeria in Context: Efforts to Decrease Multidimensional Poverty

Kyra Ariker

Southern Nigeria outpaces the northern part of the country in many areas, including economically. From the outset of British colonialism in the region, the disparity between the North and South has grown in most areas, as the wealth gap, the education gap, and even rates of violence widen. Other factors, like public distrust in the government and various conflicts in the country, are also explored. The following proposal aims to investigate the causes of multidimensional poverty in Northern Nigeria, as well as the economic inequality between the North and South, starting with British colonization and moving forward to the present day, through a qualitative study of various secondary and primary sources. As the education gap is one of the root causes of economic inequality between the North and South, an effective policy to alleviate poverty in Northern Nigeria is to decrease the education gap.

Introduction

Nigeria is an incredibly diverse country, from an ethnic, religious, and economic standpoint, and that diversity is often divided based on regional lines. The North and South of Nigeria are home to different tribes, religious majorities, and geographies. These differences are further reflected in the economic breakdown of the state. Moreover, these differences have remained relatively consistent from the colonization of the region by the British to present-day modern Nigeria. The majority of the wealth is concentrated in the South, and Northern Nigeria continues to struggle with extreme poverty. Poverty in Northern Nigeria is systemic and tied to various factors, including lack of access to education and overall less infrastructure and industrialization than in the South. Furthermore, different conflicts that have caused an uptick in violence in the North have not occurred to the same magnitude or extent in Southern Nigeria. Despite these differences, Nigeria is one of the wealthiest countries in Africa. However, Nigeria's overall wealth is only part of the full picture.

Policy Motivation

Nigeria has the largest economy in Africa, yet it has the world's second-largest impoverished population, with 87 million people below the poverty line (World Bank, 2025b). From 1980 to 2010, poverty in Nigeria rose by 153.6% despite a 19% increase in GDP in the same period (Dapel, 2018). A useful metric for measuring poverty, particularly in Nigeria, a wealthy country with a huge incidence of poverty, is the Multidimensional Poverty Index (MPI). The MPI provides a clearer picture of the root causes of poverty by taking a more holistic approach to poverty measurement by factoring in additional metrics such as poor health, nutrition, inadequate livelihoods, lack of employment, poor housing, inadequate education, and lack of skilled training, rather than exclusively the income level (Adeleke et al., 2023). Examining the spatiality of poverty across Nigeria, this index revealed that northern states in Nigeria have higher levels of Multidimensional Poverty values than southern states (Adeleke et al., 2023). Additionally, rates of poverty congregate geographically, which is reflected in the clusters of highly impoverished states in the North (Adeleke et al., 2023). From 2010 to 2018, poverty severity, incidence, and disparity increased in Nigeria, mostly driven by notable increases across all three factors in Northern Nigeria, while these factors held relatively steady in other states (Odozi & Oyelere, 2023).

As decomposing MPI by region reveals, the disconnect between overall wealth and high levels of poverty in Nigeria is partly explained by economic inequality, and particularly reflects a similar divide between Northern and Southern Nigeria. According to the 2017 Oxfam Inequality Index, Nigeria had the highest level of wealth inequality out of the 152 countries measured (Odozi & Oyelere, 2023). However, while poverty rates are perhaps the most salient divergence between the North and South, they are not the only example. The North and South have distinct geography, are home to different ethnic groups, practice different religions, and have different levels of industrialization. Many of these differences even predate British colonization, which began with the establishment of the port of Lagos as a colony in 1861, and all of them help explain the economic divergence between the North and the South (Falola, 2025)

Causes and Origins

The population of Nigeria, as of 2022, is approximately 220 million people (Blanchard, 2022). Geographically, there are tropical rainforests in the South and savannahs in the North with a transition zone in the middle (Bao, 2022). Additionally, Nigeria has large oil reserves, ranking eighth in the world and first in Africa (Bao, 2022). However, Nigeria's oil and gas industry is concentrated in the South, specifically near the Niger River Delta (U.S. Energy Information Administration, 2023). These geographic differences contribute to the difference in economic activities between the southern and northern parts of the country (Bao, 2022). Nigeria is incredibly ethnically diverse, and prior to colonization, it was not a unified region; instead, there were around 250 ethnic and tribal groups (Maisule et al., 2023). Historically, there were four main ethnic groups in Nigeria: the Hausa, the Fulani, the Igbo, and the Yoruba, and they remain the dominant ethnic groups today (Reed & Mberu, 2015). The Hausa and Fulani have a close relationship and thus are often viewed in the literature as a singular group (Bao, 2022). As depicted in Figure 1, the Hausa-Fulani live in the North, the Yoruba in the South-West, and the Igbo in the South-East (Reed & Mberu, 2015). Explicit data on the religious makeup of Nigeria is unavailable; however, there is a relatively even split between Christian and Muslim populations (Blanchard, 2022). Muslims are the majority in the North, while Christians are the majority in the South, although there are large pockets of each religious group in each region (Blanchard, 2022). Much of the Hausa-Fulani are Muslim, while the Igbo and Yoruba are majority Christian. As these ethnic and religious breakdowns reflect, the country is "arguably a British colonial creation," bringing together two distinct regions with different ethnicities and religious groups (Salihu & James, 2024). There is even still debate today if the current state of Nigeria would exist without British colonial influence (Oloidi & Ilechukwu, 2021).

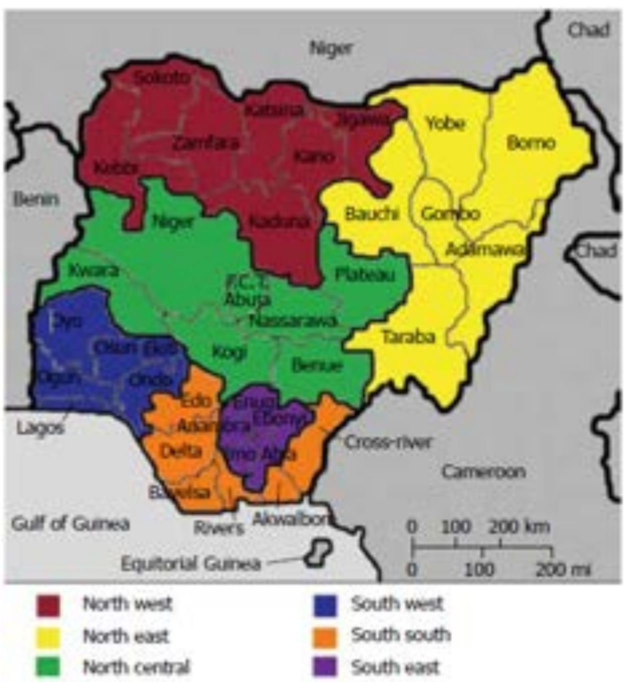


Figure 1: *Ethnic Groups of Nigeria*
(Akinlua et al., 2015)

British colonial rule began in Nigeria in 1861, when the British claimed Lagos as their colony, and spread in 1885 when they further claimed the Niger region as British land (Bao, 2022). Following this, in 1900, the British combined the Niger Coast Protectorate, their territory in the South, with the colony of Lagos to create the Protectorate of Southern Nigeria (Bao, 2022). Concurrently, the British combined the Protectorate of Northern Nigeria with land controlled by the Royal Niger Company to create a bigger landmass in the north of the country (Bao, 2022). In 1914, to further their economic interests, the British merged their territories in Northern and Southern Nigeria into one country despite their differences, as only by merging together the two Protectorates could the British properly rule and exploit the region (Ahmed & Ningnin, 2022). As is reflected in Nigeria's economic situation today, the rationale for the British merging the Protectorates was to use Southern Nigeria's financial resources to subsidize the North's financial deficit (Bao, 2022). Additionally, the British thought that Northern Nigeria needed access to a port in the South to bolster their trade and economy (Bao, 2022). The two distinct regions remained combined even in 1957 when the British government agreed that they would free Nigeria from British rule in 1959 (Bao, 2022). On October 1, 1960, the Federal Republic of Nigeria became independent after a three-year transition period (Falola, 2025). Despite Nigeria's newfound independence, the northern and southern parts of the country remained distinct. In the mid-twentieth century, the development gap between Northern and Southern Nigeria remained large, with the South leading the North in economic development, trade, industrialization, and education (Bao, 2022). According to the Economic Survey of Nigeria in 1959, the village market system in Nigeria evolved much better in the South, which was more densely populated and developed than the North (Bao, 2022). Similarly, financial institutions, engineering companies, construction contractors, and manufacturing companies were more concentrated in the South (Bao, 2022). The economic divide in Nigeria present during early British colonization and post-independence persists in the current era, as is reflected in the levels of inequality still present in Nigeria. In 2024, the Gini coefficient, a measure of inequality in a country, was 35.1%, indicating severe income inequality (Oxfam, 2024). Income inequality is still accentuated by the country's regional divide, with the North-East and North-West regions of the country facing the worst levels of poverty and worst educational outcomes (Oxfam, 2024).

There are several factors that currently contribute to increased poverty rates in the North. Literacy rate and distance to the coast were found to be significant predictors of poverty in the North, with locations near the coast having higher economic development (Adeleke et al., 2023). Unlike the North, Southern Nigeria benefits from industrial growth and trade advantages endemic to the region's proximity to the coast (Adeleke, 2021). Additionally, Northern Nigeria is also the least educated region in the country (Adeleke et al., 2023). Education has been shown to raise income, in turn yielding an overall increase in well-being and the fulfillment of basic needs (Awan et al., 2011). Historically, there was also an education gap between Northern and Southern Nigeria, which in turn influenced the high differences in earnings (Bao, 2022). In 1947, only 2.5% of Nigerians who pursued higher education were from the North, despite Northerners making up 54% of the population (Bao, 2022). On average in the 1950s, Northerners had less than one-tenth of the access to education that Southerners did (Bao, 2022). Even today, the education gap persists between the regions, similar to the historic and current economic divide between Northern and Southern Nigeria. For example, according to the National Bureau of Statistics, the states where the fewest number of people can read or write are in Northern Nigeria (National Bureau of Statistics, 2020).

Another factor that influences poverty in Nigeria is exposure to violent conflict. Recent and long-term exposure to conflict increases the incidence and severity of poverty, as well as decreasing household income (Odozi & Oyelere, 2019). As is shown in Figure 2, North-East and North-Central Nigeria have some of the highest levels of long-term conflict exposure in the country from 1999 to 2015. A potential cause of increased poverty in the North from 2010 to 2018 is the uptick in violence in the region (Odozi & Oyelere, 2023). While violence also occurs in the South, it is more characteristic of the northern region (Attah et al., 2020). North-East Nigeria contends with the extremist Islamist group Boko Haram, North-Central Nigeria faces herder-farmer militancy, which has caused a humanitarian crisis, and North-West Nigeria is dealing with an upsurge of rural banditry, which includes armed robbery and allied violent crimes (Okoli & Ugwu, 2019). The 2009 insurgency of Boko Haram in the North-East and the conflict between Muslim herders and Christian farmers in North-Central led to a significant increase in conflict in the country (Odozi & Oyelere, 2019). As is reflected in the Multidimensional Poverty Index, there are a variety of factors that impact poverty. Northern Nigeria, in particular, suffers from a lack of education and exposure to violence, which hinders the region from catching up with the South.

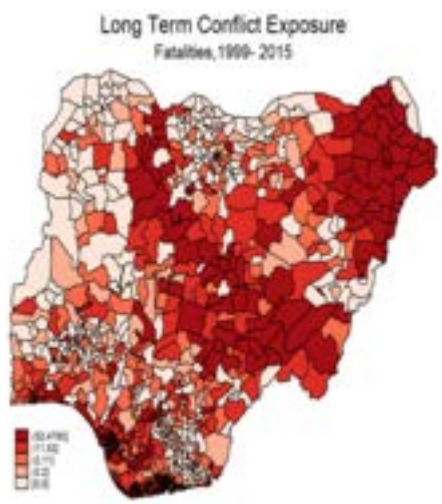


Figure 2: *Long Term Conflict Exposure in Nigeria 1997-2015*
(Odozi & Oyelere, 2019).

Impacted Parties and Actors

Nigerians

The primary target of a policy aimed at increasing economic development in Northern Nigeria is the people themselves. However, there are obstacles stemming from Northern Nigerians themselves that could stand in the way. Part of the foundation of conflict in the North is based on ethnic and tribal lines. Thus, outside of terrorist groups or the state itself, certain civilian groups are the other main instigators of violence. The main region where Northern Nigerians at times foment conflict is in the Middle Belt, which is a religiously and ethnically diverse region in the middle of the country with overlapping residence. In the Middle Belt, there are repeated clashes between Muslim Fulani herders and Christian farmers due to natural resource competition and sectarian disputes (Blanchard, 2022). The area in Northern Nigeria most affected by herder-farmer conflict is the North-Central region, which includes the states Benue, Kogi, Kwara, Nasarawa, Niger, and Plateau, as well as the Federal Capital Territory (FCT) (Azad et al., 2018). Herder-farmer violence is further worsened by increasing desertification and drought (Attah et al, 2020). From 2013 to 2016, 55% of all reported cases of violence in North-Central Nigeria were due to disputes over land or resources (Attah et al, 2020). Furthermore, population increases in central Northern Nigeria increase farming and decrease land available for cattle herding (Azad et al, 2018). The Boko Haram insurgency and climate change are also forcing nomadic cattle herders from the North to move further South (Azad et al., 2018). Farmer-herder conflict continues to result in violence in North-Central Nigeria with 865 people killed and 15,000 displaced as of February 2024 (Human Rights Watch, 2025). Additionally, banditry has emerged out of the farmer-herder violence in the Middle Belt and has spread to the North-West (Human Rights Watch, 2025). Banditry is defined as an organized crime where armed individuals attack innocents with weapons (Ebonine, 2022). Banditry is utilized as a strategy for many reasons, including the purpose of kidnapping, extorting money for ransom, killing, raping, rustling cows, and harming government efforts to formalize education (Ebonine, 2022). In 2020, 8,729 Northern Nigerians died due to banditry (Ebonine, 2022). There was also a spree of kidnappings, killings, and raids, including an instance in which 400 people were kidnapped in Kaduna state in March 2024 (Human Rights Watch, 2025). Perpetrators of violence face few punitive measures that are capable of acting as a deterrent, further exacerbating the violence (Attah et al, 2020). As a result, continued violence in the North-Central region perpetrated by both herders and farmers is a large barrier to the success of any development plan. Additionally, displaced people as a result of violence present further complications. For example, the International Organization of Migration reports that over 1.3 million people were displaced in the North-Central and North-West regions, where herder-farmer conflict and banditry are the most common, as of April 2024 (Human Rights Watch, 2025). The magnitude of displaced households contributes to the complexity of kickstarting economic development.

Another characteristic of Northern Nigeria, but also of greater Nigeria, is distrust of the government. In October 2020, there was a large-scale 12-day protest called the #EndSARS movement against police brutality. More specifically, they protested the notoriously violent Special Anti-Robbery Squad (SARS) section of the police force, and other human rights abuses by SARS (Jones, 2021). The protest ended with a massacre of civilians, where 13 died and 33 were injured (Adelagun, 2021) The government still fails to formally recognize the massacre occurred (Ogide, 2024). Similarly, in August 2024, there were nationwide protests against the economic crisis caused by inflation from new economic reforms (Human Rights Watch, 2025). The #EndBadGovernance movement resulted in several protestors arrested and 24 killed (Human Rights Watch, 2025). The state security forces had warned citizens against participating in the protests, claiming they were intentionally undermining the government (Amnesty International, 2025). This tendency for protests to end violently when the state gets involved advances the people's distrust of the government. The rampant corruption in the police force further perpetuates the idea that security forces and the government operate above the law (Ogide, 2024). As a result, the police and security forces in Nigeria are not often relied upon by the people where they are most needed, causing civilian-led armed militias to emerge (Ogide, 2024). In turn, the failure of the security forces to protect the citizenry from militant groups like Boko Haram has led to an increase in vigilantism, as citizens feel that they must protect themselves (Ogide, 2024). Additionally, even when citizens want to seek aid from a security agency, the overlapping purposes and number of security agencies make it difficult for citizens to parse out which agency they should contact (Ogide, 2024). Distrust in the Nigerian government is a symptom in part due to the poor economic state of Nigeria today. As Northern Nigeria suffers more economically than the South, that distrust is particularly salient, and a potential problem if the government were to implement a targeted economic development plan in the North.

Nigerian Government

The Nigerian government is another important stakeholder in the country, as it is the most likely enactor of an economic development plan. The current President of Nigeria, Bola Tinubu, was elected the president of Nigeria in 2023 (Asadu, 2023). He is the former governor of Lagos, a state in Southern Nigeria that is home to Nigeria's economic hub, the city of Lagos (Asadu, 2023). His presidency follows that of former President Muhammadu Buhari, whose administration lost much of the trust the people had in the Nigerian government as a protector of the people (Asadu, 2023). Under President Buhari's administration, the economy collapsed, and there were high rates of violence from kidnappers, bandits, and Boko Haram insurgents in the North and pirates in the South (Ardo, 2023). President Tinubu has made efforts to boost Nigerian economic development by injecting $2.25 billion into the economy from a loan from the World Bank (Laker, 2024). Additionally, he is currently attempting to attract more foreign investment in the country by enacting intense economic reforms, including ending oil subsidies and unpegging the Naira, Nigeria's currency, from the U.S. dollar (Laker, 2024). In February 2025, the government restarted a cash transfer program, which, although originally operated from October 2023 to December 2023, had only benefitted 1.7 million people, which is less than 1% of the population (Human Rights Watch, 2025). Thus, there is evidence that, as an actor, the President and his administration support economic development. However, while the government reinstated the cash transfer program, the government also bought a private jet for the President, which weakens their commitment to economic development in the eyes of the public (Human Rights Watch, 2025).

As was a large problem for his predecessor, President Tinubu has also validated the behavior of the state security apparatus. Nigerian security forces have been known to abuse authority, use extreme prejudice, and fail to provide justice to the victims of the security forces' actions (Ogide, 2024). Incidents have led to distrust of security forces and have created a belief among the public that they are perpetuating insecurity (Ogide, 2024). Additionally, prior to democracy taking root in Nigeria in 1999, security forces were used for regime protection and to maintain public order, which created public distrust (Ogide, 2024). There have been efforts to expand the security forces and more clearly outline their purpose by making specialized agencies like the Department of State Security (DSS), and the Economic and Financial Crimes Commission (EFCC), but they have not been sufficient thus far in combating public distrust (Ogide, 2024). Despite these specialized units, there are overlapping security personnel in almost every region of the country, with often overlapping roles (Ogide, 2024). State agencies also do not always follow their mandates. The Department of State Security, in charge of internal security and counterterrorism, among other things, arrested a student in 2022 for making a comment about First Lady Aisha Buhari on social media (Ogide, 2024). A former Central Bank Governor was also illegally detained by DSS (Ogide, 2024). Despite this, the head of the DSS has remained in power under successive presidents (Ogide, 2024). The Nigerian Police Force has also been known to arrest and detain citizens for prolonged periods of time (Ogide, 2024).

The lack of accountability for the state security apparatus has been upheld by the current and previous presidential administrations. During President Buhari's time in office, there were massive youth-led protests against police brutality, which ironically often ended in violence from the state security forces shutting them down (Cowell & MacLean, 2025). Similarly, in 2024, when there were large protests against President Tinubu's administration's economic reforms which have worsened the economic situation in the country, 76 protestors, including children, were charged with treason, a charge that can result in the death penalty (Eboh, 2024). The charges were only dropped when photos of the children in court sparked outrage from human rights organizations (Ewokor & Phillips, 2024). Continued abuses by the state security apparatus perpetuate distrust of the government and work against economic development, as violence and long-term conflict exposure increase the severity of poverty. President Tinubu and his administration are outwardly committed to economic development, but the current disparate economic situation resulting from his administration's economic reforms, and his administration's continued use of police brutality against protesters make it unclear if he truly intends to serve and help the people.

Boko Haram

Boko Haram, an insurgent and terrorist organisation that follows Islamic jihadist beliefs, is one of the main barriers to economic development in Northern Nigeria (Omenma et al., 2020). It started with committing political violence in the late 1990s, but turned to high-intensity violence in 2009, which continues today (Omenma et al., 2020). Boko Haram has a decentralized organizational structure, believed to have at least six splinter groups (David, 2025), the most well-known of which is Jama'at Ansar al-Muslim, which wants to recreate the historic Islamic Caliphate that once ruled Nigeria, Cameroon, and Niger (David, 2025). The group rejects Christianity, Western influence, and less extreme forms of Islam (Blanchard, 2022). Its main goal is to overthrow the Nigerian government and replace it with a new regime based on Islamic law (Omenma et al., 2020). Boko Haram is also motivated by socio-political exclusion in North-East Nigeria (David, 2025). Boko Haram's actions are believed to be motivated by a multitude of factors, including unemployment, low level of education, inequality, marginalization, poverty, and political disenfranchisement (David, 2025). From a religious perspective, the group wishes to spread the rule of Allah, exterminate non-believers, and its members want to reap the promised rewards of doing both in the afterlife (David, 2025). The organization is willing to kill anyone who disagrees with its teachings, regardless of their religion, including Muslims (Oloidi & Ilechukwu, 2021).

Boko Haram utilizes different modes of violence, including forced recruitment, suicide bombing, seizure and destruction of villages, abduction, forced displacement, and sexual violence to spread its agenda (Azad et al., 2018). Boko Haram is infamous for its abduction of 276 girls from Chibok, a town in Borno state in Northern Nigeria, in 2014 (Blanchard, 2022). As of April 2024, 10 years after the abduction, 90 of the schoolgirls remain in captivity (Human Rights Watch, 2025). Although originating in North-East Nigeria, the Boko Haram insurgency also extends toward the North-West and North-Central states (Attah et al, 2020). However, the most affected states are Borno, Adamawa, and Yobe in the North-East (Azad et al., 2018). The insurgency has created a humanitarian and forced displacement crisis that has further deepened underdevelopment and regional inequalities in the North (Azad et al., 2018). Two-thirds of the violence in the North-East from 2010 to 2017 was due to Boko Haram (Azad et al., 2018). Boko Haram remains a significant threat in the North-East, with 170 people dying in an attack in September 2024 (Human Rights Watch, 2025).

The organization is influenced by material gains, as its members engage in looting, bank robbery, extortion, ransoming, and stealing (David, 2025). Boko Haram turned to violence in 2009, in part due to the potential financial gain resulting from looting (David, 2025). Boko Haram also pays citizens money in exchange for fighting for them or acting as suicide bombers (David, 2025). Boko Haram is more likely to recruit uneducated individuals, and children out of school are more likely to fall prey to the radical teachings of the Quranic schools in the North, and thus join groups like Boko Haram (David, 2025). Anger over poverty, along with the potential for monetary gain, are factors that influence people to join Boko Haram (David, 2025). Deprivation drives individuals to join groups they view as changemakers, and thus individuals view insurgency as a "rational livelihood strategy" (David, 2025). Supporting groups like Boko Haram, to these individuals, becomes a heroic act with great spiritual benefits and allows them to concurrently fight against their perceived socio-economic injustice (David, 2025). The failure of state protection of the citizens from Boko Haram and the political exploitation of the insurgency by political elites serving their own interests exacerbates the Boko Haram insurgency (David, 2025). The economic deprivation in Northern Nigeria strengthens Boko Haram, and any plans to rectify that lack of development stand in the organization's way.

Methodology

This study employed a qualitative approach to address ways to alleviate poverty in Northern Nigeria. All proposed policies were developed based on qualitative analysis of secondary sources like academic journals and reports from UNICEF, UNESCO, and various NGOs currently working in Northern Nigeria. Statistics from NGOs operating in Northern Nigeria were also consulted to help explain the potential effects of proposed policies, based on pilots or pre-existing development strategies in the region. This paper took a relatively holistic approach to developing policies to address poverty in Northern Nigeria, based on the principle that poverty is multidimensional, and not purely a product of a lack of income. As such, the proposed policies are each intended to target different sectors that could, if improved, alleviate poverty in Northern Nigeria, including education, community development, and lack of credit sources. Furthermore, descriptive studies based on interviews with Nigerians were used to provide further context of potential barriers to proposed policies, from the perspectives of Northern Nigerians themselves, as they are the most familiar with policy obstacles in their region.

Policy Recommendation

Policy Statement

In order to address the multidimensional poverty present in Northern Nigeria, I recommend that Nigeria's Federal Ministry of Education should help scale up the Teaching at the Right Level Program (TaRL) in the North. TaRL was developed by an Indian NGO called Pratham in the early 2000s to address problems with the Indian education system, and it saw great success (UNICEF, 2023). The education gap between Northern and Southern Nigeria is one of the most persistent causes of inequality in the country. 84% of children in the lowest economic quartile in Nigeria cannot read, which likely includes many children in the North (UNICEF, 2023). By closing the gap and increasing educational attainment in the North, income levels will rise and poverty will decrease. The Teaching at the Right Level Program (TaRL) is a teaching approach that tests children's level in numeracy and literacy and then teaches them based on their level instead of their age group (UNICEF, 2023). This program is directed by the NGO, Teaching at the Right Level Africa, and is already active in seven states in Northern Nigeria (TaRL Africa, n.d.). For a period of each school day, middle to upper primary school students are taught foundational skills to ensure that they have basic foundational math and reading abilities (UNICEF, 2023). They are then regularly assessed by the Annual Status of Education Report (ASER) assessment tool to track their progress and move up levels if needed (UNICEF, 2023). There are many partnerships that contribute to the TaRL program's current operations in Northern Nigeria. In all the states that TaRL is active, the State Universal Basic Education Boards and Ministries of Education are involved (TaRL Africa, n.d.). In three states, the United Nations Children's Fund (UNICEF) operates the TaRL program in partnership with TaRL Africa (TaRL Africa, n.d.). Partnerships with international NGOs like UNICEF, which currently only operates in three of the seven states where TaRL is implemented, should be expanded to work in all Northern Nigerian states.

Several state governments have already contributed funding to piloting and expanding the TaRL program (UNICEF, 2023). However, to further decrease the education gap, the Nigerian government should increase funding for education, as it is currently not sufficient. In 2023, only 3.6% of the public expenditure was spent on education (World Bank, 2025a). As of October 2025, the Nigerian government has failed to implement the United Nations Educational, Scientific and Cultural Organization's (UNESCO) recommendation that countries should spend equivalent to 15%-20% of their total expenditure on education (Nonyelum, 2024). Other factors that are known to hinder the education system in Nigeria, including poor facilities, teacher shortage, poor supervision, low quality of education, and low motivation of teachers, are all linked to poor funding for education (Ogunode & Madu, 2021, as cited in Nonyelum, 2024). Thus, if Nigeria does increase funding to education to the recommended level, Nigeria's Federal Ministry of Education can use that funding to scale the TaRL program at a federal level. Furthermore, the TaRL program, along with increased funding, would help mitigate some of the problems with Nigeria's education system, as it involves training more teachers, better supervision, and higher quality education.

Policy Analysis

Strengths

The main strength of the policy is that it addresses an underlying systemic issue that has led to poverty in Northern Nigeria: lack of educational attainment. Inherently, by focusing on closing the education gap, poverty in Northern Nigeria is recognized as a multidimensional issue, going beyond the inclination to view poverty as purely a lack of income. Furthermore, the policy is feasible, as the TaRL program already exists in Northern Nigeria, just on a smaller scale. In 2021 and 2022, the TaRL program was implemented in over 1,200 schools in Adamawa, Borno, Kano, Kebbi, and Yobe, all states in Northern Nigeria (UNICEF, 2023). In 2023, the Northern Nigerian states of Kaduna, Bauchi, and Gombe were also introduced to the program (UNICEF, 2023). TaRL has reached 763,063 children in Northern Nigeria and trained more than 14,000 teachers in the TaRL curriculum (TaRL Africa, n.d). The policy is focused only on scaling an already existing program, which makes it more viable and politically feasible, at least at a state level, as many state governments contribute funding already. The pilot of the TaRL program also yielded impressive results. In April 2023, the percentage of students with foundational skills in the local language increased by 26%, the percentage of students with foundational skills in English increased by 25%, and the percentage of students with foundational skills in math increased by 29% (UNICEF, 2023). Thus, there is evidence that the policy has a chance of successfully increasing education in Northern Nigeria, as long as the scaling is done effectively.

Another strength of the policy is that one of the main actors involved, TaRL Africa, is committed to supporting state governments in Northern Nigeria who want to implement TaRL and working with the federal government to create policies supportive of the TaRL program (TaRL Africa, n.d.). As the policy involves a partnership between Nigeria's Federal Ministry of Education and TaRL Africa, TaRL Africa's willingness to work with the government is a large benefit. The TaRL program is also very cost-effective, as it often costs less than $10 per child per year (The Abdul Latif Jameel Poverty Action Lab (J-PAL), n.d.). Thus, if the Nigerian government does increase the funding for education to the UNESCO-recommended level, then there will be enough funding for the TaRL program to scale nationally.

Weaknesses

As discussed, poverty in Northern Nigeria is multidimensional, and by addressing the education gap, the policy fails to address many of the other causes of poverty. As a result, it is unlikely that alone, the proposed policy can be the sole policy to decrease poverty in Northern Nigeria. If TaRL, a known education policy, could provide a fix-all for poverty worldwide, it would already have occurred. Similarly, the policy fails to address a key factor that is vitally important in Northern Nigeria: violence. For that reason alone, the policy is currently unviable with the current progress of the Boko Haram insurgency in Nigeria. Boko Haram would not support scaling TaRL nationally, nor would it cease its operations to allow TaRL to scale successfully. Boko Haram wants to get rid of Western influence in Nigeria, so it would not support international NGOs like TaRL Africa and UNICEF coming into the country and expanding their operations (Blanchard, 2022). If anything, a program that supports education and, as a result, economic development, is contrary to its goal of overthrowing the Nigerian government, as it bolsters the stability of the country. As a result, to scale TaRL nationally, Boko Haram would need to be dealt with first.

It is also unlikely that the Nigerian government would be willing to increase its funding to education to the

UNESCO-recommended level. In 2023, only 3.6% of the public expenditure was spent on education; thus, a 12% minimum increase in spending would be needed to hit the recommended level (World Bank, 2025). Public distrust of the federal government is also prevalent among the citizens of Nigeria. Thus, there may be unwillingness from Northern Nigerians to engage with the TaRL program if it is expanded federally via a more top-down approach.

Policy Alternatives

Cash Waqf Crowdfunding

An alternate policy that communities in Northern Nigeria could implement to decrease poverty in the region is cash waqf crowdfunding. Waqf is an Islamic concept where individuals donate a small amount of money or assets to benefit a public good like a school or hospital, among other options, to promote community development (Muhammad & Rahman, 2024). Money is added to a collective fund and is invested in ventures that are compliant with Sharia law to generate income (Muhammad & Rahman, 2024). The assets generated are then reinvested in the community (Muhammad & Rahman, 2024). Waqf crowdfunding is designed to allow communities to access interest-bearing assets in a Sharia-compliant manner, as traditional interest is not permitted under Sharia law (Garner, 2024). A key aspect of cash waqf crowdfunding is that anyone in the community can contribute to the fund in any amount (Muhammad & Rahman, 2024). To implement cash waqf crowdfunding in Nigeria, local governments at the city level should create a committee that designs and then oversees a collective fund, with assets generated via cash waqf crowdfunding. To ensure that the money from the fund is effectively reinvested into the community members of the committee should include government, tribal, and religious leaders.

The main strength of cash waqf crowdfunding is that it allows Muslims to access interest-bearing assets, as traditional means of creating a collective fund that would bear interest are not Sharia-law compliant. As Northern Nigeria is predominantly Muslim, introducing a cash waqf crowdfunding program at the local government level allows communities to grow their assets in a way that takes into account the religious and ethnic context of the region. However, non-Muslims would still be able to contribute to the fund. Cash waqf crowdfunding also provides a sustainable funding source to local communities (Muhammad & Rahman, 2024). The collective fund is regenerative, as community members can contribute more money at any time, and anyone is allowed to donate. The policy also promotes ethical investing, as all the money in the collective fund is used for community development (Muhammad & Rahman, 2024). The waqf crowdfunding model promotes to community members the benefits of ethical investing, as they see how it advantages their own communities. Furthermore, as community development is the main focus of the collective fund, it is very adaptable to the individual community (Muhammad & Rahman, 2024). The allocation of funds to specific initiatives is completely up to each community. Communities can vote on specific initiatives, like, for example, they can choose if they want to develop more public infrastructure or launch specific programs with money from the collective fund.

There are a few core weaknesses with implementing cash waqf crowdfunding in Northern Nigeria. First, there is a general lack of awareness in Northern Nigeria around cash waqf crowdfunding as a concept and its benefits (Muhammad & Rahman, 2024). Cash waqf is a modern concept. Traditional waqf is more widely known and specifically only includes real estate assets, like mosques or graveyards, of religious endowments (Ahmad, 2019). As a result, even where waqf is recognized, the specific cash waqf crowdfunding the policy relies upon is not common knowledge (Ahmad, 2019). Furthermore, there is a lack of understanding that waqf could be used as a tool to help alleviate poverty, as that is not its traditional usage (Ahmad, 2019). Another core issue is that there is currently not a regulatory framework in place to manage cash waqf crowdfunding in Northern Nigeria (Muhammad & Rahman, 2024). In the absence of a regulatory framework, there is no way to ensure that any cash waqf crowdfunding is standardized in a way that would make it most effective and most protected from corruption. Lack of trust leading to a hesitancy to contribute is also a potential problem with implementing cash waqf crowdfunding (Muhammad & Rahman, 2024). Waqf endowment boards already exist at the state level in Northern Nigeria, yet there is little patronage of the system, as the public distrusts the government (Ahmad, 2019). The government does not seem to support the interests of the people, so the people do not trust the government to use any money donated effectively (Ahmad, 2019). However, the most salient problem with the recommended cash waqf crowdfunding policy is that it disregards systemic issues in Northern Nigeria that may impede the policy, like continued violence in the region or lack of formal education.

Islamic Microfinance

Another policy alternative to help alleviate poverty in Northern Nigeria is running an Islamic microfinance advocacy campaign. Islamic microfinance is targeted at Northern Nigeria's majority Muslim population. In 2012, around half of the population of the Northern states were 60-79% Muslim, while the other half were 80-100% Muslim majority (Nwankwo, 2019). Islamic microfinance already exists in Nigeria, but there have been problems with spreading awareness (Maishanu & Nabiha, 2024). Islamic Microfinance Institutions operate in Nigeria by providing Sharia-compliant microloans to individuals or small to medium enterprises (Maishanu & Nabiha, 2024). In order to improve awareness about Islamic microfinance among the public, the Nigerian government could create an awareness campaign about Islamic microfinance. The government should provide funding for a program that would put promoters of Islamic microfinance in mosques and Islamic places of worship and pair them with local religious leaders to explain to the public the benefits of Islamic microfinance.

The main strength of a government-funded Islamic microfinance awareness campaign is that it enables more of the population of Northern Nigeria to learn about and reap the benefits of Islamic microfinance. Microfinance allows individuals to invest in income-generating activities, which in turn raise incomes and standards of living (Babalola et. al, 2023). Islamic microfinance in particular is Sharia-compliant, thus enabling Muslims to access credit that is otherwise inaccessible, which is vital in Northern Nigeria, where the majority of the population is Muslim. Islamic microfinance is important as a development strategy because Islamic Microfinance Institutions are attractive to populations traditionally excluded from the banking system (Maishanu & Nabiha, 2024). In Nigeria, this is especially salient as individuals often do not have access to banking due to cultural or religious factors (Maishanu & Nabiha, 2024). The Islamic Microfinance awareness campaign would also foster entrepreneurship by teaching individuals about financial literacy, which they can then apply to their own lives or businesses.

The main weakness of an Islamic microfinance awareness campaign that is government-led is the public's lack of trust in the government. Any economic development plan that is considered, especially if it is conducted in a top-down manner directed by the state, there is evidence that Northern Nigerians would not trust the effort. There have also been previous government-led initiatives in the microfinance sector that have proved unsuccessful (Babalola, 2023). Furthermore, regardless of the success of an awareness campaign, Islamic microfinance faces challenges. The current regulatory framework for microfinance in Nigeria is based on conventional microfinance, not Islamic microfinance (Maishanu & Nabiha, 2024). The functioning of Islamic Microfinance Institutions is contingent on a specific legal framework built for Islamic microfinance (Maishanu & Nabiha, 2024). Additionally, microfinance, as a whole, might not be viable in the long run (Babalola et. al, 2023). It is very costly for microfinance institutions to administer, and profits from the loans for microfinance institutions are meager (Babalola et. al, 2023). As a development plan, the current landscape of microfinance in general poses a problem as the majority of small and medium enterprises in Nigeria are unable to access microfinancing due to perceptions about risk, that the poor are unbankable, and information asymmetry (Babalola et. al, 2023).

Policy Recommendation

The inequality between Northern and Southern Nigeria and the poverty present in the North is endemic to the region, predating British colonization. A large factor behind the longevity of the economic inequality is that poverty in Northern Nigeria is exceptionally multidimensional. As a result, a more holistic approach must be taken to address poverty in Northern Nigeria. As such, a policy aimed at increasing economic development, whether via government intervention, micro-credit, or other traditional development strategies, is not the way forward for Northern Nigeria. Instead, policies should reflect the multitude of factors that have resulted in continued poverty in Northern Nigeria. High incidences of violence caused by the Boko Haram insurgency, lack of education access, inadequate education facilities, and proximity to the coast are all factors that have led to entrenched poverty in Northern Nigeria (Jaiyeola & Choga, 2020). TaRL, a policy aimed at increasing foundational education, targets the education gap, a foundational cause of poverty in Northern Nigeria (The Abdul Latif Jameel Poverty Action Lab (J-PAL), 2019). TaRL has proven effective at increasing foundational skills achievement, where 13 randomized evaluations in Kenya, Chile, India, and the United States showed that teaching based on a student's learning level increases test scores and helps students catch up to their grade level (The Abdul Latif Jameel Poverty Action Lab (J-PAL), 2019). TaRL can help close the education gap in Northern Nigeria, and it has already proved effective in seven states in the North. On the other hand, waqf crowdfunding and Islamic microfinance attempt to provide a local or household-level stopgap to a systemic problem. The economic inequality between Northern and Southern Nigeria is consistent throughout the development of Nigeria from a British colony to an independent state today, and only by attacking the causes of that persistent inequality, like the education gap, can there be any hope of alleviating poverty in the North.

Conclusion

Reducing poverty in Northern Nigeria and thus closing the economic gap between the North and South will require substantial investment into policies that approach poverty as a multidimensional issue. For Northern Nigeria specifically, significant focus on policies that address the root cause of continuous poverty in the region, including lack of access to education, are crucial for effective poverty alleviation. Obstacles to poverty alleviation in the North, including the Boko Haram insurgency, violence in the Middle Belt, and overall public distrust of the government, remain difficult to overcome. Holistic policies aimed at increasing education, expanding access to healthcare, improving sanitation, and mitigating conflict are all needed to push Northern Nigeria out of poverty. The barriers to economic development in Northern Nigeria, although high, cannot stop policies from being pursued and progress from occurring.

References

Adelagun, O. (2021, November 16). *#EndSARS: Nine persons killed, four 'presumed dead,' 33 shot, assaulted in Lekki tollgate shooting*. https://www.premiumtimesng.com/news/headlines/495613-endsars-nine-persons-killed-four-presumed-dead-33-shot-assaulted-in-lekki-tollgate-shooting.html

Adeleke, R. (2021). Spatial variability of the predictors of government tax revenue in Nigeria. *SN Business & Economics*, *2*(1). https://doi.org/10.1007/s43546-021-00173-3

Adeleke, R., Alabede, O., Joel, M., & Ashibuogwu, E. (2023). Exploring the geographical variations and influencing factors of poverty in Nigeria. *Regional Science Policy & Practice*, *15*(6), 1182–1198. https://doi.org/10.1111/rsp3.12621

Ahmad, M. (2019). An empirical study of the challenges facing zakat and Waqf institutions in Northern Nigeria. *ISRA International Journal of Islamic Finance*, *11*(2), 338–356. https://doi.org/10.1108/ijif-04-2018-0044

Ahmed, I. K., & Ningin, A. I. (2022). History of amalgamation of Northern and Southern Protectorates of Nigeria. *Indonesian Journal of Education and Social Sciences*, *1*(1), 34–38. https://doi.org/10.56916/ijess.v1i1.88

Akinlua, J. T., Meakin, R., Umar, A. M., & Freemantle, N. (2015). Current prevalence pattern of hypertension in Nigeria: A systematic review. *PLOS One*, *10*(10). https://doi.org/10.1371/journal.pone.0140021

Amnesty International. (2025, August 1). *Nigeria: No justice for victims of police brutality one year after #EndBadGovernance protests*. https://www.amnesty.org.ng/2025/08/01/nigeria-no-justice-for-victims-of-police-brutality-one-year-after-endbadgovernance-protests/

Ardo, U. (2023, October 8). *How and why President Buhari failed in leadership*. Daily Trust. https://dailytrust.com/how-and-why-president-buhari-failed-in-leadership/

Asadu, C. (2023, May 29). *Bola Tinubu sworn in as Nigeria's president amid hopes, skepticism*. AP News. https://apnews.com/article/nigeria-tinubu-buhari-abuja-security-economy-africa-a2f6550f7a27014df8ee9506b4a206a9

Attah, E., Amana, I., & Onamah, G. (2020). Violent conflict in the North Central states of Nigeria and the imperatives of peace-building in the national development. *EPRA International Journal of Research and Development (IJRD)*, *5*(9). https://eprajournals.com/jpanel/upload/943pm_2.EPRA%20JOURNALS-5093.pdf

Awan, M., Malik, N., Sarwar, H., & Waqas, M. (2011). Impact of education on poverty reduction. *International Journal of Academic Research*, 3(1), 659-664. https://mpra.ub.uni-muenchen.de/31826/1/Impact.pdf

Azad, A., Crawford, E., & Kaila, H. (2018). Conflict and violence in Nigeria. https://documents1.worldbank.org/curated/en/111851538025875054/pdf/130198-WP-P160999-PUBLIC-26-9-2018-14-42-49-ConflictViolenceinNigeriaResultsfromNENCSSzonesFinal.pdf

Babalola, F., Mhlongo, N., Obinyeluaku, M., Oladayo, G., & Daraojimba, C. (2023). Microfinance and economic empowerment in Nigeria: A critical review of impact and Sustainability. *Finance & Accounting Research Journal*, *5*(12), 381–404. https://doi.org/10.51594/farj.v5i12.640

Bao, G. (2022). Ethnic conflicts and the dilemma of democracy in Nigeria. *Politics of Democratic Breakdown*, 180–237. https://doi.org/10.4324/9781003289098-7

Blanchard, L. (2022). *Interfaith relations and religious freedom in Nigeria*. https://www.congress.gov/crs-product/IF12234

Cowell, A. & Maclean, R. (2025). *Muhammadu Buhari, strongman president of Nigeria, dies at 82*. The New York Times. https://www.nytimes.com/2025/07/13/obituaries/muhammadu-buhari-nigeria-obituary.html

Dapel, Z. (2018). *Poverty in Nigeria: Understanding and bridging the divide between North and South*. Center for Global Development. https://www.cgdev.org/blog/poverty-nigeria-understanding-and-bridging-divide-between-north-and-south

David, J. O. (2025). Boko Haram and Niger delta avengers: Unraveling the greed-need-creed spectrum in Nigeria's security-development nexus. *Frontiers in Political Science*, *7*. https://doi.org/10.3389/fpos.2025.1562472

Eboh, C. (2024). *Nigeria charges 76, including minors, with treason after August protests*. Reuters. https://www.reuters.com/world/africa/nigeria-charges-76-including-minors-with-treason-after-august-protests-2024-11-01/

Ebonine, V. C. (2022). Darkening the dark: Assessing the impact of banditry on educational and socio-economic development in Northern Nigeria. *Journal of Black Studies*, *53*(6), 554–585. https://doi.org/10.1177/00219347221086312

Ewokor, C. & Phillips, A. (2024). *Nigeria's president Bola Tinubu orders treason charges against children to be dropped*. BBC. https://www.bbc.com/news/articles/cr4lzqe79x3o

Falola, T. (2025). Understanding colonial Nigeria https://assets.cambridge.org/97810093/37182/frontmatter/9781009337182_frontmatter.pdf

Garner, B. (2024). *Islamic finance: What there is to know*. Forbes. https://www.forbes.com/uk/advisor/investing/islamic-finance/

Human Rights Watch. (2025). *World Report 2025: Rights trends in Nigeria*. https://www.hrw.org/world-report/2025/country-chapters/nigeria

Jaiyeola, A. O. & Choga, I. (2020). Assessment of poverty incidence in Northern Nigeria. *Journal of Poverty*, *25*(2), 155–172. https://doi.org/10.1080/10875549.2020.1783424

Jones, M. (2021). *Nigeria's #endsars protests: What happened next*. https://www.bbc.com/news/world-africa-58817690

Laker, B. (2024). *Nigeria's economic recovery under president Tinubu's leadership and reforms*. https://www.forbes.com/sites/benjaminlaker/2024/07/29/nigerias-economic-recovery-under-president-tinubus-leadership/

Maishanu, U. & Nabiha, A. K. (2024). An analysis of Nigeria's Islamic microfinance institutions, challenges, and future prospects. *Global Business and Management Research: An International Journal*, *16*(3). https://www.gbmrjournal.com/pdf/v16n3/V16N3-6.pdf

Maisule, S. A., Bamidele, J., & Sennuga, O. S. (2023). A critical review of historical analysis of social change in Nigeria from the pre-colonial to the post-colonial period. *International Journal of Arts, Humanities, and Social Science*, *4*(4), 73–83. https://doi.org/10.56734/ijahss.v4n4a8

Muhammad, J., & Rahman, H. (2024). Exploring the role of Cash Waqf crowdfunding in economic development: A qualitative study in Northern Nigeria. *Asia-Pacific Management Accounting Journal*, *19*(3). https://doi.org/10.24191/apmaj.v19i3-08

National Bureau of Statistics. (2020). *Labor force statistics: Unemployment and underemployment report (Q4 2020)*. https://www.nigerianstat.gov.ng/elibrary/read/1238

Nonyelum, E. (2024). Barriers to education development in Nigeria: An analysis. *Electronic Research Journal of Social Sciences and Humanities*, *5*(2). https://www.eresearchjournal.com/wp-content/uploads/2024/04/6.-Barriers-to-Edu-Dev-in-Nig.pdf

Nwankwo, C. F. (2019). Religion and voter choice homogeneity in the Nigerian presidential elections of the Fourth Republic. *Statistics, Politics and Policy*, *10*(1), 1–25. https://doi.org/10.1515/spp-2018-0010

Odozi, J. C., & Uwaifo Oyelere, R. (2019). Violent conflict exposure in Nigeria and economic welfare. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3445836

Odozi, J. C., & Uwaifo Oyelere, R. (2023). Evolution of inequality in Nigeria: A tale of falling inequality, rising poverty, and regional heterogeneity. *Journal of Economics, Race, and Policy*, *6*(4), 297–309. https://doi.org/10.1007/s41996-023-00129-9

Ogide, V. (2024, August 8). *The insecurity within: Are Nigerian security agencies failing on their mandates?* https://www.cddwestafrica.org/blog/the-insecurity-within-are-nigerian-security-agencies-failing-on-their-mandates/

Okoli, A.-C. & Ugwu, A. C. (2019). Of marauders and brigands: Scoping the threat of rural banditry in Nigeria's North West. *Revista Brasileira de Estudos Africanos*, *4*(8). https://doi.org/10.22456/2448-3923.93808

Oloidi, F. J. & Ilechukwu, L. (2021). *Ethnicity in Nigeria in post colonial era and implications for reader-centred library collections*. https://digitalcommons.unl.edu/libphilprac/6924/

Omenma, J. T., Onyishi, I. E., & Okolie, A. M. (2020). A decade of Boko Haram activities: The attacks, responses and challenges ahead. *Security Journal*, *33*(3), 337–356. https://doi.org/10.1057/s41284-020-00231-9

Oxfam. (2024). *Income and wealth inequality in Nigeria: Trends and drivers*. https://oi-files-cng-v2-prod.s3.eu-west-2.amazonaws.com/nigeria.oxfam.org/s3fs-public/REPORT - The Inequality Study - Oxfam Nigeria [WEB]_0.pdf?VersionId=FG3qVZKk6BWZIOrob62LpzXqIkTfSXMB

Reed, H. E. & Mberu, B. U. (2015). Ethnicity, religion, and demographic behavior in Nigeria. *International Handbooks of Population*, 419–454. https://doi.org/10.1007/978-90-481-8891-8_21

Salihu, M. & James, K. E. (2024). Northern Nigeria: History, politics, culture. *Advances in Applied Sociology*, *14*(10), 546–572. https://doi.org/10.4236/aasoci.2024.1410037

Teaching at the Right Level Africa. (n.d.). *TaRL Nigeria*. https://teachingattherightlevel.org/where-we-support/nigeria/

The Abdul Latif Jameel Poverty Action Lab. (2019, January). *Tailoring instruction to students' learning levels to increase learning*. https://www.povertyactionlab.org/policy-insight/tailoring-instruction-students-learning-levels-increase-learning

The Abdul Latif Jameel Poverty Action Lab. (n.d.). *Teaching at the right level to accelerate learning*. https://www.povertyactionlab.org/evidence-effect/teaching-at-the-right-level

U.S. Energy Information Administration. (2023). *Overview*. https://www.eia.gov/

UNICEF. (2023). *How-to guide: Teaching at the right level (TARL)*. https://www.unicef.org/nigeria/media/7771/file/UNICEF Nigeria How-to-Guide: Teaching at the Right Level (TaRL).pdf

World Bank. (2025a). *Government expenditure on education, total (% of government expenditure) - Nigeria*. https://data.worldbank.org/indicator/SE.XPD.TOTL.GB.ZS?end=2023&locations=NG&start=2023&view=bar

World Bank. (2025b). *Nigeria Overview*. World Bank. https://www.worldbank.org/en/country/nigeria/overview

Restructuring the Supply Chain: Combatting Labor Violations in Congolese Cobalt Mines

Dishita Mansukhani

In this paper, I examine the various actors and incentives at play in the Democratic Republic of the Congo's (DRC) cobalt mining industry, particularly within artisanal mining. The DRC is by far the largest producer of cobalt, but workers in the industry face involuntary conditions, threats of militia violence, and child labor. Using a behavioral economic model, I propose a two-pronged policy solution that addresses both the supply and demand sides of the Congolese labor market. On the supply side, the establishment of conditional educational subsidies can reduce the incidence of dangerous child labor by making school attendance more financially feasible. On the demand side, the governments of the DRC and its provinces must include provisions with mining and tech giants that place the liability of labor violations and unsafe conditions on the corporations themselves. Such an approach would align the incentives of actors on both sides of the labor market to prioritize protecting human rights in the industry.

Introduction

As the world begins its transition to renewable energy, electric vehicles (EVs) are being widely accepted as the next step for the automotive industry. These vehicles require lithium-ion batteries powered by cobalt; 70% of the global cobalt supply is mined in the south of the DRC (Calvão et al., 2021). Cobalt is produced as a byproduct of mining copper, which are both highly sought-after commodities for foreign corporations. In particular, the DRC maintains a close relationship with China, both due to its role as the largest importer of Congolese cobalt and as a result of Chinese foreign direct investment (FDI) in public works projects. As global demand for EVs increases, the DRC finds itself in a unique position. Despite the nation's control over the vast majority of global copper and cobalt stores, miners face treacherous working conditions, coercion, threats, and forced labor. The DRC's abundance of minerals may make it susceptible to the "resource curse," a phenomenon in which resource-rich exporters face limited economic growth and political instability as a result of unequal relationships with their foreign buyers (Nichols, 2018). This paper will examine the complex supply chains that rely on the DRC's cobalt output, the current international legislative framework, and the government's prior enforcement.

Policy Motivation

Problem Definition

The DRC's mining industry is entrenched in controversy, from low wages, long hours, and allegations of child labor. Many of these issues are concentrated in artisanal and small-scale mining (ASM) operations, where any individual can work in a mine and be paid daily based on their extraction volume (Calvão et. al., 2021). Despite the DRC's criminalization of child labor, the practice persists, particularly in artisanal mines. Further, as many as 78% of laborers experience some form of coercion – such as forcing laborers to work and gunpoint and threatening families – and these laborers are subject to conditions without ventilation and stability that exacerbate the probability of accidents (Ulimwengu, 2025). Many villages near these artisanal mines have become abandoned, as mining runoff makes the surrounding regions uninhabitable (Rainsford, 2025).

Despite the precarity of the cobalt and copper labor market in the DRC, it is entrenched at the base of the global cobalt supply chain, making policy changes difficult. Following the collapse of the DRC's nationalized mining company Gécamines, President Joseph Kabila opened the DRC up to foreign investment in 2002 (Rainsford, 2025). After Western mining companies diversified their portfolios away from cobalt and the DRC in the 2000s, this vacuum was filled by Chinese foreign direct investment (FDI) (Gulley, 2022). China is the world's biggest producer of lithium-ion batteries, accounting for 65% of all global cobalt processing and dominating the EV industry (Deberdt & DiCarlo, 2024). China has also invested in various mining-related public works endeavors in the DRC, particularly railroads and storage facilities, and Congolese presidents since the nation's founding have harbored close relations with Chinese interests. As a result of the DRC's role in the global cobalt supply chain and its agreements with multinational mining corporations, it becomes difficult for Congolese policymakers to encode labor protections into law.

Causes and Origins

Cobalt was first discovered in the Congo, then under Belgian colonial control, 1914 by the Belgian company Union Minière, which remained the world's largest cobalt producer until 1967 (Prause, 2020). Following its independence from Belgium in 1960, the DRC faced the five-year Congo Crisis, which ended when Army Chief of Staff Joseph-Désiré Mobutu seized near-absolute power via coup (Gulley, 2022). The Crisis gave rise to two factions: Mobutu was backed by the West as part of a Cold War-era containment strategy, while a secessionist communist state in the East, led by Laurent Kabila, was backed by the Chinese (Gulley, 2022). Despite Western support, Mobutu nationalized the DRC's mining sector in 1967, among other sectors of the economy (Gulley, 2022). Following the DRC's independence, the state-owned mining company Gécamines held near-monopoly control over the nation's cobalt and copper mining operations, which it retained until 2003 (Prause, 2020).

The now-nationalized Congolese mining sector faced a variety of challenges under Mobutu's governance. A major railroad used to transport exports was compromised in 1975 as a result of the Angolan Civil War (Gulley, 2022). Even after the railroad was repaired, the Soviet-backed Angolan government continued to deny the DRC access (Gulley, 2022). These developments led to a decline in world cobalt stocks from 1975 to 1977, most of which were purchased in 1978 by the Soviet Union (Gulley, 2022). This period, known as the "Cobalt Crisis," bolstered Western fears of Soviet control over global cobalt production. In 1978 and 1979, secessionist soldiers in the southern Katanga province invaded from Soviet-backed Angola (Gulley, 2022). During this period, artisanal mining flourished while industrial mining came to a standstill (Prause, 2020). Mobutu's army cracked down on the local Katangan people for allegedly supporting the rebels, causing thousands to flee to Angola and Zambia (Gulley, 2022). Many of these refugees were skilled miners, causing a decline in labor supply in the mining sector (Gulley, 2022).

By 1995, Mobutu's government was weak from corruption, economic decline, and the waning of Western support following the end of the Cold War (Gulley, 2022). Backed by Rwanda and Uganda, Laurent Kabila, former leader of the China-backed secessionist movement in the East, deposed Mobutu in 1997 (Gulley, 2022). Kabila then sought to rid the DRC of its Rwandan influence. The Second Congo War in 1998 saw many African countries, Zimbabwe in particular, fight on behalf of Kabila, while others, particularly Rwanda and Uganda, fought on behalf of Eastern rebel groups (Gulley, 2022). As a result, Kabila was heavily influenced by the Zimbabwean president and the military (Gulley, 2022). Both wars were perceived as an invasion by 'Rwandophones,' or Kinyarwanda speakers, both from Rwanda and the DRC (Verweijen, 2017). Reportedly, Kabila secured this support by granting copper-cobalt concessions to oligarchs in the Zimbabwean military (Gulley, 2022). While the combatants reached a peace accord with the West in 2003, including the privatization of the mining sector, fighting in the eastern Congo has continued regardless (Verweijen, 2017). Many private investors secured mineral concessions from Kabila during the period. Particularly, Israeli diamond trader Dan Gertler bought cheap Congolese mining assets and sold them to multinational miners (Rainsford, 2025). A Congolese anti-corruption coalition found in 2021 that Gertler's deals alone stole a total of $1.95 billion USD from the DRC (Rainsford, 2025).

As Western nations reconsidered their investments in Congolese mining due to the risk of re-nationalization, Chinese companies began expanding chemical refining of cobalt for battery cathodes to support the advancing battery industry (Gulley, 2022). In 1999, the Chinese government began the "Going Out Strategy", encouraging Chinese corporations to expand foreign direct investments (FDI), particularly for the purpose of securing minerals in Africa and Asia (Gulley, 2022). Due to this so-called symbiotic relationship and the Kabila family's personal connection to the Chinese government, China's involvement in the Congolese mining sector became intertwined. By 2006, the DRC had implemented an export ban on ores and concentrates to encourage funding of mine material processing, creating a dialogue on infrastructure funding with China (Gulley, 2022). China's state-owned banks provided between $5 billion and $6 billion USD in loans for DRC infrastructure (Gulley, 2022). In return, a Chinese government-owned infrastructure and mining consortium received many mineral concessions, containing an estimated total of 10.62 million tons of copper and 620,000 tons of cobalt (Gulley, 2022).

ASM began to overtake industrial mining as the primary source of cobalt in the early 2000s. This was due to the newfound privatization of the mining industry, a provision included by the World Bank in the peace accords for the Second Congo War in 2003 (Prause, 2020). In ASM operations, mining companies do not directly hire local laborers, but instead hire agency workers, which allows international companies to prevent unionization (Rainsford, 2025). Today, for example, the typical artisanal miner earns between $2 and $ 2.50 per day (Rainsford, 2025). Child labor is concentrated in artisanal mines, where children as young as seven face exposure to toxic dust, high risk of mine collapses, and respiratory disease (Ulimwengu, 2025). In December 2019, tech companies in the United States faced a lawsuit due to their alleged use of child labor (Calvão et. al., 2021). The United States and European Union have signed strategic partnerships to increase Western investments in mineral supply chains in the DRC and Zambia, despite Chinese companies remaining the primary investors in the region (Rainsford, 2025).

Furthermore, some argue that the labor violations in the Congolese cobalt industry do not exist in a vacuum, but are rather a symptom of extreme poverty in the nation. 72.9% of the Congolese population lives in poverty, and limited job creation in both the extractive and non-extractive sectors makes income streams even more precarious (World Bank, 2025). Artisanal mining income, including child labor income, is often necessary for survival. One study found that when cobalt prices rise, families are more likely to send their children to work in cobalt mines; when prices fall, economic distress further entrenches economic reliance on child labor (Faber et al., 2017). In its relationships with both Western and Chinese investors, the DRC lacks market leverage to implement strong labor protection policies.

Relevant Actors

Congolese Miners

The 67 artisanal mines located in the Southeast of the DRC employ 150,000 artisanal miners, with approximately 40,000 of these miners being child laborers (Rainsford, 2025). Despite the criminalization of child labor under Congolese law, economic pressures and limited enforcement push families to pursue child labor in mining as a response to poverty (Ulimwengu, 2025). Artisanal miners are exposed to toxic cobalt dust, often without protective equipment or proper ventilation, which can lead to respiratory problems, skin diseases, and long-term impairments

(Ulimwengu, 2025). People living near artisanal mines had higher levels of cobalt in urine and blood, which was particularly pronounced in children, many of whom showed evidence of exposure-related DNA damage (Banza Lubaba Nklulu et al., 2018). Further, an estimated 78% of employed cobalt miners face coercion or involuntary conditions, such as threats of violence, limitations on movement, or extortion (Bolton, 2021).

There is also growing tension between artisanal and small-scale mining (ASM) operations and large-scale mining (LSM) operations. While ASM operations employ whichever workers they receive on a given day, LSM employs a long-term formal workforce. Artisanal miners, often driven by poverty, enter LSM sites in search of economic opportunities, which, per Congolese law, is illegal (Katz-Lavigne, 2019). Many of these artisanal miners are viewed negatively, as if they are exploiting LSM operations for personal economic gain. Other economists argue that these artisanal miners have few alternative employment opportunities, and the more recent trend towards a decrease in artisanal mining following increased international awareness furthers this trend (Katz-Lavigne, 2019). The expansion of industrial mining in the Eastern Congo has drawn pushback from Congolese workers whose livelihoods depend on the artisanal sector.

Artisanal mining remains an inconsistent industry. The number of miners at a site on a given day often fluctuates. Workers may join the mine for the day so long as they show government identification and are paid daily based on how much they extract (Calvão et al., 2021). Since artisanal miners do not constitute a formal workforce, it is challenging to lodge complaints or engage in collective bargaining against employers. As a result, corporations can outsource their responsibilities to ensure the safety of their workforce onto the miners themselves, and miners have little power to defend themselves (Calvão et al., 2021). Moreover, the sector is plagued by threats of violence and coercion by non-state militias. A report by the United Nations Group of Experts on the Democratic Republic of the Congo, sampling 300 mines in the region, found that the Congolese army was present at 36% of the sites. Furthermore, an additional 16% experienced frequent monitoring by other non-state-affiliated armed groups (Bolton, 2021). In 84% of these mines, these groups would directly interfere with artisanal miners' livelihoods (Bolton, 2021). This included extortion, using threats of violence or destruction of property, and illegal taxation such as charging a fee to exit the mine (Bolton, 2021). Artisanal mining remains an unregulated, dangerous endeavor, but due to widespread poverty in the Southeast Congo, it has become a necessary evil for poverty-stricken families.

Democratic Republic of the Congo Government

The cobalt mining industry in the DRC has been mired in armed conflict and political instability, and the government's fluctuating policies towards the industry only exacerbate this instability. In 1967, the sector was nationalized under Gécamines, then liberalized in the 1980s to encourage FDI, and finally privatized the sector fully in 2002 (Balyaminu, 2025). The 2002 Mining Code was repealed in 2018, which increased royalties and export taxes (Balyaminu, 2025). However, this development failed to address various contentious issues, including the links between natural resource exploitation, conflict, and poverty (Balyaminu, 2025). Under the current system, the Ministry of Mines is responsible for regulating mining, but parliament and the judiciary also play roles in the industry (Balyaminu, 2025). The Congolese government faces a double bind in regulating artisanal mining. On one hand, artisanal mining is deeply entrenched in the Congolese economy. Reforming the sector would require intense investment and reorganization, and would deprive many impoverished miners of their only source of income. On the other hand, artisanal miners often prompt conflict around LSM operations, increasing crime and violence (Katz-Levigne, 2019).

Further, many former Congolese presidents' close relations with China may make them susceptible to increasing Chinese influence in the region. China claims that its close relationship with the DRC is a win-win scenario for all those involved, but this claim is complicated by the vastly unequal power structure between the two nations (Kabemba, 2016). Due to the DRC's colonial history as a victim of the "resource curse," the nation is ripe for exploitation by foreign powers, and the national government can do little to prevent this. Despite this, the DRC government believes that China can be a source of funding for the nation, helping its citizens out of poverty and increasing the DRC's productive capacity (Kabemba, 2016). But the relationship between the two countries is dependent on merely a few of the DRC's industries, all of which are extractive in nature. This means that China will have near-monopsonist power, with the DRC. Former DRC presidents have also worked closely with China, creating a deeply entrenched dependency on the nation. For example, Laurent Kabila, who led a group of Marxist secessionists in the East of the nation, was able to depose his predecessor, Mobutu, only with Chinese financial backing (Gulley, 2022). Whether the DRC can gain leverage in its strategic partnerships with both China and the West is a contentious topic, making it difficult to determine whether the government's inaction on labor protections stems from apathy or a lack of power. If the DRC is indeed helpless in its relations with Western and Chinese governments, then the exploitation of Congolese miners becomes inevitable. If the DRC's near-monopolist status gives it bargaining power, then it is not a matter of whether the DRC can protect its workers, but rather why it won't (Deberdt & DiCarlo, 2024).

China

China's relationship with the DRC has endured since before the nation's independence. In fact, China openly supported the DRC's war of independence in 1960, and was seen by the Congolese as an international ally for African liberation (Rapanyane, 2019). China has worked closely with multiple former presidents, including Mobutu and Laurent Kabila (Rapanyane, 2019). Between 1970 and 1990, China provided social services, healthcare, education, and other infrastructure across the DRC (Rapanyane, 2019). Chinese investment in the DRC increased during China's 1990s-era

"Go Out" international economic policy (Rapanyane, 2019). As Western investment in Congolese minerals waned in the late twentieth century, China has filled this vacuum, both through government grants and individual corporations. By 2001, China's share of the DRC's exports had increased eightfold, and the DRC's imports from China had grown markedly during that time period (Chakrabarty, 2016). Since then, the two nations' industries have become more and more intertwined. China has helped construct infrastructure throughout the DRC, from national soccer stadiums to the parliament building itself (Rapanyane, 2019). But these infrastructure initiatives are not entirely altruistic on China's part. Through these deals, China receives enhanced access to mineral stores. For example, a $6 billion infrastructure deal from 2008 permits China access to the DRC's copper and cobalt stockpile (Rapanyane, 2019). For a $3 billion investment in mining and an additional $3 billion in infrastructure, China expects a return of 427,000 barrels of cobalt and 6.8 million barrels of copper per year (Rapanyane, 2019).

The relationship between China and the DRC is best exemplified through the lens of the 2006 Sicomines deal. This was the largest deal the DRC had ever made, and it allowed China to overtake the U.S. as the DRC's largest trading partner in Africa (Rapanyane, 2019). Sicomines, a joint venture between the two nations, was formed by the DRC's nationalized mining company, Gecamines, which held a 32% stake, and various Chinese companies, which collectively held a 68% stake (Chakrabarty, 2015). This deal drew criticism from international observers due to its size, the DRC's debt, and sustainability, and was eventually renegotiated in 2009 under pressure from the International Monetary Fund (IMF) (Chakrabarty, 2015). Scholars argue that, for China, a central goal of this deal was to develop strategic credit lines in Africa, as part of the nation's attempt to become a superpower in the Global South (Rapanyane, 2019). It appears, however, the Sicomines deal has not lived up to expectations on China's part. By December 2012, only $458 million in projects had been undertaken, and no new infrastructure projects were on the horizon due to a lack of funding (Chakrabarty, 2015). Furthermore, Exim Bank, the primary provider of loans and credit to the DRC, withdrew from the deal due to a lack of funds (Chakrabarty, 2015).

Despite this, relations between Chinese and Congolese mining remain as close as ever, and many mines in the DRC are owned directly by Chinese companies. Chinese firms continue to finance FDI in the DRC, a remnant of earlier "Go Out" policies (Gulley, 2022). However, after the breakdown of Sicomines, Chinese actors became more cautious due to the risks of operating in the Congo, including the volatility of cobalt and copper prices (Malm, 2020). While China's presence in the region loomed large, it no longer consisted of large-scale infrastructure financing offers. Instead, two Chinese corporations, China Molybdenum Co. Ltd and Tenke Fungurume, acquired the largest Congolese copper productions, previously owned by the US and Canada in 2016 and 2015, respectively (Malm, 2020). The primary consequence of this is that the DRC is no longer able to exercise 'China-powered agency.' This was exacerbated when President Kabila was defeated in the 2018 election by Tshisekedi, prompting China to uphold its non-interference policy (Malm, 2020). Given President Tshisekedi's limited relationship with China during his presidency, it is unlikely that the DRC will be able to exercise 'China-powered agency' in the near future.

International NGOs

International NGOs play a significant role in pressuring EV producers to prioritize conflict-free and fair-trade sourcing of minerals (Elbel et al., 2023). The 2011 Organization for Economic Cooperation and Development (OECD) Guidelines act as a blueprint for extractive industry practices, calling for a formalization of corporate responsibility in the artisanal mining sector (Calvão et al., 2021). This process involves incorporating artisanal miners from an informal sector into a formal source of labor. Formalization efforts aim to hold corporations accountable for labor violations and violence that occurs in artisanal mines under their control (Calvão et al., 2021). These programs aim to protect miners from violence, improve working conditions, and formalize wage labor in the industry (Calvão et al., 2021). Many international powers, such as NGOs and Western governments, embrace the formalization of artisanal mining. The World Bank has actively promoted engagement with the artisanal mining sector, arguing that "governance is cheaper than defense" (Calvão et al., 2021). Many Western powers, including NGOs, see ASM as a necessary evil that must be reformed to decrease its potential for harm, but which cannot be eradicated.

NGOs in the global north have been advocating for regulations to guarantee miners' rights and limit environmental impact (Prause, 2020). Amnesty International and Global Witness have spoken out against an energy transition built on human rights violations in the DRC (Prause, 2020). Additionally, a lawsuit was filed in the U.S. against tech companies for their use of child labor in cobalt mines (Calvão et al., 2021). These efforts have been successful in raising awareness of the state of the DRC's mining sector, but enforcement of the reforms called for is more difficult. Elbel et al. weigh the merits of a Due Diligence Act based on the principles of OECD Due Diligence Guidance and enforced by the EU. Such a policy would incorporate the five steps of the OECD framework: identification, mitigation, tracking, reporting, and remediation (Elbel et al., 2023). An EU Act of this nature would heighten global attention on human rights violations and provide a framework for proactive corporate handling of such violations (Elbel et al., 2023). However, the evidence fails to prove that such an act would reduce human rights abuses in the sector beyond simply increasing awareness of the practice (Elbel et al., 2023). Further, this law would apply only to EU nations, and the majority of the artisanal mines in the DRC are owned by China. Thus, it is difficult for international NGOs, including the UN, to substantially reduce human rights abuses without the cooperation of Chinese multinationals.

Methodology

In this proposal, I use a meta-analysis of firsthand accounts and prior research studies to evaluate the impacts of potential policy solutions on the cobalt and copper mining landscape in the DRC. For documentation of human rights abuses and labor violations in Congolese mines, I drew on peer-reviewed research studies, firsthand accounts from miners and government officials, and reports from international human rights organizations. I also relied on past economic models analyzing the effectiveness of cash transfers and social safety nets on alleviating poverty in the Congo, as well as the impact of these social programs on the incidence of artisanal mining labor, in particular child labor.

To evaluate the effectiveness of several potential policies to resolve the issue, I aim to address a few variables indicative of the standard of living and economic stability. This includes the overall well-being of miners in the sector, assessed by examining wages, wage volatility, and working conditions. These metrics aim to capture the sector's standard of living and volatility. Furthermore, I plan to measure the incidence of child labor as a proxy for poverty, as it is often only the poorest households who must resort to this practice (Ulimwengu, 2025). Families in poverty face a trade-off between the short-term economic benefits of supplemental mining income and the long-term effects of education, and often it is these short-term needs that take precedence (Ulimwengu, 2025). In evaluating various policy solutions, I aim to find the policy that improves miners' standard of living, reduces labor violations and human rights abuses, and minimizes child labor in the sector.

Policy Recommendation

Policy Statement

While it is impossible for any one policy to dismantle the unequal power relations at the heart of the cobalt and copper supply chains, a combination of supply-side and demand-side policy solutions can better enshrine labor protections for artisanal miners. On the demand side in the market for mining labor, corporations sourcing cobalt from the DRC must take legal accountability for violations that may occur in ASM operations that they benefit from. This means that these corporations will have an incentive to crack down on practices of coercion, forced labor, and child endangerment occurring in mining operations that they utilize. On the labor supply side, the goal should be to minimize poverty among the workforce. As such, families will be less dependent on mining income from children. These former child laborers will then be able to pursue education, which can increase lifetime earnings (Ulimwengu, 2025). Such a two-pronged approach should address the incentives of actors on both sides of the labor market.

First, legal protections for artisanal miners must be enshrined, and corporations must be held directly liable for offenses that may occur in ASM operations that are a part of their supply chain. Such protections may fine corporations for labor violations, including forced labor, intimidation by militias, and employment of children, that occur on mines from which they source. This policy falls under the umbrella of formalization policy, which refers to the integration of artisanal miners into the formal economy, enshrining labor rights, creating accountability mechanisms for labor violations, and creating legal protections for miners (Calvão et. al., 2021). The formalization policy has already been enacted in the DRC, but it must be expanded to place worker rights at the center. In its current state, corporations often use formalization policy as a method to symbolically acknowledge the idea of corporate responsibility without any real action. Thus, new legal protections must be spearheaded by a combination of labor organizations, coalitions of artisanal miners, and the DRC government, rather than unchecked corporations. The focus should be on creating mechanisms for legal action against labor violations such that the corporations themselves must take accountability for the violations that may occur in their supply chains.

On the supply side, child labor can be mitigated by improving families' alternatives to mining work. While child labor is illegal under Congolese law, enforcement remains weak and economic incentives push children into mining labor regardless of legality (Ulimwengu, 2025). By reducing the financial burden on Congolese families in poverty, policies may increase the opportunity cost of sending children into mining labor. To do so, social safety net programs must be expanded. To encourage enrollment into schools as an alternative for child labor, school fees should be reduced, access to educational materials expanded, and educational subsidies for the poorest families. While improved educational outcomes will improve lifetime earnings, short-term incentives must also be put into place. In Peruvian mining communities, conditional cash transfers (CCTs) for school enrollment and attendance have proven effective in increasing school attendance and reducing child labor (Ulimwengu, 2025). The DRC could also benefit from such educational subsidies, which increase the short and long-term opportunity costs of child labor for families and may lead to reduced child labor force participation as a result.

Policy Analysis

Strengths

Conditional subsidies for educational enrollment have been proven effective not just in reducing child labor and poverty, but also in improving short- and long-term outcomes for children who would have otherwise entered the labor market at a young age. Currently, only 47% of primary school-aged children are enrolled in school, while only 18% of secondary school-aged children are enrolled (Kodila-Tedika, 2022). Studying the impact of educational subsidies on child labor in rural China in 1986, Tang, L. Zhao, and Z. Zhao (2022) found a statistically significant impact of free public education on child labor force participation. A similar study in rural Nepal found that, while an unconditional scholarship was effective in ensuring school attendance at the beginning of the academic year, an additional stipend for regular attendance led to a 10% increase in the probability that a student would remain in school to take the final exam (Edmonds & Shrestha, 2014). Further, the conditional stipend reduced the probability of a child engaging in dangerous weaving labor by 48% (Edmonds & Shrestha, 2014). The impact of these policies across gender depends on the most common industries that children in the area may participate in; therefore, it is likely that, if implemented in the DRC, these conditional subsidies would impact boys at a higher magnitude (Edmonds & Shrestha, 2014).

On the supply side, it is necessary for corporations to "internalize" the environmental and labor externalities created by ASM. Such externalities, due to the complicated bureaucracy of accountability and blame, often go unpunished. Calvão et al. refer to this phenomenon as a "corporate outsourcing of responsibility." Due to the informal nature of ASM labor, it becomes difficult to hold any parties responsible for wageless labor practices or human rights violations. Formalization, as spearheaded by the United Nations and corporations themselves, is a necessary first step to ensuring that miners may be treated as members of the workforce. However, these efforts must be expanded by placing legal liability directly onto corporations. In December 2019, International Rights Advocates filed a lawsuit against Google, Apple, Tesla, Microsoft, and Dell on behalf of 14 Congolese children, alleging that the companies were complicit in the deaths and injuries of several child miners (Mosebo, 2019). The U.S. Court of Appeals eventually ruled in favor of the companies, with Circuit Judge Noemi Rao commenting that the companies themselves had only a limited buyer-seller relationship with the laborers (Mosebo, 2019). Due to the intricate web of parties, such as labor brokers, the DRC government, and cobalt consumers, it was impossible to assign full blame for human rights violations to any one actor (Mosebo, 2019). Creating clear provisions to assign liability will provide a legal precedent as to who must be prosecuted, which makes the litigation process easier for plaintiffs. Thus, as part of the formalization process, liability should be placed fully on the companies that contract with such mines.

Due to the unequal distribution of power between the DRC and the corporations with which it has contracts, it may be difficult to qualify a corporation's participation in ASM on its acceptance of full legal liability. However, as the producer of 69% of the world's cobalt, the DRC has some leverage in these negotiations (Gulley, 2022). As a result of financial disputes, the Congolese government suspended exports from the largest Chinese-owned cobalt mine in the nation; it temporarily halted 10% of global cobalt production (Deberdt & DiCarlo, 2024). The government has also used its leverage previously in adjusting contracts with foreign agents, such as tripling export taxes in 2018 (Deberdt & DiCarlo, 2024). Therefore, it is possible for the DRC to use its near-monopolistic control over the cobalt supply chain to draft contracts in which labor violations can be assigned responsibility and duly prosecuted.

Weaknesses

To establish robust educational subsidies and other welfare programs, the DRC must collect enough tax revenue and engage in responsible government funding. But due to the decentralized nature of the DRC's federal system, this becomes difficult. The 2006 Constitution, which is currently in place, called upon many of the functions formerly of the central government to be handled by provincial governments (Marivoet, 2012). Proponents argue that greater provincial autonomy would be more effective for the nation, considering its many ethnic and linguistic cleavages. However, this tends to exacerbate inequalities, primarily as mining operations are concentrated only in the Southeast of the nation (Calvão et al., 2021). This may also make the distribution of social welfare and educational subsidies more difficult. Further, many of the DRC's physical infrastructure projects are funded by foreign donors, often Chinese firms who would stand to benefit from improved transportation of ore and equipment (Rapanyane, 2019). Securing foreign investment for welfare infrastructure would be more difficult, as improving the standard of living for Congolese children would not directly benefit these mining companies the way these physical infrastructure projects may.

Prior formalization attempts in the ASM sectors, both in the DRC and elsewhere, have yielded mixed results. Weak enforcement by central governments can render formalization policies ineffective. Corporations often use formalization to acknowledge the idea of corporate accountability, but weak enforcement may limit true action. Many of these lackluster formalization attempts are spearheaded by the corporations themselves in an attempt to avoid public scrutiny, with few representatives on behalf of miners and provincial Congolese governments (Calvão et al., 2021). Even in formalized ASM operations, artisanal miners lack financial security, and many are restricted by the lack of available alternative employment (Calvão et al., 2021). Further, formalization does not address the wage volatility in the mining sector, as many miners' wages are directly dependent on fluctuations in global commodity prices (Calvão et al., 2021).

In addition, corruption and enforcement may act as obstacles to both expanded corporate responsibility and social welfare programs. At both the national and provincial levels, the DRC is plagued by corruption of public officials. Transparency International's 2024 Corruption Perceptions Index gave the DRC a score of 20 out of 100, ranking the nation 163rd out of 180 countries ("Corruption Perceptions Index", 2024). Corruption particularly plagues the public works sector, with many government officials engaging in bribery, collusion, and political patronage (Nguh, 2013). During Joseph Kabila's presidency, he replaced the heads of 37 state-led enterprises with individuals close to him (Nguh, 2013). International business tycoons with ties to the President often win mining contracts in secret and are subject to more lenient regulations (Nguh, 2013). This means that in order for the two-pronged policy to be effective, corruption within the DRC must be addressed first, and the welfare of

Congolese citizens must be held at higher legislative priority than relations with international mining tycoons.

Policy Alternatives

Comprehensive Child Labor Ban

Increased enforcement of a comprehensive ban on child labor may be effective in reducing the practice, but it comes with additional risks. Child labor is legally prohibited in the DRC, and laborers under 18 are not allowed to work in artisanal mines (Ulimwengu, 2025). Law No. 16/010, passed in July 2016, prohibits all wage labor for individuals under 15, prohibits forced or coerced labor, and creates a commission to investigate allegations of labor violations ("Child Labor Legislation in the Democratic Republic of the Congo," 2023). Despite this, the practice persists due to weak enforcement, corruption, and non-state militia groups. As a result, greater enforcement of legal bans on child labor may act as an alternative to the aforementioned policy. Increased state monitoring of artisanal mining would be required for greater enforcement of a child labor ban. However, due to recent presidential administrations' close ties with mining companies, especially those of Chinese origin, government officials have an incentive to turn a blind eye to labor violations occurring in artisanal mines. Increased enforcement of current laws would require a reorganization of the priorities and incentives of the DRC government. Close ties with mining corporations are required for economic stability – considering that the mining sector makes up half of the DRC's GDP – so relations are delicate (World Bank, 2025). Therefore, it is unlikely that such bans would be enforced strictly by the Congolese government, as doing so may jeopardize mining and infrastructure FDI from mining companies and their allies.

Unfortunately, even if enforcement obstacles were removed, it is unlikely that a ban on child labor alone would improve the welfare of these impoverished households, and may even make labor more dangerous for child workers. A study on child labor bans in Bangladesh's garment sector found that children were likely to move into other industries, many of which are hazardous and even less regulated, if not provided with additional economic support (Edmonds & Shrestha, 2012). This means that a ban on child labor, if not coupled with poverty alleviation methods, may do more harm than good. In mining regions, enforcement of bans can drive child workers further underground, making work more dangerous and difficult to monitor (Faber et al., 2017). Such a ban must also be coupled with alternatives for children's time, such as raising the legal minimum education requirements or increasing economic incentives for school attendance. Without alternative sources of income, removing children's income streams from impoverished households can exacerbate poverty (Ulimwengu, 2025). So if child labor bans are to result in a true change in behavior among impoverished households, they must be coupled with robust poverty alleviation methods. Without addressing the root issue of extreme poverty that drives much of the labor supply in the artisanal mining industry, it is impossible to eradicate child labor in the sector.

'Conflict Minerals' Regulation

Conflict minerals policies involve a variety of international, national, and local-level guidelines that aim to separate the procurement of rare earth minerals from violence, both state-sanctioned and gang-related. While cobalt and copper are not legally considered a conflict mineral (legal definitions commonly include tin, tantalum, tungsten, and gold), conflict mineral regulation and enforcement can provide lessons for policy enforcement in the cobalt and copper supply chains. In the Congo, a complex framework of international, local, and private-sector policies exist to mitigate violence at conflict mining sites. At the international level, the OECD Due Diligence Guidance and the Dodd-Frank Act – which applies to U.S. mineral companies – aim to shed light on mineral supply chains and hold companies accountable for their participation in conflict mineral supply chains (Diemel & Cuvelier, 2015). At the national level, the DRC's "Certification and Traceability" framework establishes tagging systems and chain of custody forms for minerals obtained from politically unstable regions (Diemel & Cuvelier, 2015). Further, the southern province of Katanga has its own set of local regulations, including the establishment of local monitoring communities and local-level formalization attempts (Diemel & Cuvelier, 2015). Similar sourcing guidelines may be used for cobalt and copper supply chains in the future.

Enforcement of the conflict mineral sourcing policy once again poses an obstacle. Diemel and Cuvelier (2015) conducted a qualitative survey of the effectiveness of existing policies in 2008-2010, finding that limited local-level enforcement greatly dampened the intended impact of these sourcing guidelines. For example, the OECD Due Diligence Guidance (2019) is often cited in conflict minerals policy due to its frameworks for responsible minerals sourcing. However, due to its voluntary nature and inconsistent adoption, much of the suggested framework is not legally binding to mining companies and the nations in which they operate (Ulimwengu, 2025). In the U.S., the Dodd-Frank Act requires disclosure of conflict mineral use to the Securities and Exchange Commission, but this has done little to reduce geopolitical tensions surrounding conflict mineral use (Diemel & Cuvelier, 2015). Even after Due Diligence policies were implemented, the Armed Conflict Location and Event Data Project (ACLED) database reports that violence has, in fact, increased in the wake of the policies (Hanai, 2021). As for the more localized policies, weak oversight by local officials significantly weakened the "Certification and Traceability" framework and the Katanga policy framework. Thus, such policies are likely to be plagued with similar enforcement struggles if applied to the cobalt and copper mining sectors.

Historically, the DRC has also taken more extreme measures – namely, halting all conflict-mining production – but these have unintended consequences for the sector. In 2010, the Congolese government halted mining operations in three affected provinces in an attempt to reduce the control of armed groups in the region, including mining and mineral sourcing (Diemel & Cuvelier, 2015). Then-President Joseph Kabila claimed that the six-month closure would allow the state to re-establish control over mining sites currently operated by extra-state armed groups and rogue army officers (Diemel & Cuvelier, 2015). However, this only pushed conflict mineral networks further underground, often re-routing mineral smuggling routes through neighboring countries (Diemel & Cuvelier, 2015). Such smuggling continues to plague the nation. A 2020 UN report found that smuggled gold from the South Kivu province went to Burundi, Rwanda, the United Arab Emirates, and Tanzania (Hanai, 2021). The pause also reduced provincial and national tax revenues, increased smuggling, and exacerbated poverty in conflict-mining communities (Diemel & Cuvelier, 2015). Yet, an embargo on conflict mining operations has not been pursued due to concerns of the livelihoods of mining communities (Hanai, 2021). So, while sourcing guidelines are not effective enough, pausing mining operations has proven too effective, exacerbating smuggling and poverty. Because of such issues associated with conflict minerals policy, at local and international levels, it is unlikely that the expansion of such policies to the cobalt and copper supply chains will alleviate the labor issues of the sector.

Policy Recommendation

A two-pronged approach to the labor market remains the most comprehensive solution to the labor violations in the cobalt and copper mining practices. Such an approach addresses the incentives of actors on both the supply side and demand side. Dangerous mining work, especially among impoverished children, is discouraged by providing reliable alternatives, namely educational opportunities. Improving access to education increases the opportunity cost of child labor, and conditional subsidies greatly improve households' returns to education. In the long term, secondary education can also improve lifetime earnings, further alleviating poverty. But this is only the case if short-term poverty is mitigated. On the demand side, the DRC can use its market power to enforce contracts that place liability for child labor and other violations on the companies that benefit from ASM. Prior corporate-led formalization attempts often stop at the acknowledgment of human rights violations and a verbal commitment to mitigate these violations (Calvão et al., 2021). While the establishment of liability falls under the umbrella of formalization policy, it differs in that it creates a framework for laborers to pursue legal action if their rights are violated.

Unlike a child labor ban, the expansion of educational subsidies provides viable alternatives for child laborers to use their time. Without the establishment of such alternatives, many impoverished families may be forced to send their children to work in different industries, as short-term income remains necessary regardless. Mining may also become more dangerous, as mining operations go further underground to avoid government regulation. Educational subsidies may, at least in part, account for the foregone income to impoverished households following a child labor ban. The conditional nature of these subsidies would also incentivize school attendance. This not only keeps impoverished children out of mines, but also improves long-term financial outcomes, increasing the likelihood of upward mobility.

The establishment of legal liability for corporations has less of a historical precedent than the expansion of conflict mineral policy to include cobalt. However, if conflict mineral regulations have proven ineffective in their intended sector, it is unlikely that they will do otherwise when applied to cobalt and copper mining. Additionally, the DRC has much more leverage in the cobalt trade than it does with conflict minerals as the DRC produces 70% of the world's cobalt and 12% of the world's copper (Calvão et. al., 2021). As EV production increases globally, the DRC's exclusive access to cobalt could enhance its economic power. By contrast, the DRC produces only about 2% of the world's tin, tungsten, and gold – the materials targeted by conflict mineral legislation (Shedd, 2024). It is more feasible for the DRC to establish stringent labor guidelines in the global cobalt trade because it has the economic power to do so. Because mining companies lack alternative cobalt mining sources, it is more likely that such contracts will be accepted. This means that many of the limitations faced in the tungsten, tin, and gold trades are not applicable to cobalt and copper, and the DRC's unique position in the supply chain provides it with market power.

This does not mean that the aforementioned two-pronged approach is without flaws. Implementation concerns, primarily with regard to the corruption of government officials, may make the enactment of such a policy more difficult. However, corruption and enforcement issues are inevitable given the structure and history of the DRC, and these issues have plagued each of the aforementioned policy alternatives as well. Policymakers must treat governmental corruption as a given when considering any and all policy options. Additionally, the limited effectiveness of former formalization attempts says little about the potential impact of placing liability on corporations. While prior formalization attempts have failed, this policy is unique in that it places labor at the center, as opposed to corporate interest. The establishment of legal liability will also be spearheaded by local activists, organized labor groups, and state actors, as opposed to foreign mining conglomerates. Nevertheless, the two-pronged approach remains the most comprehensive yet realistic solution, as it adjusts the economic incentives of actors on both sides of the labor market.

Conclusion

The DRC must protect its workforce from exploitation both by building liability provisions into contracts with foreign corporations and by providing alternatives to child labor for the nation's poorest. In order to achieve these ends, the DRC must rid its government of corruption, including both bad actors and systemic issues. The government's historically close relationship with China, which funds mining-related infrastructure projects through

FDI, may complicate matters when the interests of the labor force and those of Chinese corporations diverge. While prior scholarship may look to corporate governance to mitigate the labor conditions at the heart of the mining economy, corporate reform alone is not adequate to address all sides of the issue. Such policies should be supplemented with public sector reform that protects Congolese workers from exploitation. It is the responsibility of the Congolese government to protect its citizens from exploitation, both by enacting legal protections and by enforcing existing regulations, such as the nationwide ban on child labor. These findings support prior arguments that the DRC can and should take advantage of its leverage as the largest cobalt producer to ensure that the miners in the nation are protected prior to pursuing international partnerships. Despite the historically unequal nature of global commodity supply chains, it is possible for governments to prioritize the fundamental rights of their citizens and mitigate systemic poverty without sacrificing economic viability.

References

Banza Lubaba Nkulu, C., Casas, L., Haufroid, V., De Putter, T., Saenen, N.D., Kayembe-Kitenge, T., Musa Obadia, P., Kyanika Wa Mukoma, D., Ilunga, J.L, Nawrot, T.S., Numbi, O.L., Smolders, E., & Nemery, B. (2018).Sustainability of artisanal mining of cobalt in DR Congo. *Nature Sustainability*, *1*, 495–504. https://doi.org/10.1038/s41893-018-0139-4

Balyaminu, J. A. (2025). The state of cobalt mining laws: Implications for the future of Democratic Republic of Congo (DRC) and Zambia cobalt mining prospects. *Resources Policy*, *108*, 105688. https://doi.org/10.1016/j.resourpol.2025.105688

Bolton, L. (2021). Armed groups and mining. *The Institute of Development Studies*. https://doi.org/10.19088/K4D.2021.137

Calvão, F., Mcdonald, C. E., & Bolay, M. (2021). Cobalt mining and the corporate outsourcing of responsibility in the Democratic Republic of Congo. *The Extractive Industries and Society*, *8*(4), 100884. https://doi.org/10.1016/j.exis.2021.02.004

International Cocoa Initiative (2023, July). *Child labour legislation in the Democratic Republic of Congo.* https://www.cocoainitiative.org/sites/default/files/resources/Child%20labour%20legislation%20in%20DRC_analysis_EN.pdf

Transparency International. (2024). *Corruption perceptions index 2024*. https://www.transparency.org/en/cpi/2024

Chakrabarty, M. (2016). Growth of Chinese trade and investment flows in DR Congo – blessing or curse? *Review of African Political Economy*, *43*(147), 116-131. https://doi.org/10.1080/03056244.2015.1048794

Deberdt, R. & DiCarlo, J. (2024, September 4). *DRC is the world's largest producer of cobalt - how control by local elites can shape the global battery industry [analysis]*. AllAfrica.com. https://www.proquest.com/wire-feeds/drc-is-worlds-largest-producer-cobalt-how-control/docview/3100671047/se-2

Diemel, J.A. & Cuvelier, J. (2015). Explaining the uneven distribution of conflict-mineral policy implementation in the Democratic Republic of the Congo: The role of the Katanga policy network (2009–2011). *Resources Policy*, *46*(2), 151-160. https://doi.org/10.1016/j.resourpol.2015.09.006

Edmonds, E. V., & Shrestha, M. (2014). You get what you pay for: Schooling incentives and child labor. *Journal of Development Economics*, *111*, 196–211. https://doi.org/10.1016/j.jdeveco.2014.09.005

Elbel, J., O'Reilly, S. B., & Hrzic, R. (2023). A European Union corporate due diligence act for whom? Considerations about the impact of a European Union due diligence act on artisanal and small-scale cobalt miners in the Democratic Republic of Congo. *Resources Policy*, *81*, 103241. https://doi.org/10.1016/j.resourpol.2022.103241

Faber, B., Krause, B., & Sánchez de la Sierra, R. (2017). Artisanal mining, livelihoods, and child labor in the cobalt supply chain of the Democratic Republic of Congo. *UC Berkeley Center for Effective Global Action*. https://escholarship.org/uc/item/17m9g4wm

Gulley, A. L. (2022). One hundred years of cobalt production in the Democratic Republic of the Congo. *Resources Policy*, *79*. https://doi.org/10.1016/j.resourpol.2022.103007

Hanai, K. (2021). Conflict minerals regulation and mechanism changes in the DR Congo. *Resources Policy*, *74*. https://doi.org/10.1016/j.resourpol.2021.102394

Kabemba, C. (2016). China-Democratic Republic of Congo relations: From a beneficial to a developmental cooperation. *African Studies Quarterly*, *16*(3–4).

Katz-Lavigne, S. (2019). Artisanal copper mining and conflict at the intersection of property rights and corporate strategies in the Democratic Republic of Congo. *The Extractive Industries and Society*, *6*(2), 399–406. https://doi.org/10.1016/j.exis.2018.12.001

Kodila-Tedika, O. & Otchia, C. S. (2022). The effects of free primary education in the Democratic Republic of Congo: A difference-in-differences approach. *Review of Development Economics*, *26*(4), 2109–2120. https://doi.org/10.1111/rode.12922

Malm, J. (2020). 'China-powered' African agency and its limits: The case of the DRC 2007–2019. *South African Institute of International Affairs*.

Marivoet, W. (2009). *Decentralizing the challenges of poverty reduction in the DRC*. L'Afrique des Grands Lacs. https://medialibrary.uantwerpen.be/oldcontent/container2143/files/Publications/Annuaire/2008-2009/14-Marivoet.pdf

Mosebo, T. (2024, May 28). *Major tech companies accused of child labour in Congolese cobalt mines*. Geneva International Centre for Justice. https://www.gicj.org/topics/thematic-issues/business-human-rights/3710-major-tech-companies-accused-of-child-labour-in-congolese-cobalt-mines

Nguh, A. (2013). *Corruption and infrastructure megaprojects in the DR congo*. International Rivers Resource Hub. https://riverresourcehub.org/resources/corruption-and-infrastructure-megaprojects-in-the-dr-congo-8192/

Nichols, E. (2018). The resource curse: A look into the implications of an abundance of natural resources in the Democratic Republic of Congo. *Scholarly Horizons: University of Minnesota, Morris Undergraduate Journal, 5*(2). https://doi.org/10.61366/2576-2176.1062

Organisation for Economic Co-operation and Development. (2019). *OECD due diligence guidance for responsible business conduct.* https://www.oecd.org/en/publications/2018/02/oecd-due-diligence-guidance-for-responsible-business-conduct_c669bd57.html

Prause, L. (2020). Conflicts related to resources: The case of cobalt mining in the Democratic Republic of Congo. *The Material Basis of Energy Transitions*. 153–167. https://doi.org/10.1016/b978-0-12-819534-5.00010-6

Rainsford, C. (2025, May-June). *Congo's cobalt curse: Corruption, pollution and child labour have long blighted the DRC's cobalt industry. But is there any way of turning the country's critical mineral wealth into a blessing rather than a burden? Cat Rainsford investigates. New Internationalist*, (555), 32. https://link.gale.com/apps/doc/A837359420/CSIC?u=umuser&sid=summon&xid=6a87fdff

Rapanyane, M. B., & Shai, K. B. (2019). China's multinational corporations in the Democratic Republic of Congo's mining industry: An Afrocentric critique. *Journal of Public Affairs*, *20*(2). https://doi.org/10.1002/pa.2046

Salo, M., Hiedanpää, J., Karlsson, T., Cárcamo Ávila, L., Kotilainen, J., Jounela, P., & Rumrrill García, R. (2016). Local perspectives on the formalization of artisanal and small-scale mining in the Madre de Dios Gold Fields, Peru. *The Extractive Industries and Society*, *3*(4), 1058–1066. https://doi.org/10.1016/j.exis.2016.10.001

Shedd, K. B. (2024, December). *2020 Minerals Yearbook U.S. Department of the Interior U.S. Geological Survey*. U.S. Geological Survey. https://pubs.usgs.gov/myb/vol1/2020/myb1-2020-tungsten.pdf

Tang, C., Zhao, L., & Zhao, Z. (2019). Does free education help combat child labor? The effect of a free compulsory education reform in rural China. *Journal of Population Economics*, *33*, 601–631.

Ulimwengu, J. M. & Sanginga, B. (2025). The complex economics of a complete ban on child labor in the cobalt supply chain: The case of the DR congo. *The Extractive Industries and Society*, *23*. https://doi.org/10.1016/j.exis.2025.101687

Verweijen, J. (2017). Luddites in the Congo? *Analysis of Urban Change, Theory, Action*, *21*(3–4), 466–482. https://doi.org/10.1080/13604813.2017.1331567

World Bank Group. (2025, October 1). *The World Bank in DRC*. https://www.worldbank.org/en/country/drc/overview