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As the United States' national defense strategy shifts from counterterrorism to "great power competition," the requirement to counter threats and operate in the gray zone will become more significant. Strategic sabotage is a historical tactic that remains prevalent and utilized by nations conducting gray zone operations, to include the United States. The research conducted examined historical and modern case studies to evaluate and compare the strategic effectiveness of sabotage and its utility in support of United States strategic objectives.

15. SUBJECT TERMS

Strategic Sabotage; Maximum Pressure Campaign; Gray Zone Conflict; Strategic Effects; Coercion

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TITLE:

Assessing the Effectiveness of Strategic Sabotage
in Supporting United States National Security Objectives

**SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES**

AUTHOR:

MAJOR GAVIN K. REED

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MMS Mentor Team and Oral Defense Committee Member:

Dr. Rich Hagman

Approved: _____

Date: 19 APR 21

MMS Mentor Team and Oral Defense Committee Member:

LTC Jeremy Glauber

Approved: _____

Date: 29 Apr 21

Executive Summary

Title: The Effectiveness of Strategic Sabotage in Supporting United States National Security Objectives

Author: Major Gavin Reed, United States Marine Corps

Thesis: Strategic sabotage is an effective tactic in coercing an adversary and achieving short term results but, on its own, cannot achieve long term or overall strategic success. However, when used in conjunction with the broader diplomatic, economic, information, and military instruments of national power, sabotage can help influence and achieve desired strategic endstates against competitors and adversaries.

Discussion: As the United States' national defense strategy shifts from counterterrorism to "great power competition," the requirement to counter threats and operate in the gray zone will become more significant. State and non-state actors operating in the gray zone use a variety of strategies and tactics against their competitors, one such tactic is strategic sabotage. Strategic sabotage is a historical tactic that remains prevalent and utilized by nations conducting gray zone operations, to include the United States. Assessing the desired effect of sabotage and its strategic value within the instruments of national power is key to determining if strategic sabotage is in fact effective in coercing adversaries or competitors to achieve strategic objectives during war and times of peace or within the gray zone. This study analyzes historical sabotage operations to determine the role and overall value of sabotage in achieving strategic objectives during interwar and wartime periods, and supplements the lessons learned from those historical events with current case studies on sabotage as a component of peacetime coercion. The research conducted examined historical United States sabotage operations during the Civil War and World War II, as well as German and Japanese pre-World War I and II sabotage operations against the United States to evaluate and compare their strategic effectiveness with the modern case studies of United States' gray zone conflicts with Iran and North Korea.

Conclusion: The research and analysis of the historical and current case studies of strategic sabotage operations, during both wartime and peacetime, has led to the conclusion that its utility is limited in achieving long-term or decisive strategic effects. When augmented with diplomatic, information, economic, and military instruments of national power, strategic sabotage yields more effective results at the strategic level. Sabotage operations influence at the strategic level is largely achieved at the tactical level.

DISCLAIMER

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Preface

The concept for this research project was provided by the Joint Special Operations University' Special Operations research topics for academic year 2021. As the character of war changes yet again toward great power competition and gray zone operations, I felt this topic provided a unique opportunity to explore historical concepts of sabotage and compare it with today's drastically different conflicts that are heavily influence by modern technology. I also saw this as an opportunity to examine sabotage outside its tactical value, which is where my impressions of sabotage typically resort to, and focus on its strategic effectiveness, specifically as a coercion tactic implemented in support of foreign policy objectives.

<u>Introduction</u>

The 2018 National Defense Strategy codified the United States' primary focus shift from two decades of counterterrorism to the re-emergence of long-term, strategic competition between revisionist powers, such as Russia and China, and rogue nations, such as Iran and North Korea, that seek to destabilize regions and enhance their global standing.[1] A challenging component of these adversaries is operation within the gray zone to achieve their national objectives while avoiding escalation to direct conflict. The United States, although constrained by its own legal and societal norms, is also operating in the gray zone to counter threats or maintain its status within the "great power competition."

Strategic sabotage is a historical tactic that remains prevalent and utilized by nations conducting gray zone operations, including the United States. Assessing the desired effect of sabotage and its strategic value within the instruments of national power is key to determining if strategic sabotage is, in fact, effective in coercing adversaries or competitors to achieve strategic objectives during war and times of peace or within the gray zone. Strategic sabotage is an effective tactic in coercing an adversary and achieving short-term results but, on its own, cannot achieve long-term or overall strategic success. However, when used in conjunction with the broader diplomatic, economic, information, and military instruments of national power, sabotage can help influence and achieve desired strategic endstates against competitors and adversaries.

This study uses a historical case study methodology to analyze sabotage operations to determine the role and overall value of sabotage in achieving strategic objectives during interwar and wartime periods, and supplements the lessons learned from those historical events with current case studies of sabotage as a component of peacetime coercion. The research conducted seeks to analyze historical United States sabotage operations during the Civil War and World

War II, as well as German and Japanese pre-World War I and II sabotage operations against the United States to define, evaluate, and compare measures of effectiveness with the modern case studies of United States' gray zone conflicts with Iran and North Korea.

This case study approach recognizes the limitations of comparing wartime and peacetime sabotage; however, some comparisons and lessons can be learned from an actor's implementation of sabotage to disrupt or degrade an adversary's center of gravity during both conflict and gray zone competition. The paper analyzes wartime and peacetime sabotage to assess its ability to achieve strategic goals as a singular method and its utility in supporting instruments of national power. In the conduct of this research, sabotage was defined as a deliberate action aimed at weakening an adversary polity through subversion, obstruction, disruption, or surgical destruction while remaining unattributed or unacknowledged sponsorship.[2] In reference to current affairs, the effects of sabotage serve two ends: first; to degrade, disrupt, or end a specific adversary capability (missile proliferation and testing); second, more broadly and subtle, to signal an adversary that its actions (such as weapons of mass destruction [WMD] production), are not acceptable and will not go unchallenged. This definition is applied to both the historical and current case studies to provide a consistent baseline in determining acts of sabotage.

Historical Sabotage Case Studies

The US use of sabotage during the Civil War is instructive because it is considered to be the first industrial war, as both the Union and Confederate armies relied heavily on industrial means to communicate, supply, and mobilize their forces.[3] Industrial infrastructure became a prime target of sabotage due to its direct correlation to the adversary's ability to wage war both militarily and economically. Both the Union and Confederate forces covertly targeted railroads,

telegraph lines, and maritime lines of communication to cripple the opposing forces' industrial base and ability to sustain their force. The positive effects of sabotage during the Civil War were inherently at the tactical and operational level war, attesting to the armies' ability or lack thereof to mobilize armies and forces across the country. At the strategic level, sabotage may have contributed to a Confederate defeat, but ultimately it was the southern states' diminishing local support and failing economy. The Confederate states' failing economy compounded with their inability to compete with the Union's wartime economic power led to the Confederate army's inability to outfit its troops and inevitable defeat.[4] However, civil war sabotage was a precursor for future wars due to the growing significance and intertwined relationship of industry and conflict.[5]

During World War II, United States sabotage operations primarily took place after the United States entered the war on the side of the Allied forces. United States agents conducted several attacks on civilian targets that supported the German war efforts, such as transportation hubs, factories, and petroleum stockpiles.[6] Similar to sabotage targets of the Civil War, American saboteurs targeted industrial infrastructure and operations that directly supported Germany's logistical capabilities.[7] The successful sabotage mission of the Norwegian heavy water plant that was integral to the Nazi attempted development of nuclear weapons contributed to the allure of sabotage. The heavy water plant was destroyed by a carefully planned and executed sabotage mission after air raids failed to destroy the facility.[8] Allied sabotage attacks that targeted nodes critical to Nazi Germany's ability to sustain its extended logistical lines of communication also supported the argument of sabotage's effectiveness.[9] Specific examples include saboteur destruction of a railroad bridge that severed the primary supply line to Rommel's Afrika Korps and saboteur efforts that delayed reinforcements from reaching

Normandy in time to prevent the Allied forces from gaining a European foothold. The sabotage missions contributed primarily to the Allied force's tactical and operational success.

Although the United States' sabotage operations were successful in support of the tactical and operational level of war, it had little effect on the United States' ability to achieve a decisive strategic effect. One leading author on sabotage in the war, David Tucker, concluded that sabotage operations cannot achieve an overwhelming strategic effect. Sabotage operations, such as the destruction of the Norwegian power plant and ground lines of communication in support of Rommel's Afrika Corps or Nazi Germany reinforcements at Normandy, were supporting efforts within a larger operation. Tucker compared the strategic bombing theory to sabotage operations, in that strategic bombing theory argues that a decisive strategic victory could be achieved through overwhelming bombardment and elimination of industrial targets to collapse an adversary's strategic supply and wartime economy. However, significant intelligence, resources, and analysis of the adversary were required to identify an industry and any possible replacements that, if eliminated, could cripple the economy; due to the many variables and opportunity for the adversary to counter and replace that industry the theory is unlikely to succeed.[10] Tucker argues the same reasoning that disproves strategic bombing theory's validity is applicable to sabotage lack of strategic effect, that it is incapable of achieving an overwhelming effect against a national instrument of power such as the economy. Analysis of Germany and Japan's sabotage missions during the pre-war and interwar periods of World War I and World War II yielded similar results as the United States' operations.

During World War I, Germany concentrated its sabotage efforts against the United States' industrial complex that was providing vital military supplies to Britain and France. The Germans also conducted an elaborate, covert information campaign to ensure United States

involvement in World War I did not escalate to military participation. Before the United States entered World War I, German sabotage operations produced an estimated cost, valued at today's worth, of one billion dollars in war material damages.[11] The Germans continued their covert sabotage operations during World War II, attempting to recruit German sympathizers with access to American industrial jobs and essential service plants. The saboteurs were recruited to disrupt factories and production lines in an attempt to hinder the industrial war effort in America.[12] The Germans also established political committees to conduct psychological sabotage, using targeted propaganda that sought to undermine the civilian population's popular support for the United States government and the war effort. In *Sabotage! The Secret War Against America*, Michael Sayers and Albert Kahn state that Nazi Germany psychological saboteurs were directed to infiltrate and disrupt all facets of American livelihood to achieve five major objectives: create racial hatred, undermine the American democratic government, prevent the United States from entering World War II as an Allied force, prevent adequate war preparations, and instill a front line fascist party in the United States.[13] Prior to the start of World War II, Japan adopted a similar approach to Germany by instilling Japanese agents recruiting Japanese-American contacts in the United States.

Several years in advance of World War II and leading up to the Japanese strike on Pearl Harbor, Japan implanted potential saboteurs in America to collect intelligence on plausible military targets in the event of a Japanese invasion. Japan converted several consulates on the United States West Coast as "espionage-sabotage" centers, instilling an elaborate intelligence collection plan that generated reports of military and essential supply locations directly back to the Japanese Army and Naval Intelligence[14] Similar to Germany, Japanese sabotage agents also attempted to gain access to essential water and power plants in attempt to cripple the major

western American cities.[15] Despite the extensive German and Japanese sabotage operations and the resulting destruction, the efforts failed to achieve a decisive strategic victory.

Germany's sabotage efforts, before World War I and during the interwar period leading up to World War II, sought to significantly disrupt the United States' production of wartime goods in support of its adversary and ultimately prevent the United States from entering either conflict as an opposing military force. Although Germany was able to carry out several operations covertly, avoiding all attribution and suspicion from the United States, the effects of the sabotage missions were merely tactical successes that did not achieve the strategic endstate sought by Germany. In spite of the German efforts of sabotage, the United States entered both conflicts against Germany. The United States' entrance into both conflicts applied increased military and industrial support that significantly contributed to the eventual defeat of Germany in both conflicts. Although Japan's sabotage missions differed from Nazi Germany's objectives, focusing primarily on gaining military intelligence and crippling essential community services for an eventual Japanese invasion of the United States, it also did not achieve a decisive strategic endstate. A Japanese strike never occurred on the United States mainland. As a result, the United States was able to support a Pacific Campaign against Japan both economically and materially, despite simultaneously entering the European conflict.

The historical examples of US, German, and Japanese sabotage operations prior to entering conflict and during conflict provide valuable insight into the overall effectiveness of sabotage and its utilization at the tactical, operational, and strategic level of war. Each nation was able to achieve effectiveness at the tactical level and to a lesser extent at the operational level. United States sabotage missions demonstrated usefulness in supporting military operations by severing critical lines of communication that hindered Nazi Germany's military sustainment,

providing a significant advantage to the Allied Forces. An argument can be made that the United

States' sabotage of the Norwegian heavy water treatment plant achieved strategic success in

preventing Germany's development of nuclear weapons. However, despite the destruction of the

heavy water plant and disruption of Germany's nuclear weapon development, it did not achieve a

strategic result that forced Germany to discontinue the war. Germany, similar to the United

States, achieved several tactical victories that disrupted the United States' wartime production

before and during its participation in World War I and World War II. Despite the disruption,

Germany did not achieve its strategic objective of ensuring the United States did not enter either

conflict in an alliance with Germany's adversaries. Similar to Germany, Japan's espionage-

sabotage mission against the United States achieved some tactical success in its ability to collect

useful military intelligence and gain access to key infrastructure sights in support of a Japanese

invasion of mainland Japan. Japanese sabotage was similar to the United States, in that the

operations were carried out to support and facilitate the execution of an enduring campaign or

operation, not to achieve a strategic outcome. The lessons learned from these historical case

studies are useful in analyzing the United States' modern implementation of sabotage in support

of its foreign policy objectives. The lessons learned and the outcomes achieved from

implementing sabotage outside of conflict are especially useful in comparing sabotage to modern

adversarial competition or what is defined as operating in the gray zone.

Gray Zone Conflict

A multitude of definitions and terms are used to describe gray zone conflicts, including

political, unconventional, and irregular warfare. For this study's research and analysis of the

United States' gray zone conflict with Iran and North Korea, gray zone conflict is defined as

competitive actions of state and non-state actors to achieve political objectives against

adversaries that are below the threshold of direct conflict, contributing to their focus on retaining ambiguity and unclear attribution.[16] This definition attempts to capture the core essence of sabotage across the multitude of descriptions from the existing literature, while clearly stating the purpose and intent of an actor operating within the gray zone to support and achieve political outcomes.

The growing significance of gray zone conflict is due to the "emerging era of international competition,"[17] and the increased operations of state and non-state actors within the gray zone to achieve their strategic outcomes while avoiding full-scale, direct conflict with competitors. Through varying methods, techniques, and non-kinetic actions, the gray zone provides actors the ability to gradually advance political objectives through minimal aggression while maintaining overarching ambiguity. In his article, "Unconventional War and Warfare in the Gray Zone. The New Spectrum of Modern Conflicts," Miroslaw Banasik states that gray zone operations create ambiguity not only in the actor's strategic and operational objectives but also within its actual involvement of armed force or violation of international regulations.[18] This allows competitors to gain strategic advantages within international competition while skirting established redlines that would escalate them out of competition and into full-scale conflict.[19]

The actors operating in the gray zone utilize an array of power instruments and tools to retain operational ambiguity. Banasik and Frank Hoffman, in the article "Examining Complex Forms of Conflict," both identify multiple forms of illegitimate gray zone tactics across multiple spectrums to include: political subversion, financial corruption, information, and psychological warfare, criminal cyber operations, terrorist and criminal activities, and training of forces to sabotage and subversion activities.[20] In Table 1, Hoffman portrays both the legitimate and illegitimate means actors achieve their strategic objectives outside of direct conflict. The non-

traditional illegitimate techniques are meant to augment an actor's legitimate efforts while simultaneously undermining the traditional political, economic, military, and information efforts of competitors.

Traditional/Legitimate	Non-traditional/Illegitimate
Security cooperation and foreign military sales	Political subversion by penetration or false-front organizations
Economic sanctions	Economic corruption
Public diplomacy and support for IGO/NGO	Propaganda/psychological operations/disinformation
Military presence/engagements/exercises	Cyber intrusions/cyber corruption/disruption
Foreign internal defense	Sponsored criminal activity
Freedom of navigation exercise (maritime or aerospace domains)	Electoral interference

Forms of Statecraft and Influence (Table 1)[21]

The United States has sought to counter its competitors' gray zone activities largely through the utilization of traditional and legitimate forms of statecraft and influence in support of self-described "maximum pressure" campaigns—a modern nomenclature for what amounts to classic coercive diplomacy. In a white paper, The United States Army Special Operations Command defined coercive diplomacy as, "political-diplomatic strategy that aims to influence an adversary's will or incentive structure."[22] To address the threat of Iran and North Korea, respectively, becoming a nuclear state, the United States has conducted maximum pressure campaigns, primarily through economic sanctions, military deterrence, and international security cooperation in attempt to coerce both states from continuing pursuit or further development of weapons of mass destruction. Despite the United States' primary efforts to conduct coercive

diplomacy, Washington has also allegedly utilized strategic sabotage to disrupt or delay Iran and North Korea's nuclear programs.[23] The next two sections of this paper discuss the case studies concerning the United States maximum pressure campaigns augmented by gray zone operations, specifically concerning strategic sabotage and the overall effectiveness of strategic sabotage in coercing and achieving strategic objectives.

Iran Case Study

Iran's foreign and defense policies are driven by Tehran's ideology of the Islamic revolution, opportunistic exploitation of the region's disarray due to ongoing conflict, and desire to assert itself as the leading regional power. Iran views the United States and its regional partners, such as Israel, Saudi Arabia, and Sunni Muslim Arab regimes, as the primary threat to its national security and foreign policy. Iran's government is dominated by the hardline stance taken by its Supreme Leader Ali Khamene'i and the factions that support his views, such as the Islamic Revolutionary Guard Corps.[24] Iran's Islamic revolutionary ideology is centered on maintaining independence from pro-western influence and preventing the United States from interfering in Iran's domestic affairs.[25] Iran's distrust of the United States stems in part from US interference with Iran's political leadership in 1950 and its backing of Sadaam Hussein during the 1980s Iraq-Iran War. Despite this distrust, and the dominance of regime hardliners, Kenneth Katzman notes in his 2019 article, "Iran's Foreign and Defense Policies," that Iran's president, Hassan Rouhani, and Foreign Minister Mohammad Javad Zarif have advocated for increased international diplomacy to achieve foreign policy goals.[26]

Despite Iran's elected officials' advocacy for legitimate international diplomacy, Iran's primary mechanisms for implementing its foreign policies and undermining the United States' regional influence are through gray zone operations. The United States Army Special Operations

Command describes Iran's gray zone operations as, "warfare indicative of the emerging and future operating environments characterized by asymmetry, the pursuit of political goals, and the avoidance of large-scale conflict."[27] Iran's primary gray zone mechanism is covert financial and military training support to several militia factions across the region, establishing armed factions that are loyal to Iran and share a common negative view of the United States and other pro-western factions within the region. These militia factions include Lebanese Hezbollah, Palestinian militias such as Hamas, Houthi rebels in Yemen, Taliban, and Shia militia groups in Iraq (the largest hindrance to United States regional influence and objectives).[28] Through the support of these militia groups, Iran has expanded its regional influence beyond its borders both militarily and, even more significantly, politically within neighboring countries such as Iraq.

In 2014, Iraq issued a call to arms of Shiite militias to form the Popular Mobilization Forces (PMF) and combat the ISIS threat. The PMF militias had a significant role in defeating ISIS in Iraq and gained extensive popularity, resulting in an Iraqi parliament vote that legalized the PMF as a legitimate defense force in the country. The legalization vote prevented the PMF from being disbanded following the defeat of ISIS and presented new opportunities for popular militia leaders to gain support for parliament seats. The PMF's legalization and newfound political infiltration provided Iran with significant military and political influence within Iraq, due to Iran's military training, arms, and financial support to several of the PMF militias, resulting in several militias to pledging their allegiance to Supreme Leader Ayatollah Ali Khamenei.[29] The use of proxy forces and the guise of "regional support" to its allies enables Iran's ambiguous gray zone activities that seek to undermine the perceived interference of the United States and the Western influence that is counter to its foreign policy goals.
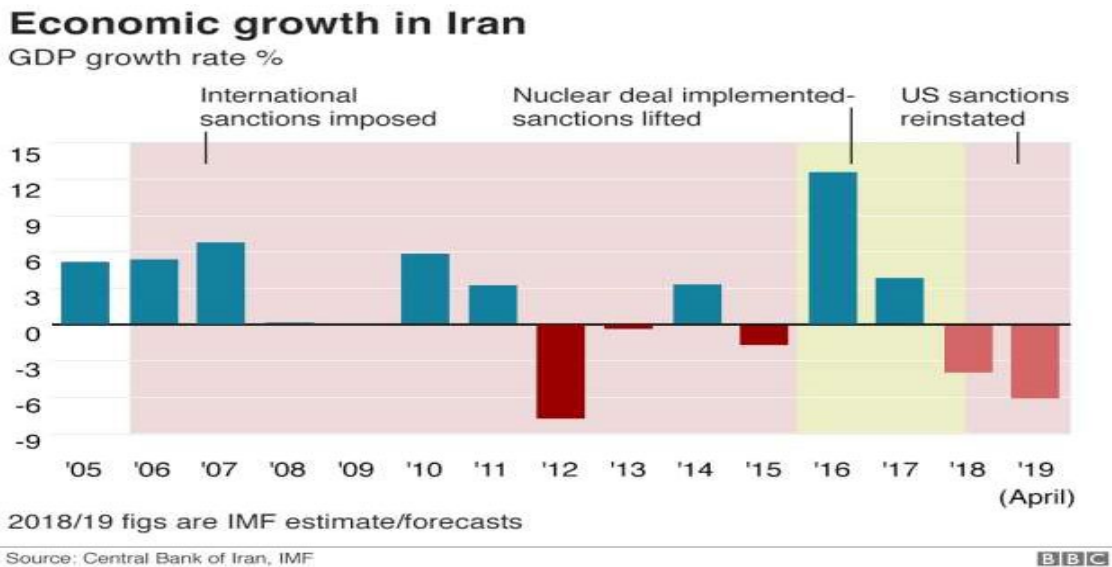
Secondary gray zone mechanisms utilized by Iran are defensive and offensive cyber operations. Iran has utilized cyber acts within its nation to control the narrative amongst the population to prevent "soft revolutions that would be detrimental to the stability of the regime"[30] and its foreign policies. Iran has conducted offensive cyber operations to support its efforts in undermining the United States and its allies' economic operations and influence within the region.

Iran's gray zone activities directly deter and disrupt the United States' influence and regional support. Iran is militarily inferior to the United States, hence its extensive gray zone operations that afford Iran the capability to inflict damage and expand its influence while remaining ambiguous to the terrorist and criminal activities that it facilitates. Iran's gray zone activities enable it to conduct a prolonged defense strategy without providing the United States justification for engaging in full-scale conflict. It also augments Iran's increased involvement on the international diplomatic stage to achieve its foreign policy objectives, to maintain its honest intentions to work with and comply with the international community.

Despite Iran's persistent and sophisticated gray zone tactics, the United States views Iran's potential pursuit to weaponize its nuclear resources as the greatest threat to its interests in the region, as well as regional stability. Iran already possesses a robust missile program and arsenal, that if combined with a nuclear source would extremely heighten tensions within the region, due to the lack of transparency of Iran's true intentions for pursuing nuclear energy. Iran insists its uranium enrichment is a peaceful venture meant to utilize and stockpile nuclear fuel.[31] However, Iran's historical behavior of non-compliance and violation of terms established through international agreements to suspend or limit activities of its nuclear program does not completely support its peaceful narrative of the proliferation of nuclear material. Iran's uranium

enrichment, heavy water production plant, and expressed argument that a nuclear weapon would reduce its vulnerability further dilutes the true intentions of Iran's nuclear program.[32] The United States and the international community have addressed Iran's nuclear program through diplomatic efforts, as well as through maximum pressure campaigns that have levied immense economic sanctions on Iran.

In the execution of its maximum pressure campaign against Iran's nuclear program, the United States has heavily relied on economic sanctions to coerce Iran into limiting proliferation activities and enter into diplomatic negotiation agreements. The United States' threat and use of sanctions was utilized by the Bush Administration, Obama Administration, and now most recently by the Trump Administration following the United States withdrawal from the most current nuclear negotiation agreement, The Joint Comprehensive Plan of Action (JCPOA).[33] The legitimate use of economic sanctions along with a persistent regional military presence has been the primary coercive mechanism implemented by the United States to curtail Iran's nuclear program. Since the onset of international concern of Iran's nuclear program, the United States maximum pressure campaign, primarily implemented through economic sanctions, force Iran into an economic recession. The economic recession conceivably triggered the decline in popular domestic support of the Iranian government and arguably coerced Iran to seek out international negotiations and an agreement that would provide sanction relief. Figure 1 displays the direct correlation between Iran's rising and falling GDP growth rate with the failure of Iran and the international community to reach an amicable solution during the ongoing nuclear negotiation process from 2010 to 2014, and Iran finally conceding to the restrictions stipulated in the signed 2015 JCPOA. However, in 2018 the Trump administration withdrew from the

Economic growth in Iran
GDP growth rate %

International
sanctions imposed

Nuclear deal implemented-
sanctions lifted

US sanctions
reinstated

2018/19 figs are IMF estimate/forecasts

Source: Central Bank of Iran, IMF

BBC

(Figure 1)[34]

JCPOA due to what the administration identified as significant shortfalls of the deal that did not

permanently prevent Iran from becoming a nuclear state. The administration cited the JCPOA

did not address "key concerns about Iran's continuing malignant activities in the region, its

ballistic missile program, and the expiration of [the JCPOA's] key nuclear restrictions.[35]

Following the withdrawal, the United States immediately reinstated the economic sanctions

against Iran, causing Iran's discontinued adherence to the uranium enrichment restrictions of the

JCPOA.

In addition, the United States has allegedly executed a sabotage campaign to support the

legitimate mechanisms of its maximum pressure campaign and the strategic goals it aimed to

achieve. The alleged cyberattack, labeled Operation Olympic Games, is suspected to have been

initiated by the United States and Israel.[36] The operation was meant to achieve a cyber kinetic

effect through the physical sabotage of the centrifuges located at Iran's Natanz uranium

enrichment nuclear facility. Operation Olympic Games' primary objective was to disrupt the

Natanz uranium enrichment process. The digital Stuxnet worm was covertly installed on the

Natanz computer network via a USB drive.[37] Once installed the malware was programmed to locate and infect the centrifuges' control system, ultimately causing the supersonic centrifuges to spin out of control and self-destruct. The Stuxnet worm achieved tactical success in that several centrifuges were destroyed; however, its strategic effectiveness is not apparent.

The measure of the effectiveness of Operation Olympic Games' sabotage mission in support of the United States' maximum pressure campaign can be analyzed at the tactical and strategic level of war. The operation achieved tactical success through its destruction of several centrifuges located at Iran's uranium enrichment plant. It was also a tactical success due to the cyber-attacks provision of ambiguity to the actors that executed the sabotage, which is allegedly attributed to the United States and Israel, but the origination of the malware is not solidified with absolute certainty.

If the strategic endstate of the operation was to disrupt Iran's uranium enrichment and significantly delay its timeline to achieve the required stockpile to produce a nuclear weapon, then the operation achieved little effect. If the strategic endstate of the operation was to destroy Iran's nuclear production through the destruction of the Natanz centrifuges, the sabotage completely failed to achieve that effect. In her book, *Countdown to Zero Day*, Kim Zetter assesses multiple arguments of the sabotages' actual effectiveness but concludes on a skeptical note. She cites former Mossad chief, Meir Dagan, proclaiming that Iran would not be able to produce nuclear weapons until 2015, five years following the last Stuxnet malware attack in 2010.[38] Zetter also provides a counterargument to the operation's effectiveness, citing Ivanka Barzashka's research conclusions. Ivanka Barzashka examined the correlations between functioning centrifuge numbers in the International Atomic Energy Agency reports pre- and post-the Stuxnet attack. She concluded the sabotage's effects were "short-lived" and "did not set

back Iran's enrichment program, only temporarily slowing it down."[39] Likewise, Catherine A. Theohary and Anne I. Harrington cited the evaluation and research of David Albright and Christina Walrond of the Institute for Science and International Security in their article, "Cyber Operations in DOD Policy and Plans: Issue for Congress," supporting the argument that actual effects of Stuxnet in delaying Iran's enrichment operations is inconclusive due to a lack of change in Iran's production.[40] At the end of 2009 to 2010, despite the sabotage efforts of Stuxnet, Iran's production levels of enriched uranium rose from 120kg to 150kg a month.[41]

The limited strategic effectiveness of Operation Olympic Games should not, however, completely discount its contribution to the United States' maximum pressure campaign. The delay produced by the sabotage's disruption extended the timeline for the United States and the international parties to continue their negotiations with Iran before they could produce the required amount of enriched uranium for a nuclear weapon. Also, Iran's supply of uranium gas and limited resources to replace the damaged resources heavily compounded the effects of economic sanctions levied before the execution of the sabotage.[42] It can be argued, whether intended or unintended, the sabotage attacks increased the effects of the sanctions on Iran's economy and forcing Iran to reach an agreement over its nuclear program.

Overall, however, the sabotage probably also created several negative consequences that have had lasting effects on the United States and Iran's ability to develop a tolerable relationship. Although the United States and Israel have denied their involvement in the operation, the discovery of the sabotage and alleged genesis of the malware provides Iran with personal justification to retaliate with similar offensive cyber activities. The sabotage may have also contributed to the further mistrust amongst the two nations, recent retaliatory military actions, and increased regional tension. Ultimately, the very threat of US sabotage activities and

maximum pressure policies risk reinforcing Iran's sense of insecurity and perceived requirement

for having a nuclear deterrent. Operation Olympic Games has proven the utility of sabotage

operations outside of conflict at the tactical level and its ability to augment traditional diplomacy

mechanisms. Nevertheless, the consequences and risk may outweigh the reward while operating

within the gray zone.

North Korea Case Study

North Korea's current foreign policy toward the United States is heavily influenced by

the country's *Juche* ideology and *Suryong* political system. As the supreme leader, Kim Il-sung

instilled the political philosophy of *Juche*, which is roughly translated to mean "self-reliant." It

was through the *Juche* ideology that Kim Il-sung and his successors have maintained the

Suryong supreme political system intact. *Suryong*, which translates to "leader" or "chief," is the

supreme leader political structure that consolidated North Korea's national political base and

established Kim Il-sung as the "party center."[43] Under the *Suryong* political system, Kim Il-sung

gained the loyalty of the North Korean people and absolute authority that would transition

through his family bloodline.

The *Juche* ideology is the force behind North Korea's unyielding nationalistic support,

rejection of outside state support or cooperation, and continued loyalty to the supreme leader

political concept, despite the country's economic decline and the constant threat of famine.[44] In

the 2003 article, "The Political Philosophy of *Juche*," Grace Lee cites Kim Il-sung's explanation

of the *Juche* ideology:

> Establishing *Juche* means, in a nutshell, being the master of revolution and reconstruction
> in one's own country. This means holding fast to an independent position, rejecting
> dependence on others, using one's brains, believing in one's strength, displaying the
> revolutionary spirit of self-reliance, and thus solving one's problems for oneself on one's
> own responsibility under all circumstances.[45]

Under Kim Il-sung's fostering of North Korean independence, self-determination, and self-reliance was at the forefront of its foreign policy, generating strained international relationships and establishing the country as a true hermit kingdom. North Korea's strong stance against outside superpower influence is compounded with what Kei Koga argues, in "The Anatomy of North Korea's Foreign Policy Formulation," which is the key principle of *Juche*, "independent reunification."[46] This key principle of "independent reunification" and national unity is the foundation of North Korea's foreign policy stance towards the United States that has transcended from Kim Il-sung to Kim Jong-il and now Kim Jong-un. North Korea views the United States regional partnerships, especially with South Korea, as an imperialistic threat to Korean unity, justifying its nuclear proliferation and missile testing.

North Korea's proliferation of nuclear weapons is the result of a series of events that have left North Korea truly isolated, without the enduring support from other like-minded Communist nations. Despite North Korea's nationalistic ideology of self-reliance, it was dependent on the Soviet Union (USSR), Russia following the USSR's collapse, and China for national security and economic support. Before the collapse of the USSR, North Korea's relationship with the communist power benefited its national security through nuclear deterrence of imperialistic threats. North Korea's reliance on Russian military support was further invalidated following Russia's conclusion of assistance treaties in which Russia previously agreed to provide political and economic support, as well as military support in the event of an emergency.[47] North Korea's isolationism was further solidified upon China's agreement to join the World Trade Organization.[48] China's adoption of somewhat capitalistic economic reforms and trade with the international community does not align with North Korea's *Juche* ideology. North Korea's diminishing support from China and Russia has left it susceptible to the United States' growing

regional influence. North Korea views the United States' superpower status and alliances with the Republic of Korea and Japan as a direct threat to the supreme leadership regime, its sovereignty, and the ultimate goal of Korean unification. North Korea lacks the economy, military strength, and technology to engage in direct conflict with the United States, hence its proliferation of a nuclear arsenal and ballistic missile technology as a primary deterrence. The United States views North Korea's nuclear weapon capability as a direct threat to regional stability, as well as to its homeland security. North Korean denuclearization is the United States' primary foreign defense policy goal toward the country.

The United States has attempted several peaceful negotiations with North Korea, leveraging support from other international powers with equity in the matter to seek an agreement of denuclearization. The 1990s Four-Party Talks (included China, the United States, South Korea, and North Korea) and the Six-Party Talks of the early 2000s (included Russia, China, United States, Japan, South Korea, and North Korea) were ultimately unsuccessful in convincing North Korea to fully adhere to the agreed-upon disarmament terms.[49] Amicable relations completely dissolved in 2009 when it became clear that North Korea's disarmament stalled, causing South Korea to cease its aid unless North Korea's nuclear disarmament resumed. North Korea subsequently ended diplomatic communications with South Korea after declaring South Korea's actions hostile and resumed nuclear testing.[50] Due to the failed negotiations and rising tensions, the United States has emplaced economic sanctions on North Korea.

The Obama administration imposed economic sanctions that primarily targeted activities associated with North Korean WMD and weapons proliferation.[51] The subsequent Trump administration increased pressure against North Korea, implementing a maximum pressure campaign that sought to coerce North Korea into denuclearization negotiations by extending

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economic sanctions to not only include military proliferation activities but include key North Korean financial institutions and trade partners.[52] The maximum pressure campaign, compounded with increased international pressure, aimed to cripple North Korea's entire economy.

In conjunction with the North Korea maximum pressure campaign, and similar to the suspected United States sabotage levied against Iran's nuclear program, the United States has executed alleged sabotage attacks to derail North Korea's missile program. The alleged sabotage used cyber offensive operations to target and disable North Korea's ballistic missile systems. The Obama and Trump administrations are assumed to have authorized such cyber-attacks, which caused the suspected failure of North Korean ballistic missile tests in 2012 and 2017.[53] Unconfirmed reports have suggested that the United States has been able to infiltrate North Korea's missile software, causing the missiles to malfunction in flight.[54] The United States' strategy, labeled "Left of Launch,"[55] overall effectiveness as a defense strategy or coercive tactic is undetermined. The attacks have allegedly caused multiple failed missile tests; however, North Korea continues to conduct ballistic missile testing unimpeded. In 2019 alone, North Korea conducted its most successful ballistic missile launches dating back to 1985 (see Figure 2).[56]

North Korea Missile Test Tracker 2020 (Figure 2)[57]

The United States sabotage may have achieved tactical effectiveness in providing another mechanism to defend against a ballistic missile attack and causing North Korea to doubt the reliability of its missile systems and technology. However, the sabotage attacks have not achieved strategic success in that they did not effectively coerce North Korea to discontinue its nuclear and weapons proliferation, significantly disrupt North Korea's ballistic missile testing, nor did it force them to seek out negotiations with the United States. Still, the United States' sabotage of North Korea's ballistic missiles, similar to Operation Olympic Games conducted against Iran's nuclear program, has demonstrated its limited effectiveness in supporting the maximum pressure campaign against North Korea. The sabotage creates doubt and exposes vulnerabilities in North Korea's primary deterrence strategy, as well as increasing the leverage of the United States' maximum pressure campaign.

Implications of the Case Studies

The examination of United States sabotage operations against both Iran and North Korea concluded that sabotage is effective in achieving tactical successes but is ineffective in achieving

strategic effects when implemented as the sole method for success. However, sabotage is a useful tactic when augmented with other coercive operations, such as the maximum pressure campaigns employed by the Trump administration against Iran and North Korea. Determining the overall strategic support and amplifying effects of sabotage in support of the United States maximum pressure campaigns remains inconclusive due to the remaining tensions between the three nations and the fact that Iran and North Korea's nuclear programs are undeterred. The final analysis of these case studies provides both positive and negative outcomes of strategic sabotage operations.

The alleged US sabotage operation, Operation Olympic Games, achieved significant tactical success through its destruction of multiple centrifuges, significantly disrupting Iran's nuclear enrichment process and extended the timeline of the nuclear development process. In addition, the sabotage operation enabled the United States' involvement to remain ambiguous, depriving Iran of tangible proof that would validate accusations of U.S. involvement or justification to openly retaliate. Despite the tactical successes achieved by Operation Olympic Games, the effectiveness of sabotage in achieving the strategic endstates of the United States' Iranian foreign policy remains questionable.

Tensions between the United States and Iran remain fragile and laden with increased mistrust. As previously stated, it can be argued that the recent sabotage of Iran's nuclear facility has further increased its mistrust and perception of the United States as a threat to its regional influence. Despite Iran's inability to substantiate the United States' involvement in the Stuxnet malware attack, Iran's suspicions alone may be enough for them to retaliate through its counter gray zone cyber operations; exposing the United States to what David Sanger defined as the "pandora's inbox" or retaliatory cyberattacks.[58] Iran's progressive cyber operations since the

Stuxnet malware attack and amongst the rising tensions with the United States supports this argument. In 2019 alone, Iran's increased cyber-attacks have targeted the government and civilian digital infrastructure of both the U.S. and its partnered nations.[59] In addition to the continued tensions between Iran and the United States, the U.S.'s inability to coerce Iran from continuing its nuclear program further supports sabotage operations strategic ineffectiveness.

Although Operation Olympic Games disrupted Iran's enrichment process and ultimately delayed its nuclear weapon production for an indeterminate amount of time, the sabotage operation alone did not produce a decisive strategic success. Not long after the discovery of the malware, Iran resumed its nuclear program and increased its enriched uranium stockpile despite the damage caused by the sabotage.[60] The sabotage operation, combined with economic sanctions, may have helped facilitate a nuclear agreement under the Obama administration but was later determined by the Trump administration to be ineffective in preventing Iran from eventually becoming a nuclear state. Following the U.S. 2018 withdrawal from the JCPOA, Iran's nuclear activities exceeded productivity limitations and violated development restrictions as stipulated by the agreement.[61] The strategic endstate of preventing Iran from becoming a nuclear state is undeterred by strategic sabotage alone. Augmenting an instrument of national power, such as a maximum pressure campaign, with sabotage expands the potential to coerce Iran to resume negotiations if the positive effects can counter the negative consequences associated with sabotage.

The United States' sabotage operations against North Korea have yielded similar tactical and strategic level results to that of the operations conducted against Iran. Alternative to preventing Iran from becoming a nuclear state, United States foreign policy toward North Korea seeks complete denuclearization of the state. Due to North Korean ownership of nuclear

weapons, United States sabotage is targeted at disrupting the ballistic delivery systems. In 2012 and 2017, the United States allegedly achieved tactical successes by causing North Korean ballistic missiles to malfunction during test launches. These alleged sabotage attacks may have demonstrated the United States' capabilities to defend against a ballistic missile attack and possibly instilled doubt amongst North Korea of the reliability of its ballistic missile capabilities, but it did not achieve a strategic effect.

North Korea continues to develop and test several variants of short, medium, and long-range ballistic missiles, demonstrating the progress of its resilient, undeterred nuclear weapons program. The strategic goals of the United States' sabotage activities against North Korea are less apparent in relation to Iran. The United States' maximum pressure campaign against North Korea is the primary coercive diplomacy tool in forcing the communist state to negotiate denuclearization terms in exchange for economic relief. The U.S. sabotage operations disruption and delay of weapons development support the maximum pressure campaigns coercive tactics, but as a standalone strategic approach is incapable of compelling North Korea to accept denuclearization. As seen in Figure 2, North Korea continues increasing its ballistic missile testing despite the sabotage operations levied against its weapons tests. The North Korean case study further demonstrates sabotage's utility at the strategic level is best implemented in support of national instruments of power and not as a singular coercion method.

Conclusion

The research and analysis of the historical and current case studies of strategic sabotage operations, during both wartime and peacetime, has led to the conclusion that its utility is limited in achieving long-term or decisive strategic effects. When augmented with diplomatic, information, economic, and military instruments of national power, strategic sabotage yields

more effective results at the strategic level. Sabotage operations influence at the strategic level is largely achieved at the tactical level. The tactical effectiveness of sabotage provides a chain reaction of events, as seen in the Iran and North Korean case studies, that increase the influence of an instrument of power over an adversary. The transcendent effects of sabotage at the tactical level were observed in both the historical and modern case studies.

The United States sabotage operations during World War II were executed as shaping operations to support a larger campaign, similar to pre-emptive bombardments of the enemy. Both sabotage and aerial bombardment were a means to end, but by themselves could not achieve a great enough effect to achieve a strategic victory.[62] The German and Japan sabotage operations yielded similar results to that of the United States. Their pre-war sabotage operations supported their economic and military instruments of power, targeting the United States' wartime material production and critical infrastructure. Although, the Germans and Japanese saboteurs were able to achieve small-scale tactical objectives, both nations failed in achieving an overall strategic objective. Germany failed to deter the United States from entering the world conflict and Japan failed to gain a foothold to invade the United States. The effectiveness of the United States, Germany, and Japan's historical sabotage operations are comparable to the tactical and strategic results achieved by the United States' current peacetime sabotage operations against Iran and North Korea.

A review of both case studies determined that the United States sabotage operations against Iran and North Korea produced effective tactical results that did not translate to decisive effects at the strategic level. Comparable with the historical case studies, the sabotage operations were unable to achieve the strategic endstate sought by the sabotaging nation, in the case of the United States coercing both Iran and North Korea into ceasing nuclear proliferation activities or

denuclearization respectfully. However, equivalent to the United States' successful World War II sabotage missions in support of larger campaigns, strategic sabotage provides a useful tool in augmenting instruments of national power coercive functionalities. Ultimately, the historical examples and the modern case studies demonstrated sabotage operations limitations as a standalone strategic option. Despite the limiting effectiveness of strategic sabotage as determined by this research, the scope of the analysis was limited to two ongoing foreign policy cases that could produce different results upon further analysis.

The conclusion that sabotage in itself produces limited strategic effects is largely influenced by the United States' continued tensions and inability to achieve its coercive goals in relation to Iran and North Korea. The research analysis conducted during this project strongly supports that sabotage is incapable of achieving strategic success as a singular method of coercion. However, continued analysis of the United States' use of sabotage in support of its foreign policy objectives with Iran and North Korea may suggest that it is not as limited and is a persistent tool able to support gradual success over an extended period. The lessons learned in the process of this research are invaluable to the continued implementation of strategic sabotage, and its utility in support of national instruments of power and operations within gray zone conflict.

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