

ECONOMIC POWER AND TECHNOLOGY: UNITED STATES AND CHINA'S
STRUGGLE FOR TECHNOLOGICAL SUPREMACY

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Homeland Security Studies

by

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

ECONOMIC POWER AND TECHNOLOGY: UNITED STATES AND CHINA'S STRUGGLE FOR TECHNOLOGICAL SUPREMACY, by MAJ Sam Ku, 82 pages.

The United States and China both have various strategic goals that rely on the application of the different powers each possess. Both states have identified economic prosperity as vitally important to its national security. In the current globalized modern world, technological superiority is a major component of both economic and national security. This study explores the connection between economic power and technology security by expanding on the existing body of scholarly literature on the theory of economic power. This study focused on the use of three economic tools by the United States and China: (1) Trade policy, (2) Investment policy, (3) foreign aid and how each tool was able to achieve certain objectives related to technology security. This study also shows the versatility of economic power in its ability to cause various effects depending on the goals of the state.

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ACRONYMS

ARPA	Advanced Research Projects Agency
CFIUS	Committee on Foreign Investments in the United States
CIA	Central Intelligence Agency
DIME	Diplomatic, Information, Military, and Economic
FGC	Federal Government Corporations
GATS	General Agreement on Trade in Services
IFPA	Institute for Foreign Policy Analysis
ISIS	Islamic State in Iraq and Syria
NAFTA	North Atlantic Free Trade Agreement
NSS	National Security Strategy
PRC	People's Republic of China
SOE	State Owned Enterprise
STEM	Science, Technology, Engineering, and Mathematics
TPP	Trans Pacific Partnership

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CHAPTER 1

INTRODUCTION

The only way to predict the future is to have power to shape the future.

—Eric Hoffer, *The Passionate State of Mind*

The resources of a state are the foundation of what it is capable of achieving. A state with a robust economy is able to invest in all areas of national interest to ensure the prosperity and security of its people. Statistical data on China's economy ranks it amongst the largest in the world. This has allowed China to invest heavily in its military. China's military consists of over 2.3 million active members, with plans to increase its marines by 400 percent to 100,000.¹ This figure establishes China as the largest standing military in the world. Comparatively, the US has an active military force of about 1.4 million.² A large military does not always equate to national security, technological advancements must also be considered. It is this reason that China is also investing in new stealth and missile technology as part of efforts to modernize the People's Liberation Army.

A state's economic policy allows resources to be focused on different priorities. Resources such as revenue and human capital are finite. A state also must consider which

¹ Minnie Chan, "China to Boost Marine Corps by 400 per Cent as Overseas Interests Grow," *South China Morning Post*, last modified March 13, 2017, accessed February 26, 2018, <http://www.scmp.com/news/china/diplomacy-defence/article/2078245/overseas-ambitions-expand-china-plans-400pc-increase>.

² Kim Parker, Anthony Cilluffo, and Renee Stepler, "6 Facts about the U.S. Military and Its Changing Demographics," Pew Research Center, April 13, 2017, accessed February 26, 2018, <http://www.pewresearch.org/fact-tank/2017/04/13/6-facts-about-the-u-s-military-and-its-changing-demographics/>.

resources are vulnerable to threats from foreign actors. A resource that is not organic leads to dependency on foreign sources which increases vulnerability. Logically, a nation will spend the most resources on what it considers the most important, or most needed. A study of a nation's economic policy is a glimpse into what a nation considers important, and what it considers to be of no importance.

The ability to disrupt another country's economic system can greatly reduce that country's ability to protect itself and influence others. In today's globalized world, economic power can "achieve strategic objectives that in the past were often the stuff of military coercion or conquest."³ Military force alone can no longer shoulder the national security of a country. A country must be able to use economic power to both protect itself from unwanted intrusion and disruption, as well as further its own interests on a global scale.

Purpose of Research

The United States currently exist in a complex world with many different security challenges.⁴ Challenges from other state powers such as China and Russia, as well as threats from terrorist organizations such as the Islamic State in Iraq and Syria (ISIS) can severely strain U.S. resources. The improper resourcing to and application of economic power can result in disastrous outcomes to U.S. national security. The purpose of this

³ Robert D. Blackwill and Jennifer M. Harris, *War by Other Means: Geoeconomics and Statecraft*, 5th ed. (Cambridge, MA: Belknap Press, 2017), 4.

⁴ Leslie Gelb, "GD Now Matters More Than Force: A U.S. Foreign Policy for the Age of Economic Power," *Foreign Affairs*, last modified December 2010, accessed February 12, 2018, <https://www.foreignaffairs.com/articles/united-states/2010-10-21/gdp-now-matters-more-force>.

research is to analyze ways to use economic power to confront current and possible future threats as it relates to technology security. This research will include case studies on both the United States and China to compare their applications of economic power as a way to achieve technological dominance.

This thesis will answer the following primary question: How can the use of economic power further the strategic interests of the United States and China in relation to their technology security objective?

The accompanying subordinate questions are:

1. What is the current U.S. economic policy in relations to technology?
2. What is China's economic policy in relations to technology?
3. What are the possible strategic capabilities of economic power?

The primary documents detailing the economic policies of the United States is the 2017 National Security Strategy (NSS), and the proposed Budget for Fiscal Year 2018.

The NSS outlines the different challenges and priorities of the U.S. government. The budget outlines the priorities the President considers important to the United States. For China, President Xi Jinping has outlined his priorities for the People's Republic of China (PRC) in the 13th Five Year Plan for 2016 to 2020. A review of those documents show what each country deems vital to its national security, and the role technology plays.

Assumptions

One of the assumptions made in this research is that China's economic trajectory will continue to improve. Many similarities are drawn between current China, and Japan of the 1980s. During that time, Japanese conglomerates invested heavily in America by

buying hotels, movie studios, and even the iconic Rockefeller Center in 1989.⁵ Despite initial American fears, the purchases amounted to nothing when Japan's economy disintegrated.⁶ This thesis assumes China's economy is relatively stable, and not expected to suffer the same fate as Japan.

This research also accepts that the U.S. economic situation remains unchanged. Historically, events in the U.S. financial sector can result in severe consequences to both the U.S. and world economies. The banking crisis of 2008 is an example of an unforeseen event that caused major changes to both the United States and world economies. This research does not anticipate an event of that caliber occurring in the near future.

Another assumption is that China poses a possible threat to the security of the United States. The thesis assumes that China's actions may be part of a strategic goal, which possibly is detrimental to the United States. Recent actions by both the United States and China reinforces this assumption. "President Trump blocked a Chinese firm from buying a U.S. computer chip maker . . . demonstrating to Beijing that he will oppose acquisition of technology with potential military applications."⁷ In the case of China,

⁵ Rob Wile, "The True Story Of The 1980s, When Everyone Was Convinced Japan Would Buy America," *Business Insider*, accessed February 26, 2018, <http://www.businessinsider.com/japans-eighties-america-buying-spree-2014-9>.

⁶ Ibid.

⁷ S. A Miller, "Donald Trump Blocks Chinese Deal to Buy U.S. Chips with Military Uses," *The Washington Times*, accessed February 26, 2018, <http://www.washingtontimes.com/news/2017/sep/13/trump-blocks-chinese-deal-buy-us-chips/>.

recent naval exercises between China and Russia is a possible message to the United States by showing its willingness to cooperate with other world powers.⁸

Lastly, in the realm of power strategy, this research supposes the U.S government does not have the same influential capabilities as the Chinese government. The two differing governing systems can result in different application of power strategies. The United States is more restricted in the tactics it is able to use to influence its people. China under the current authoritarian government is largely unrestricted in its tactics when dealing with its people or the people of other states.

Scope

The primary question of this research is related to the economic power of the United States and China and how it could be used to obtain technological security. It is not the intent of this thesis to explain economic theory. There are current economic issues within China. Scholars discussed in length the slowdown, mounting debt, and aging population that is currently plaguing China. There are also economic issues affecting the United States such as its own rising debt. Economic theory can help in identifying trends and future obstacles both states might face. However, it does not show how economic power can be used to accomplish desired outcomes. The data for this thesis is centered on examples of how the United States and China achieve technological security through economic ways.

⁸ Prashanth Parameswaran, “China, Russia Launch First Military Drills in Baltic Sea,” *The Diplomat*, accessed February 26, 2018, <https://thediplomat.com/2017/07/china-russia-launch-first-military-drills-in-baltic-sea/>.

An area of limitation are various economic data points for China. Due to a lack of transparency from China, it is very difficult to discern the amount of truth behind some of the economic numbers reported by China. The data presented in this thesis are obtained through congressional reports, U.S. governmental agencies, and various U.S. research centers. The data points will be limited to illustrate the strength of certain Chinese capabilities. China's control on information will also limit any possible negative information in regards to all Chinese actions. Information in this realm will come primary from sources outside of the People's Republic of China.

This thesis will address technology in general terms, and not limit itself to only certain kinds of technology. Technology can take many forms, and it is difficult to predict what can be weaponized. For example, commercial drones such as the X-8, in the hands of the Islamic State in Syria terrorist group can become deadly weapons.⁹ Additionally, this thesis will not explain how certain technologies work. The thesis intends to examine the relationship that can exist between economic power and technology security, and is not meant to be a paper on dual use technology, or technological capabilities.

Significance of the Study

The United States and China are currently the two most important countries in the world.¹⁰ The United States being the most important, possess the world's largest

⁹ Charles Clover and Emily Feng, "Isis Use of Hobby Drones as Weapons Tests Chinese Makers," *Financial Times*, last modified December 11, 2017, accessed April 23, 2018, <https://www.ft.com/content/82a29f96-c9e7-11e7-ab18-7a9fb7d6163e>.

¹⁰ Rosemary Foot and Andrew Walter, *China, the United States, and Global Order* (Cambridge: Cambridge University Press, 2010), 15.

economy, and plays a leadership role in most international councils.¹¹ China is not far from the United States on the global stage and in some instances have surpassed the United States.¹² The bilateral relationship between the United States and China can shape the world. It is important to understand the interests of both states, and how they relate to one another. China's rapid rise and its ability to resist U.S. influence has become a topic of importance to U.S. national security.

The current modernization of the People's Liberation Army (PLA) is in part thanks to U.S. technology.¹³ The methods by which China was able to achieve this outcome, can be traced back to elements of its economic power capabilities. While the United States is focused on preparing for a future battlefield, China has been engaging the U.S. on a completely different domain for the past 30 years.¹⁴ There is a perceived sense of unified effort in China's actions. China can incorporate all elements of DIME, which feeds and supports one another. It is necessary to understand the "E" element of DIME, to able to effectively understand and counter China's actions.

In July 2015, retired Brig. General John Adams warned of the loss of the defense industrial base to foreign manufacturing.¹⁵ "The brave and honorable men and women of

¹¹ Foot and Walter, *China, the United States, and Global Order*, 16.

¹² Graham Allison, *Destined for War: Can America and China Escape Thucydides's Trap?* (Boston: Houghton Mifflin Harcourt, 2017), 9.

¹³ Newsweek, "What Does China Want? How U.S. Technology Turned Beijing into a Global Military Power," last modified July 27, 2017, accessed February 26, 2018, <http://www.newsweek.com/chinese-military-power-us-might-643022>.

¹⁴ *Ibid.*

¹⁵ John Adams, "U.S. Reliance on Foreign Defense Supplies Risks National Security," *OrlandoSentinel.Com*, accessed February 26, 2018,

the U.S. military deserve better than a national security policy that relies on countries like China and Russia for their safety and the defense of our great nation.”¹⁶ The article states specifically the reliance on China when it comes to the manufacturing of lithium-ion batteries.¹⁷ Examples like the above are indications of a wider systemic issue within the United States. There is a possibility that this is all part of a wider strategic campaign waged by China, and echoes the wisdom of Sun Tzu in winning without fighting, and capturing without having to siege.

This thesis aims to build upon the idea of power within states and how such power could be used. Economic power is often associated as a way for states to coerce other states into a specific action. The application of economic power could also be used to acquire certain resources, such as technology, for the purposes of national security.

Therefore, the significance of this study is to show how each state means to use their economic power as a tool for national security. Both states have differing viewpoints and applications of economic power. The national interests of China and China’s 13th Five Year plan has specific areas China considers important. China’s economic plan is a vision of its future. The United States has a similar plan to ensure its own security. Both states will be heading towards either cooperation or conflict as a way to accomplish their plans. The future of the world could be decided as these states use their economic powers for their own goals.

<http://www.orlandosentinel.com/opinion/os-ed-defense-global-dependence-072915-20150728-story.html>.

¹⁶ Ibid.

¹⁷ Ibid.

Key Theories

This thesis requires the understanding of five concepts: power, economic power, national security, economic security, and geoeconomics. Due to the possibilities of various definitions, it is important to establish the specific meanings respective to this thesis. This thesis uses all five concepts extensively, and it is important to establish a common frame of reference as early as possible.

Chas Freeman explains the different powers possessed by states in his book *Arts of Power*. According to Freeman, a state exists as an instrument of its people and is solely concerned about its own survival and continued independence.¹⁸ “A state will defend its continued independent existence at the cost of all other interests and with every means and resource at its disposal.”¹⁹ The foundation of the resources available to a state exists in its military, economic, political, and cultural strengths.²⁰ It is in these strengths that a state derives its power to protect itself. Power is measured in the degree a state can alter the behavior of other states, and how opponents perceive their capabilities.²¹ Current capabilities and perception of future capabilities are both relevant to a state’s power. China’s growing power is as much a subject of concern for the United States as its current power.

¹⁸ Chas W. Freeman, *Arts of Power: Statecraft and Diplomacy* (Washington, DC: United States Institute of Peace, 1997), 9.

¹⁹ *Ibid.*, 9.

²⁰ *Ibid.*, 33.

²¹ *Ibid.*, 15.

Similar to Chas Freeman's definition of power, Joseph Nye in his book *Understanding International Conflicts*, defines power as "the ability to affect others to get the outcomes one wants."²² Additionally, Nye's definition also includes the aspect of being able to accomplish one's goals as another component of power.²³ In order to use power properly, a state has to be able to convert their potential power, the resources they possess, into realized power, the actual outcome they are trying to achieve.²⁴ Nye defines this process as power conversion. According to Nye, this is a basic problem most states face.

The success of a state depends on both its ability to convert its power, as well as refine its resources. A state's economic resources nurture the full potential of a state's power.²⁵ One of the most important form of economic resources available to a state exists with its people. The knowledge, skills, and ingenuity of its people determines what can and cannot be produced within the state. A state like China, with the largest population in the world, has a large amount of potential power. Through education and training, China can refine that resource and convert it into something positive for the state.

There is a close link between a state's economy and its people. Economic power is a way for a state to influence the people of other states, and in turn influence their

²² Joseph S. Nye, *Understanding International Conflicts: An Introduction to Theory and History*, 5th ed. (New York: Longman, 2004), 60.

²³ Ibid.

²⁴ Ibid., 61.

²⁵ Freeman, *Arts of Power: Statecraft and Diplomacy*, 45.

respective political system.²⁶ The United States policy of integrating China into the global markets was based on the idea that free trade would lead to political liberalization for the country.²⁷ There are multiple applications of economic power that exist outside of economics.

Through taxation, the people of a state provide funds to nurture its noneconomic powers. Taxation allows a state to acquire funds required to sustain and improve its capabilities.²⁸ The funds of a state give it the ability to purchase and establish security. States can purchase military equipment, information, and even the allegiances of people from other states. In 1997, an official from Russia's Federal Security Service advised a Russian spy could be turned for \$1 million; however, a CIA operative would require \$2 million to betray their country.²⁹ Likewise, in response to Russia's launch of Sputnik 1, President Eisenhower won approval from Congress to set up the Advanced Research Projects Agency (ARPA) to catch up to Russia's rocket technology.³⁰ The creation and success of ARPA are contributed to the funds provided by the state. ARPA would later become the Defense Advanced Research Projects Agency responsible for the research of

²⁶ Freeman, *Arts of Power: Statecraft and Diplomacy*, 45.

²⁷ Blackwill and Harris, *War by Other Means*, 175.

²⁸ Freeman, *Arts of Power: Statecraft and Diplomacy*, 45.

²⁹ Thomas L. Friedman, *The Lexus and the Olive Tree: Understanding Globalization*, 2nd ed. (New York: Picador, 2012), 41.

³⁰ *Ibid.*, 63.

breakthrough technologies for the national security of the U.S.³¹ It is important for a state to protect its people from factors that might decrease their ability to contribute to the economy. A decrease in contribution translates to a decrease in funds, which would then limit the powers of a state.

To ensure that a state receives the maximum funds, it is in the best interest of a state to be in a position of relative advantage when transactions occur with a foreign economy. A position of relative advantage would allow a state to maximize profits gained from imports and exports. At a strategic level, a position of relative advantage could be measured from trade data. A state may feel threatened when there is a large disparity in trade. A concern facing the United States is the growing trade deficit with China. For the year 2017, China's trade surplus with the United States reached a record high of over \$275 billion compared to the previous record of \$260 billion set in 2015.³² Such data suggests Americans are purchasing more and more Chinese goods. The trade deficit combined with the loss of intellectual property has resulted in the enactment of policies by the United States to change the trade situation with China. There are also secondary order effects connected to the trade deficit that can result in a loss of technological capability and advancement.

³¹ Defense Army Research Project Agency, "Testimony," accessed April 8, 2018, <https://www.darpa.mil/about-us/testimony>.

³² Everett Rosenfeld, "China's Trade Surplus with the US Hit a Record High in 2017," *CNBC*, last modified January 11, 2018, accessed February 26, 2018, <https://www.cnbc.com/2018/01/11/chinas-trade-surplus-with-the-us-hit-a-record-high-in-2017.html>.

There are five main contributions to success when using economic power to coerce behavior.³³ First, the state employing this tool should consider the level of control they have of a specific resource it plans to use as leverage. For instance, if a state wants to influence behavior by restricting the export of bananas, it must consider how much control it has on the supply of bananas. Freeman refers to this as adequate mass.³⁴ The second factor to consider is relevancy. The action taken should relate to the desired effect or behavior intended to be influenced. If America's desired effect were to lessen the trade deficient between China, it would not be relevant to use or threaten to use military force. Additionally, the hazards of irrelevant behavior can risk "a widening and deepening of the dispute."³⁵

After relevancy, the action could be measured by impact. Impact refers to the actions ability to "affect the interests of those with authority to make the pertinent decisions for the foreign state."³⁶ The European Union's response to a 2002 steel tariff is a great example of applying effective impact. In 2002, then President George W. Bush enacted a tariff of 8 percent to 30 percent on foreign steel.³⁷ The European Union responded by announcing planned tariffs of multiple products produced in key swing

³³ Freeman, *Arts of Power: Statecraft and Diplomacy*, 50.

³⁴ Ibid.

³⁵ Ibid., 19.

³⁶ Ibid., 50.

³⁷ Justin Worland, "Trump Wants to Impose Steel Tariffs. It Didn't Work for Bush," *Time*, accessed March 21, 2018, www.google.com/amp/amp.timeinc.net/time/5180901/donald-trump-steel-aluminum-tariff.

states that could hurt President Bush's chance for reelection. To ensure its high level of impact, the EU included orange juice and other citrus products from Florida, where Jeb Bush was governor.³⁸ The impact was clearly felt by President Bush when he asked Romano Prodi, president of the European Commission, "Why are you attacking my family?"³⁹

The last two factors identified by Freeman are irresistibility and sustainability.⁴⁰ Irresistibility refers to the level the capability's resulting effects could be countered or reduced. Since resources could be obtained from various sources in a globalized economy, achieving a high level of irresistibility requires cooperation from other states. Lastly, sustainability refers to the imposing state's ability to tolerate the time and cost of a specific action. This last factor is of importance for states of democratic governments. "Costs or benefits that the state sees as acceptable for the nation as a whole fall unevenly on individuals, groups, regions, or economic sectors."⁴¹ A high cost because of a political economic action can trigger backlash from a region or economic sector.

By far, the most important concept that needs to be defined is economic power. Per *Joint Publication 1 of the Doctrine for the Armed Forces* of the United States, Economic Power is divided into two areas: domestic and international. Domestically,

³⁸ The Economist, "Cold Steel," last modified November 13, 2013, accessed March 21, 2018, www.economist.com/node/2206255.

³⁹ Ibid.

⁴⁰ Freeman, *Arts of Power: Statecraft and Diplomacy*, 21.

⁴¹ Ibid., 52.

economic power enables the welfare of the country and the buildup of military force.⁴² Internationally, economic power is a vehicle to work with other nations and organizations to further world economic stability.⁴³ It is one of four instruments of national power a nation is able to use to achieve national strategic objectives.⁴⁴ The other three are Diplomatic, Informational, and Military.⁴⁵ This definition of economic power presented by *Joint Publication 1* is limited in explaining the vast possibilities of economic power. The full range of economic power is a concept that encompasses various utilizations. Economic power can be used as both a coercive tool, as well as a means to accomplish various strategic goals.

Economic power is a concept that combines two specific terms: economics and power. Fully describing this concept requires more than the synthesis of these two terms. To understand this concept, it is important to place it in context. The context begins with the key players involved, United States and China. Both players have their own distinct view of economic power. For the United States, economic power is largely seen as an avenue to impose change. An example of this is the United States willingness to use sanctions or aids when addressing the world. China on the other hand sees economic power as a resource. They can only obtain a desired outcome through the conversion of

⁴² U.S. Department of Defense, Joint Publication 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: Government Printing Office, 2017), I-13.

⁴³ *Ibid.*, I-14.

⁴⁴ *Ibid.*, I-12.

⁴⁵ *Ibid.*

various resources within their disposal.⁴⁶ China's ability to obtain a preferred outcome is reliant on another state's dependency. The U.S. perceives another state as already dependent and can impose change if necessary.

The other context to help understand economic power is the idea of globalization. According to Nye, globalization is defined as a world of interdependence.⁴⁷ In the Institute for Foreign Policy Analysis (IFPA) - Fletcher Conference 2000 report, Thomas Friedman describes globalization in terms of integration. "Globalization is the integration of markets, finance, technology, and telecommunications, enabling people to reach around the world, and the world to reach people . . ."⁴⁸ It describes a strategic environment of interconnections among networks.⁴⁹ States exist in a system that also includes "super-markets," and "super-empowered people."⁵⁰ The actions states take to deal with their sensitivity and vulnerability within this system can shift the level of interdependence they have to other actors. Economic power within the context of globalization depends on interdependency and the ability to manipulate dependency to achieve desired outcomes.

⁴⁶ Joseph Nye, *The Future of Power*, Reprint ed. (New York: Public Affairs, 2011), 10.

⁴⁷ Nye, *Understanding International Conflicts*, 205.

⁴⁸ Institute for Foreign Policy Analysis, *National Strategies and Capabilities for a Changing World*, IFPA-Fletcher Conference 2000 (Arlington, VA: The United States Army, November 15, 2000), accessed March 29, 2018, <http://www.ifpa.org/pdf/fletfinal.pdf>, 18.

⁴⁹ Nye, *Understanding International Conflicts*, 207.

⁵⁰ Institute for Foreign Policy Analysis, *National Strategies and Capabilities for a Changing World*, 18.

The second concept is *National Security*. The latest National Security Strategy (NSS) outlines the following four areas that is important to the security of the United States:

1. Protect the American people, the homeland, and the American way of life;
2. Promote American prosperity;
3. Preserve peace through strength; and
4. Advance American influence.⁵¹

A threat to any four areas is a threat to the national security of the United States. Based on the above stated NSS, the main proponents of national security is the ability to ensure prosperity, and protect the American way of life.

According to Charles Herman, national security is defined as “security with respect to ‘value out-comes’ desired by those who comprise the effective political base of a nation.”⁵² It is about minimizing or eliminating current and future threats that hinders a state from achieving its goals. The definition of national security can change based on five factors: preferred value outcomes, international environment, domestic environment, nature of threats, and strategies for threat aversion.⁵³ What one state considers to be a

⁵¹ U.S. President, *National Security Strategy of the United States of America*, The White House, December 2017, accessed February 26, 2018, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>, 4.

⁵² Charles Hermann, “Defining National Security,” in *American Defense Policy*, eds. John Reichart and Steven Sturm (Baltimore, MD: Johns Hopkins University Press, 1982), 18–21, accessed April 12, 2018, <http://www.voxprof.com/cfh/hermann-pubs/Hermann-Defining%20National%20Security.pdf>, 19.

⁵³ *Ibid.*, 20.

national security concern can be different for another based on how it views itself according to the previously stated five factors. It is important to understand that both the United States and China have different views of national security. However, both states share a common belief that technological advancement plays a role in their security, and have taken different approaches in accomplishing this goal.

The next concept is *Economic Security*. To understand its true meaning, this concept requires both an internal and external element. “The pursuit of economic security, then, encompasses efforts to protect U.S. economic prosperity (or some part of this prosperity) from loss and to shape the international economic and political-military environment to the advantage of most of the U.S. population.”⁵⁴ This idea of economic security was a result of a RAND’s National Defense Research Institute research sponsored by the Office of the Secretary of Defense (OSD).⁵⁵ There is a clear distinction between national security and economic security. A state could have economic security but not national security, as demonstrated by the September 11, 2001 attacks. Despite the United States being economically secure at that time, that type of security did not protect the United States from terrorist attacks. However, a state’s national security cannot exist without some level of economic security. A strong and growing economy allows a state to protect its people, and sustain its military.⁵⁶

⁵⁴ C. R. Neu and C. Wolf, *The Economic Dimensions of National Security* (Santa Monica, CA: RAND Corporation, 1994), 12.

⁵⁵ *Ibid.*, iii.

⁵⁶ U.S. President, *National Security Strategy of the United States of America*, 17.

In today's technologically driven world, economic security and national security are connected to technology security. Stephen Bryen, in *Technology Security and National Power*, defines technology security as “the ability to protect proprietary and sensitive information, whether the information relates to their finances or the technology that underpins their business.”⁵⁷ Bryen also addressed the fact that technology does not stay stagnant, and improves over time. This understanding of technology must also be incorporated into the idea of technology security as it should include an aspect of advancement. There is little benefit for an organization to protect outdated technology when a better technique or idea has been discovered. Advancement of technology can occur in two ways. The first is to advance it through domestic entities, or purchase it from a foreign entity. Another aspect of protecting sensitive information is preventing adversaries from acquiring specific knowledge or skills related to the technological advancement. Prevention can be in the form of export control systems or anything else that will stop adversarial acquisition.

The last concept to consider is geoeconomics. This study will use the definition presented by Blackwill and Harris in the book *War By Other Means: Geoeconomics and Statecraft*. According to Blackwill and Harris, geoeconomics is “the use of economic instruments to promote and defend national interests, and to produce beneficial geopolitical results; and the effects of the other nations' economic actions on a country's geopolitical goals.”⁵⁸ A state can use seven different instruments as part of geoeconomics:

⁵⁷ Stephen D. Bryen, *Technology Security and National Power: Winners and Losers*. (New Brunswick, New Jersey: Routledge, 2015), 71.

⁵⁸ Blackwill and Harris, *War by Other Means*, 20.

1. Trade policy
2. Investment policy
3. Economic and Financial Sanctions
4. Financial and Monetary Policy
5. Aid
6. Cyber
7. Energy and Commodities⁵⁹

This study will focus on trade, investment, and aid to explore how the United States and China can use those tools to obtain their national interests. Cyber is excluded due to its proximity to investments. This study will expand on the tool of investment in technology, which includes cyber, as a way to enable national security. Cyber can exist as a stand-alone subject outside of the realm of economic power when it is not connected to the United States investment policies. Energy and commodities and sanctions are also excluded due to its closeness to trade policy. Trade policy is a way to ensure the acquisition of key resources, while sanctions is a way to deny and/or limit adversaries and competitors of their resource requirements. Lastly, financial and monetary policy are also excluded from analysis. The exploration of financial and monetary policy requires a deep understanding of the science of economics. This research paper is a focus on the strategic use of economic power, and not an economics theory paper.

⁵⁹ Blackwill and Harris, *War by Other Means*, 49-92.

Definitions

The terms used in this research are defined in the below section. Specific definitions are provided to clarify the researcher's intended meaning in using the below terms:

Appeasement: Actions taken by one state to accommodate another in order to prevent conflict.⁶⁰

Foreign Direct Investments: Investment made to acquire a lasting interest in or effective control over an enterprise operating outside of the economy of the investor.⁶¹

International Trade: The transfer of goods and services which include capital goods from one country to another.⁶² This study will often refer to international trade by the term trade.

National Interests: Priorities of a state that guides its decisions and actions.⁶³

Strategic Interests: Matters that can affect a state's security, well-being, and domestic tranquility, or the capacity to advance or defend them.⁶⁴

⁶⁰ Nye, *Understanding International Conflicts*, 286.

⁶¹ United Nations, "Foreign Direct Investment (FDI) Net Inflows and Net Outflows as Share of GDP," accessed April 8, 2018, http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/global_econ_partnership/fdi.pdf.

⁶² Danjuma Naisla Hassan, Habakuk Aboki, and Amos Anyesha Audu, "International Trade: A Mechanism for Emerging Market Economies," *International Journal of Development and Emerging Economies* 2, no. 4 (December 2014): 24–32, 26.

⁶³ Freeman, *Arts of Power: Statecraft and Diplomacy*, 9.

⁶⁴ *Ibid.*, 10.

States: A governmental body with fixed boundaries controlling a defined territory.⁶⁵ The prevailing theory of what defines a state is found according to Article 1 of the Montevideo Convention of the Rights and Duties of States. A state comprises of a permanent population, defined territory, effective government, and capacity to enter into relations with other states.⁶⁶

⁶⁵ Freeman, *Arts of Power: Statecraft and Diplomacy*, 9.

⁶⁶ Robert J. Delahunty and John Yoo, "Statehood and the Third Geneva Convention," *Virginia Journal of International Law* 46 (2005): 142, accessed April 17, 2018, <https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=2051&context=facpubs>.

CHAPTER 2

REVIEW OF LITERATURE

Heaven presides above and the earth presides below. That which is situated in the center of the two is known as “the middle kingdom (*zhongguo*). Those who dwell on the edges of heaven and earth are known as “the four outlanders.” The four outlanders are on the outside. The “central kingdom (*zhongguo*)” is on the inside.

—Shi Jie, *On the Middle Kingdom*

This thesis requires the examination of various sources of literature to understand what capabilities exist between U.S. and China because of economic policy. The sources have been broken up into the following fields: conceptual ideas about economic power and its capabilities, U.S. economic policy, and China economic policy.

China’s Economic Policy: “The China Dream”

The Communist Party of China (CPC) has inherited a civilization that is over 5,000 years old with a billion plus population.⁶⁷ A civilization that old has a history rich in both triumph and defeat. The most recent and painful of those defeats is labeled as the “century of humiliation.” From 1839 to 1949, the Chinese people were humiliated by “military defeat, foreign-influenced civil war, economic colonization, and occupation by outside powers – first by the European imperialists and later by Japan.”⁶⁸ The CPC is

⁶⁷ Allison, *Destined for War*, xix.

⁶⁸ *Ibid.*, 111.

using that painful history at the hands of Japan and the West to unify its people towards a strictly Chinese Dream.⁶⁹

According to Graham Allison, the author of *Destined for War*, China intends to seek the following four goals to make China great again:

1. Returning China to the predominance in Asia it enjoyed before the West intruded.
2. Reestablish control over the territories of ‘greater China,’ including not just Xinjian and Tibet on the mainland, but also Hong Kong and Taiwan.
3. Recovering its historic sphere of influence along its borders and in the adjacent seas so that others give it the deference great nations have always demanded.
4. Commanding the respect of other great powers in the councils of the world.⁷⁰

The two objectives to accomplish the four goals are set in the “Two Centennial Goals: build a moderately prosperous society by 2021, and become a modernized, fully developed, rich and powerful nation by 2029.”⁷¹

A review of China’s economic policy begins with a review of the “13th Five-Year Plan for Economic and Social Development of The People’s Republic of China (2016-2020),” as translated by the Compliation and Translation Bureau, Central Committee of the Communist Party of China. The plan is divided into 20 parts with a total of 80 Chapters.⁷² Each part has a central focus, and each part is supported by a set of specific

⁶⁹ Allison, *Destined for War*, 122.

⁷⁰ Ibid., 109.

⁷¹ Ibid., 118.

⁷² Central Committee of the Communist Party of China, *The 13th Five-Year Plan for Economic and Social Development of the People’s Republic of China: 2016-2020*, accessed November 4, 2017, en.ndrc.gov.cn.

chapters detailing the ideas that are important to that specific focus. The purpose for the Five-Year plan is to act as a guide and metrics for the entire Chinese government, and to give a common vision for all of China to work towards.⁷³

Part one of the plan summarizes the accomplishments of the 12th Five-Year plan ending in 2015. The 12th Five-Year plan has four different focus areas: economic development; science, technology, and education; resources and the environment; and living standards. Within the four areas are 24 key topics, and each topic has a specific performance goal detailing the difference between the target and actual fulfillment. Some of the targets include research and development expenditure as a percent of gross domestic product, new urban employment, and average life expectancy. Of the 24 different key topics of performance, the Communist Party of China reported they fulfilled 21 of the 24-targeted goals.⁷⁴

Additionally, Part one of the 13th Five-Year plan identifies both the global environment and the internal challenges of China. Externally, the plan sees uncertainties in the global market from both developed and developing countries. Internally, the plan sees systemic flaws that has hampered growth and innovation. Most importantly, the plan communicates a sense of urgency and message that it will take a unified Chinese effort to face the challenges of the current environment. “We will become more mindful of the

⁷³ Central Committee of the Communist Party of China, *The 13th Five-Year Plan for Economic and Social Development of the People’s Republic of China: 2016-2020*, Part 1.

⁷⁴ Ibid.

difficulties ahead, develop a stronger sense of responsibility, and prepare ourselves for worst-case scenarios.”⁷⁵

There are six guiding principles outlined in Chapter 2. The principles are centered around a prosperous country through development, reform, law-based governance, awareness of international economies, and leadership by the CPC. These principles will be the foundation to build towards the achievement of the second part of the “Two Centenary Goals.” The plan recognizes that the people of the country are both the reason for development, and the engine driving the development of the country. Unlike the 2017 U.S. National Security Strategy, the Five-Year Plan does not identify any adversaries. It only briefly mentions the need to stifle poor economic growth, and insulate itself from external financial stress.

According to a staff research report by Katherine Koleski, from the U.S. China Economic and Security Review Commission, the 13th Five-Year Plan (2016-2020), the plan calls for greater intervention by the Chinese government.⁷⁶ Despite a call for transparency, the plan would actually make it more difficult for foreign companies to operate in China. “These policies are slowly closing market opportunities for U.S. and other foreign firms in China, and creating new Chinese competitors that will be able to challenge U.S. companies in the United States and in third country markets, with

⁷⁵ Central Committee of the Communist Party of China, *The 13th Five-Year Plan for Economic and Social Development of the People’s Republic of China: 2016-2020*, Part 1.

⁷⁶ Katherine Koleski, *The 13th Five Year Plan*, U.S-China Economic and Security Review Commission, February 14, 2017, accessed October 5, 2017, https://www.uscc.gov/sites/default/files/Research/The%2013th%20Five-Year%20Plan_Final_2.14.17_Updated%20%28002%29.pdf, 27.

potential negative impacts on U.S. employment, productivity, and innovation.”⁷⁷

Additionally, the plan is primarily centered on innovation as China aims to be the global center of innovation and technology.⁷⁸ By 2020, the plan’s targets are to raise research and development as a share of gross domestic product from 2.1 percent to 2.5 percent, and the portion of the total population possessing scientific degrees from 6.2 percent to 10 percent. A 10 percent population possessing scientific degree translates to roughly half of the entire United States population. The 13th Five - Year Plan envisions China to be a leader in innovation by 2030, and the world center of innovation by 2050.⁷⁹

Within the international arena, the plan addresses Openness as one of its themes. There are four priorities set out as part of this theme. The first is to increase exports by increasing trade in services to 16 percent of total foreign trade.⁸⁰ Secondly, the plan encourages the import of advanced technology and equipment, and high quality consumer products. Third, the plan will guide investments to industrial and economic objectives by encouraging greater foreign investments in advanced manufacturing, technology, and modern services.⁸¹ In Koleski’s report to the U.S.-China Economic and Security Review Commission, she specifically warns against this priority. “However, China maintains a

⁷⁷ Koleski, *The 13th Five Year Plan*, 29.

⁷⁸ *Ibid.*, 6.

⁷⁹ Xinhua, “China Concentrates on Sci-Tech Innovation,” *ChinaDaily*, last modified September 18, 2017, accessed October 2, 2017, https://www.chinadaily.com.cn/business/2017-09/18content_32161378.htm.

⁸⁰ Koleski, *The 13th Five Year Plan*, 22.

⁸¹ *Ibid.*

pattern of first welcoming foreign investments into strategic sectors to gain foreign technology, intellectual property, and know how then restricting investment in those sectors as domestic firms become competitive.”⁸² The last priority is to increase the role China plays as part of the international system.

U.S. National Security and Economic Policy: “America First.”

The 2017 National Security Strategy (NSS) begins by stating the importance of its citizens, and that political power is both derived from and responsible for the people of the United States.⁸³ The actions taken by the U.S. government should always be guided by the interest of its people, and has been identified as “our true North Star.”⁸⁴ In the last century, the unity of its people supported the strength of the republican democracy to stand against “fascism, imperialism, and Soviet communism”.⁸⁵ The NSS then shifts from the strengths of the U.S. to the current dilemma the U.S. faces from competitors (Table 1). At the root of the problem is a world divided by “those who value human dignity and freedom, and those who oppress individuals and enforce uniformity.”⁸⁶ The competition the U.S. faces are against those who act according to the latter.

⁸² Koleski, *The 13th Five Year Plan*, 22.

⁸³ U.S. President, *National Security Strategy of the United States of America*, 1.

⁸⁴ *Ibid.*, 2.

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*, 3.

Table 1. Table of Competitors	
Competitors	Objectives
China	<ol style="list-style-type: none"> 1. Erode American security and prosperity 2. Make economies less free and less fair 3. Repress their societies and expand their power.
Russia	<ol style="list-style-type: none"> 1. Erode American security and prosperity 2. Make economies less free and less fair 3. Repress their societies and expand their power.
Democratic People’s Republic of Korea	<ol style="list-style-type: none"> 1. Destabilize regions. 2. Threatens Americans and allies 3. Brutalize their own people.
Islamic Republic of Iran	<ol style="list-style-type: none"> 1. Destabilize regions. 2. Threatens Americans and allies 3. Brutalize their own people.
Transnational Threat Groups (jihadist terrorists and criminal organizations).	<ol style="list-style-type: none"> 1. Harm Americans

Source: Created by author from using text from U.S. President, *National Security Strategy of the United States of America*, The White House, December 2017, accessed February 26, 2018, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>, 2-3.

The 2017 NSS identifies concerns that are, and could, disrupt the security of the United States. Of all the concerns, there is no other state mentioned more than China. China is mentioned a total of 33 times throughout the 58 page document. In those 33 references, China is considered to be a challenger, competitor, and threat.⁸⁷ Of the other

⁸⁷ U.S. President, *National Security Strategy of the United States of America*, 2017 page 2 references China and Russia as challengers to “American power, influence, and interests, attempting to erode American security and prosperity.” On page 8 China is

states of concern in the world, Russia is mentioned 25 times, Iran 17 times, and North Korea is mentioned 16 times. The numerous references of China is an indication of the significance China plays in U.S. strategy, considering the other external entity that is mentioned 36 times are terrorists.

The United States has to rethink a new set of policies to deal with the various competitors in the world. The old policies of engagement and inclusion have not been able to turn adversaries into “trustworthy partners.”⁸⁸ The new policies recognize military strength alone is not enough. Rival actors are using methods other than conventional military operations to challenge the United States and its allies. The NSS has labeled these methods as “operating below the threshold of military conflict...hostile actions cloaked in deniability.”⁸⁹ As a result of the environment, the NSS calls for a combination of superior military and other elements of national power to deal with current rivals.⁹⁰

The 2017 NSS outlines four pillars that support the national security of the United States. These four pillars are:

1. Protect the American People, the homeland, and the American Way of Life.
2. Promote American Prosperity.
3. Preserve Peace through Strength.

linked to the development of “capabilities that could threaten” the US. As a competitor, China is stated in page 21 to be a competitor that “steal U.S. intellectual property.”

⁸⁸ U.S. President, *National Security Strategy of the United States of America*, 3.

⁸⁹ Ibid.

⁹⁰ Ibid.

4. Advance American Influence.⁹¹

All four pillars have some element of economic power as either a way or means to achieve its objectives. Resources are needed to build an enhanced missile defense system as part of protecting the homeland. The United States must have economic policies capable of supporting “a vibrant domestic manufacturing sector, a solid defense industrial base, and resilient supply chains” in order to strengthen the defense industrial base as part of pillar three.⁹² Foreign aid is essential to incentivizing states to reform to enable the advancement of American influence.

Of all the pillars, economic power is essential to the success of pillar two. In order to promote American prosperity, there are five main objectives to accomplish:

1. Rejuvenate the Domestic Economy.
2. Promote Free, Fair, and reciprocal economic relationships.
3. Lead in Research, Technology, Invention, and Innovation.
4. Promote and protect the U.S. national security innovation base.
5. Embrace Energy Dominance.⁹³

Each objective has a set of priority actions, and all the priority actions require the careful application of economic instruments to both accomplish the action and protect it from disruption.

⁹¹ U.S. President, *National Security Strategy of the United States of America*, V-VI.

⁹² *Ibid.*, 30.

⁹³ *Ibid.*, 17-23.

The priority of actions associated with the five objectives of pillar two are in line with pillars of reform highlighted by President Trump in a letter to Congress. The proposed fiscal year 2018 budget of the U.S. Government titled “A New Foundation for American Greatness” outlines the economic priorities of the U.S. “It is a bold and specific set of policy and budgetary initiatives that tackle many of the problems ignored or exacerbated by previous administrations.”⁹⁴ The budget begins with a message to Congress from President Trump to look nine years into the future. President Trump also addresses eight pillars of reform needed to set the foundation for American greatness.

The pillars are:

1. Health Reform
2. Tax Reform and Simplification
3. Immigration Reform
4. Reductions in Federal Spending
5. Regulatory Rollback
6. American Energy Development
7. Welfare Reform
8. Education Reform.⁹⁵

All eight pillars are ways to accelerate economic growth so that the dreams of the American people could be realized.⁹⁶

⁹⁴ U.S. President, *Budget of the U.S. Government: A New Foundation for American Greatness, Fiscal Year 2018*, The White House, November 2017, accessed October 26, 2017, <https://www.whitehouse.gov/wp-content/uploads/2017/11/budget.pdf>.

⁹⁵ *Ibid.*, 1-2.

⁹⁶ *Ibid.*, 1.

The five objectives associated with pillar two in the NSS and the economic goals of President Trump are in conflict with the objectives set out by competitors such as China. For example, both the United States and China want to lead in innovation. Innovation does not occur in a vacuum and is sometimes related to other elements within an economic system. Noam Chomsky, the author of *Who Rules the World?* associates manufacturing with innovation. “Manufacturing regularly provides the basis for innovation, often even breakthroughs, as is now sometimes happening in China.”⁹⁷ Noam uses the example of China’s rise in the solar panel market because of innovation.⁹⁸ If the United States wants to lead in innovation, it must wrestle back manufacturing jobs from China. This would require the United States to use various economic instruments and be ready to successfully counter any instruments used by China.

Applications of Economic Power

The powers of a state are most useful when it is properly converted to realized power. The process of conversion is found in various power strategies. There is an element of economic power in all of the power strategies. One of the most widely known and used is hard power. This type of power relies on inducements and threats to achieve a desired outcome.⁹⁹ The strength of a state’s military and the threat of or actual use of its military can compel other states to its will. The application of economic power in this

⁹⁷ Noam Chomsky, *Who Rules the World?* (New York: Metropolitan Books, 2016), 71.

⁹⁸ *Ibid.*

⁹⁹ Nye, *Understanding International Conflicts*, 62.

strategy can be in the form of aid or sanctions to coerce and influence behavior. The success of a hard power strategy depends on not just the level of potential power within a state, but also the degree a state is willing to use that resource.

Another widely known power strategy is in the form of soft power. This strategy is based on attraction and persuasion, and “getting others to want what you want.”¹⁰⁰ The culture, ideas, or vision that one state has can be so inspiring and uplifting that other states want to follow their example. In terms of economics, the prosperity, wealth, and happiness of the people of a state can cause the people of other states to want to emulate it. This gives that prosperous state a high level of soft power.

A recently introduced power strategy is that of sharp power. According to Christopher Walker and Jessica Ludwig, who coined this power, sharp power “pierces, penetrates, or perforates the political and information environments in the targeted countries” to influence that country.¹⁰¹ Sharp power is a form of information warfare “to shape public perceptions and behavior around the world.”¹⁰² In a globalized world, where information can spread quickly, sharp power has the ability to change the sensitivity and vulnerability of any state. In essence, sharp power is about affecting and manipulating the way people think. With economic power, a state is able to purchase vehicles that transmit

¹⁰⁰ Freeman, *Arts of Power: Statecraft and Diplomacy*, 62.

¹⁰¹ Joseph Nye, “How Sharp Power Threatens Soft Power | Foreign Affairs,” *Foreign Affairs*, last modified January 24, 2018, accessed April 14, 2018, <https://www.foreignaffairs.com/articles/china/2018-01-24/how-sharp-power-threatens-soft-power>.

¹⁰² *Ibid.*

this information. This vehicles as television, and movies can transmit information quickly throughout the world.

Joseph Nye's *The Future of Power*, published in 2011, outlines another type of power different than Economic, and Soft. Nye also explains the concept of smart power strategy. "A smart power strategy requires that the old distinction between realists and liberals needs to give way to a new synthesis that we might call liberal realism."¹⁰³ The smart power strategy is a five-step process that requires a state to understand their strategic goals and capabilities, tie those capabilities into both soft and hard powers, while correctly utilizing all national power elements, applicable to a target's resources, in a synchronized and measurable manner.¹⁰⁴ Former Secretary of State Hillary Clinton captures this idea in the State Department's 2009 Agency Financial Report: "We must use what has been called smart power: the full range of tools at our disposal – diplomatic, economic, military, political, legal, and cultural – picking the right tool, or combination of tools, for each situation."¹⁰⁵ This idea creates the ability for unified action in the application of DIME. Every element works to promote and enhance one another, further strengthening a nation's power.

China as a communist country, under one party, is able to operate with a smart power strategy. Democratic governments are limited in certain aspects on implementing

¹⁰³ Nye, *The Future of Power*, 231.

¹⁰⁴ *Ibid.*, 218-230.

¹⁰⁵ U.S. Department of State, *A New Era of Engagement: 2009 Agency Financial Report* (Washington, DC: U.S. Department of State, 2009), accessed December 1, 2017, <https://www.state.gov/documents/organization/132214.pdf>, 7.

parts of DIME. “The diffusion of power to nonstate actors, including transnational corporations, sets limits on state strategies to use economic instruments.”¹⁰⁶ Unlike America, China is able to focus all elements of national power by wielding complete control over its people. Through censorship and restrictions, the Chinese government is capable of utilizing information as a means to direct the hearts and minds of its people. This informational power maximizes support the governmental authority has to guide China towards any strategic goals it deems important. The support of the people allows the Chinese government to act unhindered in the execution of all elements of DIME.

A great example of China’s execution of DIME is found in Kevin P. Gallagher’s book, *The China Triangle*, published in 2016. In 2010, Argentina levied tariffs on Chinese manufactured shoes to protect Argentina’s footwear industry.¹⁰⁷ China responded by telling its importers to not buy soy-oil from Argentina. Despite Argentina soy-oil being cheaper than other countries, China importers followed the orders of the government.¹⁰⁸ The Chinese government took advantage of this situation during negotiations with Argentina: “China agreed to accept Argentine oil again, in exchange for allowing China to play the central role in the modernization of Argentina’s ailing railroad system.”¹⁰⁹ China was able to initiate a “smart power strategy” to produce a favorable

¹⁰⁶ Nye, *The Future of Power*, 80.

¹⁰⁷ Kevin P. Gallagher, *The China Triangle: Latin America’s China Boom and the Fate of the Washington Consensus* (New York: Oxford University Press, 2016), 102.

¹⁰⁸ *Ibid.*, 103.

¹⁰⁹ *Ibid.*

outcome. Through something as simple as soy-oil, China created a larger economic gain and established closer ties with Argentina.

The China Triangle further explores the intricate relationship between U.S., China, and Latin America. “At the top of the triangle tips is the United States, while China and Latin America form a new base of cooperation from left to right.”¹¹⁰ The book helps show how China was able to build relationships with other countries through its economic influence. The book is centered on Latin America, but the national security concerns for U.S. can be seen throughout every page. The book shows how effectively China is able use a smart power strategy with emphasis on the economic dimension of power throughout its dealings with Latin America. Chinese investments, followed by Chinese companies and nationals, is a slow economic colonization of Latin America.

The United States have always been concerned with foreign powers in the Americas. This concern can be traced back to the Monroe Doctrine of 1823: “the American continents, by the free and independent condition which they have assumed and maintain, are henceforth not to be considered as subjects for future colonization by any European powers.”¹¹¹ Former Defense Secretary Caspar Weinberger extended the doctrine to include all countries outside of the western hemisphere from interfering in the Americas.¹¹² The close economic ties between China and Latin America undermines this

¹¹⁰ Gallagher, *The China Triangle*, 3.

¹¹¹ Our Documents, “Transcript of Monroe Doctrine (1823),” accessed February 26, 2018, <https://www.ourdocuments.gov/doc.php?flash=true&doc=23&page=transcript>.

¹¹² History, “Monroe Doctrine - Facts & Summary,” accessed February 26, 2018, <http://www.history.com/topics/monroe-doctrine>.

doctrine. In 2015, during a summit between China and the entire Latin America region (CELAC – Community of Latin American and Caribbean States), China pledged to increase trade to \$500 billion, and investments to \$250 billion.”¹¹³ This resulted in a \$1 billion agreement from Argentina to buy Chinese military equipment to include fighter jets.¹¹⁴ China also built a satellite-tracking station in Patagonia, Argentina operated by a unit from the People’s Liberation Army.¹¹⁵ The growing Chinese presence in Latin America can affect U.S. relations with its closest neighbors, and U.S. national security.

In the book *Buying Trouble: National Security and Reliance on Foreign Industry*, by James F Miskel, the different dimensions of dependency and national security are investigated. Miskel concludes that the issue of dependency, even in regards to the defense industrial base, is not necessarily a matter for concern. “The strength of the economic incentives for exporting defense-related systems, products, services and components and the difficulty inherent in attempting to control exports in a globalized economy argue that the United States need not be overly concerned about being unable to obtain critical goods and services from foreign industry during a crisis.”¹¹⁶ The economic dependency from other states to sell and produce products for the United States will continue even in times of war. The problem with dependency is not the actual items

¹¹³ Gallagher, *The China Triangle*, 173.

¹¹⁴ The Economist, “A Golden Opportunity,” November 17, 2016, accessed February 26, 2018, <https://www.economist.com/news/americas/21710307-chinas-president-ventures-donald-trumps-backyard-golden-opportunity>.

¹¹⁵ Ibid.

¹¹⁶ James F. Miskel, *Buying Trouble* (Lanham, MD: University Press Of America, 1993), 171-172.

produced but the technology developed. In a globalized economy, the proliferation of dual use technology and defense unique technologies by other states can adversely affect the national security of the United States.¹¹⁷

Miskel identifies twenty-two dual use and six defense unique technologies.¹¹⁸ The technologies identified range from superconductors to robotics, and machine intelligence.¹¹⁹ The logic behind Miskel's argument is that the state that builds these items will eventually create better techniques and technologies from these items. This will create a force multiplier effect enabling an increase in both the state's economic stability, and further enabling research and development.¹²⁰ The benefits compound upon one another in a cycle of advancement.

A prominent belief is that a soft power approach amongst states leads to greater prosperity, where everyone benefits. Economic cooperation enables states to build upon one another's strengths. However, in James Kwak's *Economism*, common beliefs about economic cooperation are explored to review both sides of the argument. For the U.S. this cooperation can be more detrimental than beneficial. "Since the late 1970s, as foreign trade has grown, the United States has lost more than 7 million of the manufacturing jobs that enabled working families to join the middle class in the decades after World War

¹¹⁷ Miskel, *Buying Trouble*, 181.

¹¹⁸ *Ibid.*, 73.

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*, 75.

II.”¹²¹ The book explores the ideas around the theory of competitive advantage, developed by David Ricardo. Competitive advantage explains how a country trades with another country a product that it can easily produce for something it cannot easily produce.¹²² When two countries trade with their respective competitive advantage product, the theory proposes this allows both countries to acquire more of something with fewer resources. However, competitive advantage also reshapes the economic landscape of each respective state. A state will build more of one product, and likewise less of another. This creates a vacuum in labor and skills as less of the population will be employed in that specific area. Additionally, if a country exhausts its resource it must quickly adapt to the global market or face severe hardships.

Thomas Friedman’s *The Lexus and the Olive Tree* tell an example of hardships brought on by competitive advantage. Friedman uses the story of when he visited a mayor in Una, Brazil. The town was heavily dependent on the logging industry as a means of its economic resource. The mayor asked Friedman: “My villagers can’t live off the forest anymore and we’re not equipped to live off computers. My father and grandfather made a living off logs and my grandchildren might make a living off the Internet. But what are all the rest of us in between supposed to do?”¹²³ It is a story that shows how once an economy is completely reliant on one trade or resource it requires time and knowledge to shift to another.

¹²¹ James Kwak and Simon Johnson, *Economism: Bad Economics and the Rise of Inequality* (New York: Pantheon, 2017), 158.

¹²² Kwak and Johnson, *Economism*, 160.

¹²³ Friedman, *The Lexus and the Olive Tree*, 330.

The shift in dependency can further be explained through Nye's idea of sensitivity and vulnerability. Sensitivity is defined as the time it takes for the change in one system to cause change in another system.¹²⁴ The villagers in Una, Brazil are extremely sensitive to the global demand for timber. Once the demand for timber decreases, their whole economic well-being can also quickly decrease. The idea of vulnerability is the degree of dependency.¹²⁵ The greater a state is dependent on another state for a resource or service, the more vulnerable the state becomes. The vulnerability of a state can also depend on its people's ability to change and adapt, as well as the availability of substitutes of supply.¹²⁶ The vulnerability of the United States to China as a trading partner is often overestimated. In the event China decides to not trade with the United States, as long as the people are willing to sacrifice their standard of living, and U.S. companies are willing to shift manufacturing to other countries such as Mexico, the United States can still survive.

¹²⁴ Nye, *Understanding International Conflicts*, 213.

¹²⁵ *Ibid.*

¹²⁶ *Ibid.*, 215.

CHAPTER 3

RESEARCH METHOD

The primary question of this research compares economic powers between the United States and China as ways to obtain the national security objective in the form of technology security. The examination will require case studies to be conducted and compared. The case studies will be centered on Chinese and U.S. economic policies and actions. Analysis will be conducted to try to understand how each state uses the tools of economic power. The respective policy can help determine the usage of power as a way to achieve its strategic end.

The definition of research can be diverse. It is first important to understand the nature of the research in order to properly progress. Most research can be broken into three distinct fields: theory research, data research, and action research.¹²⁷ The nature of this research project is based on theory. “The emphasis is on structured investigation, exploration or discovery.”¹²⁸ Varying amounts of data is used in the reflection of ideas concerning economic power, but the primary focus will be the ideas concerning the strategic application of economic power as a way to ensure national security. A state’s economic power can often be misunderstood. Like all the elements of DIME, the complexities associated with economics can lead to oversimplification. This research project will examine the theories of economic power and its geoeconomic applications.

¹²⁷ Martin Brett Davies, *Doing a Successful Research Project: Using Qualitative or Quantitative Methods* (Basingstoke, England: Palgrave Macmillan, 2007), 17.

¹²⁸ *Ibid.*

The nature of this research being more reflective than scientific lends itself to employing a qualitative methodology. The research relies on a deductive collection of data and theories to build a better understanding.¹²⁹ This thesis relies heavily on information gathered by independent think tanks, and governmental organizations. The analysis of the data will be illustrated in various tables. The most important method utilized for this thesis will be document analysis. The primary content analysis is performed on documents generated by the U.S. and China. Those documents will create a foundation on understanding each state's economic policy that drives its economic power application. Secondary content analysis will come from books, scholarly articles, magazine, and newspaper articles for current information.

This thesis will not use direct interactions with people, or subject matter experts as part of the research. Any interaction with people will only be to solicit guidance for informational sources, and not in the form of an interview for information. Data collection is conducted through written and published material. As part of Maxwell's Nine Arguments for a Qualitative Proposal, this study does not pose any ethical problems and aims to gain a better understanding of the capabilities of economic power as it relates to national economic policy.¹³⁰

¹²⁹ Sharan B. Merriam, *Qualitative Research: A Guide to Design and Implementation*, 3rd ed. (San Francisco: Jossey-Bass, 2009), 15.

¹³⁰ *Ibid.*, 50.

Research Design

The case study design will show how the U.S. and China use three tools identified by Blackwill and Harris to try to accomplish their strategic goal of technology security.

The evaluation criteria will be an interpretation of Bryen’s idea on maintaining technology security. The actions taken by either U.S. or China will be rated by the desired results of the action. The breakdown of the case study design is shown in Table 2.

A letter “X” will be used to illustrate if a tool accomplishes a criteria effect. A simple explanation of all four criteria are broken down in Table 3.

Table 2. Case Study Criteria				
	Advance	Acquire	Disrupt	Protect
Trade Policy				
Investment Policy				
Foreign Aid				

Source: Created by author using information from Robert D. Blackwill and Jennifer M. Harris, *War by Other Means: Geoeconomics and Statecraft*, 5th ed. (Cambridge, MA: Belknap Press, 2017).

Table 3. Definition of Case Study Criteria	
Advance	Actions taken to increase technological capabilities.
Acquire	Actions taken to gain technology from another state.
Disrupt	Actions taken to prevent another state from technological advancement.
Protect	Actions taken to prevent another state from acquiring domestic technology.

Source: Created by author.

Chapter Summary

This chapter examined the most applicable research methodology in answering the primary research question, “How can the use of economic power further the strategic interests of U.S. and China in relation to their technology security objective?” The evaluation topics and criteria were charted in Tables 2 and 3 to holistically answer the primary research question. Chapter 4 will provide an analysis of U.S. and China economic instruments of power, and its effectiveness in the attainment of technology security.

CHAPTER 4

ANALYSIS

The purpose of this thesis is to explore how economic power can further the strategic interests of the United States and China in relation to their most recent national security objectives, as stated in their respective strategic plans. The subordinate questions guiding this thesis are:

1. What is the current U.S. economic policy in relations to technology?
2. What is China's economic policy in relations to technology?
3. What are the possible strategic capabilities of economic power?

Chapter 4 is an analysis of the United States and China's use of the three instruments of economic power in regards to technology security. As previously stated in Chapter 3, this research will use three primary instruments as the focus of analysis: trade, investment, and foreign aid. The effects of the use of these instruments will be measured by a maximum of four different criteria: advance, acquire, disrupt, and protect. An analysis of both the United States and China's use of the three different instruments will provide insight into the ways each country wields its power, and the impact each country can have on the world.

Trade

Trade has always been an important element of human society. The action of trade and its power were identified as early as 1776 when Adam Smith wrote the *Wealth of Nations*. Since then, states have negotiated agreements such as the General Agreement on Tariffs and Trade, which would eventually become the current World Trade

Organization, in an attempt to set rules on how nations interact in their trade practices. The exchange of goods and services between states are powerful ways states can influence one another. In the analysis of this tool, the research will focus on the effects of this tool in relations to technology security.

The United States has identified itself to be in a vulnerable position in this type of interaction with China. On March 21, 2018, U.S. Trade Representative Robert Lighthizer told lawmakers in a hearing on U.S. trade policy that: “We are losing to China in ways not reflected in underlying economics.”¹³¹ According to Lighthizer, the ways that U.S. is losing stems from intellectual property theft and unfair trade terms. As far back as 2004, a Congressional Research Service report (RL 33536) advised the intellectual property rights piracy rate for U.S. products produced in China to be at an estimated 90 percent, with a cost of \$2.5 billion to U.S. firms.¹³² On the other side of Lighthizer’s concern of trade, the 2017 U.S. National Security Strategy also identified various actions that harm the U.S. economy. “Other countries have used dumping, discriminatory non-tariff barriers, forced technology transfers, non-economic capacity, industrial subsidies, and other support from governments and state-owned enterprises to gain economic advantages.”¹³³ U.S. trade policy aims to counter economic advantages created by other governments and promote fair trade.

¹³¹ Kate Gibson, “U.S. trade re: ‘We are losing to China,’” *CBS News*, accessed March 21, 2018, www.cbsnews.com/amp/news/us-trade-rep-we-are-losing-to-china/.

¹³² Jerald D. Finn, ed., *China-U.S. Economic and Geopolitical Relations* (New York: Nova Science Publishers: 2007), 5.

¹³³ U.S. President, *National Security Strategy of the United States of America*, 19.

The U.S. efforts to counter economic advantages have been focused in three ways: trade negotiation, tariffs, and review of foreign investments. In trade negotiations, the U.S. withdrew from the Trans Pacific Partnership (TPP) in January 2017, and is renegotiating the terms of the North Atlantic Free Trade Agreement (NAFTA).

According to Timothy Health, a senior international/defense researcher with the RAND Corporation, the withdrawal from the TPP caused several strategic consequences:

1. Worsened doubts about U.S. leadership and commitment in Asia.
2. Countries in Asia are both stabilizing ties and reducing dependency with China.
3. Increased rivalry between Japan and China.¹³⁴

The U.S. withdrawal from the TPP does not meet any of the four criteria of evaluation.

In regards to tariffs, U.S. imposed an additional 25 percent tariff on Chinese products such as aerospace and machinery with a total value of about \$50 billion dollars.¹³⁵ President Donald Trump signed the memorandum on March 22, 2018 based on a Section 301 of the Trade Act of 1974 investigation conducted by the Office of the U.S. Trade Representative. The investigation found that the Chinese government trade practices were unreasonable and discriminatory.¹³⁶ According to the investigation:

¹³⁴ Timothy R. Health, “Strategic Consequences of U.S. Withdrawal from TPP,” *The Rand* (blog), accessed March 21, 2018, www.rand.org/blog/2017/03/stretegic-consequences-of-us-withdrawal-from-tpp.

¹³⁵ Office of the United States Trade Representative, “Section 301 Fact Sheet,” last modified March 2018, accessed April 23, 2018, [/about-us/policy-offices/press-office/fact-sheets/2018/march/section-301-fact-sheet](http://about-us/policy-offices/press-office/fact-sheets/2018/march/section-301-fact-sheet).

¹³⁶ *Ibid.*

China uses joint venture requirements, foreign investment restrictions, and administrative review and licensing processes to force or pressure technology transfers from American companies.

China uses discriminatory licensing processes to transfer technologies from U.S. companies to Chinese companies.

China directs and facilitates investments and acquisitions which generate large-scale technology transfer.

China conducts and supports cyber intrusions into U.S. computer networks to gain access to valuable business information.¹³⁷

All the offenses identified by the investigation are related to “technology transfer, intellectual property, and innovation.”¹³⁸ The offenses identified by the investigation are ways China is using trade to both advance and acquire technology. The tariffs are a way to coerce China into changing their technology licensing requirements, and protect the intellectual property of U.S. companies.

Lastly, the U.S. has blocked various acquisitions from Chinese owned companies stating national security concerns. This blockage is related to investment policy than Trade policy. An analysis of this action will be covered in the next part of this chapter under investment policy.

Ever since China became a member of the World Trade Organization in 2001, it has benefited greatly from its membership. This is most evident in its ability to use the full advantages of the trade in education services, which is outlined in the General Agreement on Trade in Services (GATS). GATS is a “set of multilateral rules covering

¹³⁷ Office of the United States Trade Representative, “Section 301 Fact Sheet.”

¹³⁸ Ibid.

international trade in services.”¹³⁹ Based on GATS, the service of education can be traded in four modes, known as “modes of supply.”¹⁴⁰ The modes are: cross border supply, consumption abroad, commercial presence, and presence of national persons.¹⁴¹ These modes allow both students to study abroad, as well as professors and researchers to work abroad.

A 2017 Institute of International Education report shows that Chinese students are the largest international student population for the United States, Canada, France, Germany, United Kingdom, Australia, New Zealand, and Japan.¹⁴² In those specific countries, the Chinese student population can be as great as three times the second largest international student population, or even the combined total of the top four international populations. There are more Chinese students studying in the United Kingdom than those from the United States, Malaysia, Germany, and India combined. Of the 859,292 Chinese students abroad, about 350,734 are studying in the United States.¹⁴³ The number of

¹³⁹ Jane Knight, *Trade in Higher Education Services: The Implications of GATS*, International Strategic Information Service (United Kingdom: The Observatory on Borderless Higher Education, March 2002), accessed April 24, 2018, www.unesco.org/education/studyingabroad/highlights/global_forum_gats_he/jk_trade_he_gats_implications.pdf, 4.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² Institute of International Organization, “Infographics,” accessed April 25, 2018, <https://www.iie.org:443/Research-and-Insights/Open-Doors/Fact-Sheets-and-Infographics/Infographics>.

¹⁴³ Ibid.

Chinese students studying in the United States is projected to increase to almost 450,000 by 2019.¹⁴⁴

There is an identifiable pattern of where Chinese students are choosing to study based on the countries technological capabilities. A 2017 article in *Forbes* identified seven countries in the world that are leading in Artificial Intelligence.¹⁴⁵ Chinese students are the majority of international students in three of those seven countries, such as Canada and Japan. That number does not include China itself. This pattern is even more evident when highlighted with the data showing Chinese student's preferred fields of study.

A majority of the Chinese students studying in the United States, and around the world are in the fields of Science, Technology, Education, and Mathematics (STEM).¹⁴⁶ In 2014, over 42.4 percent of Chinese international students in the United States are in the STEM fields.¹⁴⁷ Based on a 2014 Brookings report, from 2008 to 2012, 96 percent of the 25 educational institutes in the United States with the largest international student

¹⁴⁴ International Trade Administration, "2016 Top Markets Report Education Country Case Study," last modified 2016, accessed April 25, 2018, https://www.trade.gov/topmarkets/pdf/education_china.pdf.

¹⁴⁵ Mark Minevich, "These Seven Countries Are In A Race To Rule The World With AI," *Forbes*, accessed April 25, 2018, <https://www.forbes.com/sites/forbestechcouncil/2017/12/05/these-seven-countries-are-in-a-race-to-rule-the-world-with-ai/>.

¹⁴⁶ International Trade Administration, "2016 Top Markets Report Education Country Case Study."

¹⁴⁷ *Ibid.*

population all had a Carnegie classification rank of either one or two.¹⁴⁸ The rankings indicate the universities have very high, to high levels of research activities.

Individuals like Rodney Adkins, a former senior vice president at IBM, and organizations like the National Society of Professional Engineers, are advocates for the importance of STEM education. Adkins argues STEM education help fuel both technological innovation and advancement citing data showing the 5 percent of U.S. workers in the STEM field are responsible for 50 percent of economic expansion.¹⁴⁹ The National Society of Professional Engineers associates STEM education with economic prosperity and national security.¹⁵⁰ Leaders of the Chinese Communist Party dating back to Deng Xiaoping also shared in the idea of the importance of STEM education.

Deng Xiaoping, China's paramount leader from 1978 to 1989, declared science and technology to be the foundation of a nation's success.¹⁵¹ Part of his reform of the

¹⁴⁸ Neil G. Ruiz, "The Geography of Foreign Students in U.S. Higher Education," *Global Cities Initiative* (2014): 1–52, 11.

¹⁴⁹ Rodney Adkins, "America Desperately Needs More STEM Students. Here's How to Get Them," *Forbes*, last modified July 9, 2012, accessed April 25, 2018, <https://www.forbes.com/sites/forbesleadershipforum/2012/07/09/america-desperately-needs-more-stem-students-heres-how-to-get-them/>.

¹⁵⁰ National Society of Professional Engineers, "Science, Technology, Engineering, and Mathematics Education | National Society of Professional Engineers," accessed April 25, 2018, <https://www.nspe.org/resources/issues-and-advocacy/take-action/position-statements/science-technology-engineering-and>.

¹⁵¹ Horace Freeland Judson, "The Great Chinese Experiment," *MIT Technology Review*, last modified December 1, 2005, accessed April 25, 2018, <https://www.technologyreview.com/s/404987/the-great-chinese-experiment/>.

Chinese education system was to allow students to go abroad to college.¹⁵² “When our thousands of Chinese students abroad return home, you will see how China will transform itself.”¹⁵³ The idea behind Chinese students studying abroad is that it helps create a native population that is as trained and knowledgeable as their foreign counterparts are. Since Deng’s statement, China has transformed into a global power. In the area of STEM education China has no equal. Based on 2016 data from the World Economic Forum, China had 4.7 million STEM graduates, comparatively, the United States had 568,000.¹⁵⁴

China’s capitalization on the trade of education services has allowed China to tap into prestigious educational institutions around the world. This has allowed China to both build the capacity to innovate on its own, as well as build on the innovation. The high level of success China is achieving through their international study abroad programs have increased concerns within the U.S. government. In the February 18, 2018 World Wide Threats Hearing, Christopher Wray, Director of the Federal Bureau of Investigation advised the Senate Intelligence Committee that there is a vulnerability within the U.S. academic setting. “They’re exploiting the very open research and development

¹⁵² CNN, “CNN In-Depth Specials - Visions of China - Profiles: Deng Xiaoping,” last modified 2001, accessed April 25, 2018, <http://www.cnn.com/SPECIALS/1999/china.50/inside.china/profiles/deng.xiaoping/>.

¹⁵³ Bryen, *Technology Security and National Power*, 259.

¹⁵⁴ Niall McCarthy, “The Countries With The Most STEM Graduates [Infographic],” *Forbes*, last modified February 2, 2017, accessed April 25, 2018, <https://www.forbes.com/sites/niallmccarthy/2017/02/02/the-countries-with-the-most-stem-graduates-infographic/>.

environment that we have, which we all revere. But they’re taking advantage of it.”¹⁵⁵

Director Wray also advised the threat posed by China is not just limited to Chinese students, but also professors and scientists working in U.S. academics.

The United States and China differ dramatically in the use of trade to achieve distinct strategic effects in regards to technology. The United States has enacted trade tariffs to coerce China to change what is perceived by the United States to be unfair trade practices. Through tariffs, the U.S. intends to protect the intellectual property of its companies from being acquired by China. An analysis of trade for the United States is illustrated in Table 4. The People’s Republic of China, is using the trade of education services to both acquire and advance their technology capabilities. An analysis of trade for China is illustrated in Table 5.

Table 4. Analysis of Trade United States				
	Advance	Acquire	Protect	Disrupt
Trade			X	

Source: Created by author.

Table 5. Analysis of Trade China				
	Advance	Acquire	Protect	Disrupt
Trade	X	X		

Source: Created by author.

¹⁵⁵ Mitch Ambrose, “US Confronting Threat of Chinese Exploitation of Intellectual Property,” last modified March 16, 2018, accessed April 25, 2018, <https://www.aip.org/fyi/2018/us-confronting-threat-chinese-exploitation-intellectual-property>.

Investment Policy

Investments play a vital role in the relationship between states. As of 2014, 90 percent of all transfers between states were financial in nature.¹⁵⁶ Investments as a tool of economic power allows a state to acquire assets that align with its national interests. States have the ability to increase its power and influence with outbound foreign direct investments through state-owned companies and state-owned investment vehicles.¹⁵⁷ The interaction between these two forms of investments and states can be confusing when trying to distinguish the true purpose of the investment. Investments are an economic power tool that blur the line between business transactions, and state transactions within a globalized environment.

The U.S. does not have state owned enterprises or investment vehicles similar to China that are capable of conducting foreign direct investments. However, the U.S. does have entities known as Federal Government Corporations (FGC). Based on a 2011 Congressional Research Service Report, a FGC is defined as “an agency of the federal government, established by Congress to perform a public purpose, which provides a market oriented product or service and is intended to produce revenue that meets or approximates its expenditures.”¹⁵⁸

¹⁵⁶ Blackwill and Harris, *War by Other Means*, 53.

¹⁵⁷ *Ibid.*

¹⁵⁸ Kevin R. Kosar, *Federal Government Corporations: An Overview*, Congressional Research Service Report for Congress (Washington, DC: Library of Congress, June 8, 2011, 1–18, 2.

There are currently 17 federal government corporations. For instance, the National Railroad Passenger Corporation, or better known as Amtrak, is a U.S. federal government corporation. Amtrak describes itself as a federally chartered corporation owned by the federal government.¹⁵⁹ Amtrak is a for profit company that operates a nationwide intercity passenger rail network. In fiscal year 2017, Amtrak had a loss of 2.6 billion dollars.¹⁶⁰ Another well-known FGC is the Export-Import Bank of the United States. The bank finances the export of U.S. goods and services usually to small and medium companies, and has supported more than 1.7 million jobs throughout the U.S.¹⁶¹ According to the bank's website, it has not been fully operational since 2014.¹⁶²

The U.S. FGCs are created to serve a function for the good of the public. Not one of the 17 FGCs were created for the advancement, acquisition, protection, or disruption of technology. Contrary to the lack of U.S. state owned enterprises and sovereign wealth funds, China has an abundance of both.

The U.S. State Department's Office of Investment Affairs determined China had approximately 150,000 State Owned Enterprises (SOE), of which 102 are considered to be strategic.¹⁶³ In 2013, President Xi Jinping reiterated the importance of State Owned

¹⁵⁹ Amtrak, "Amtrak National Facts," last modified 2017, accessed April 25, 2018, <https://www.amtrak.com/about-amtrak/amtrak-facts/amtrak-national-facts.html>.

¹⁶⁰ Ibid.

¹⁶¹ Export Import Bank, "The FACTS about EXIM Bank," accessed April 4, 2018, <https://www.exim.gov/about/facts-about-ex-im-bank>.

¹⁶² Ibid.

¹⁶³ Export, "China - 7-State Owned Enterprises," accessed April 4, 2018, <https://www.export.gov/article?id=China-State-Owned-Enterprises>.

Enterprises to the China's economy.¹⁶⁴ "The lack of management independence and the controlling ownership interest of the State make SOEs de facto arms of the government, subject to government direction and interference."¹⁶⁵ Investments made by any Chinese State Owned Enterprises or entities with ties to Chinese State Owned Enterprises are investments of the Chinese Communist Party.

Chinese State Owned Enterprises have the ability to purchase foreign companies and in turn acquire their intellectual property. "In 2016, the largest share of Chinese global mergers and acquisitions targeted the high-tech sector (24 percent of total deal values), compared to 20 percent that targeted energy and material assets."¹⁶⁶ Throughout the world, Chinese companies are using mergers and acquisitions to both upgrade their technology and displace foreign companies.¹⁶⁷

The purchase of different assets of Royal Philips is a great example of the ability of Chinese state owned enterprises to acquire technology. Royal Philips was once regarded as the "backbone of the Dutch high-tech sector . . ."¹⁶⁸ Different Chinese state owned enterprises purchased its mobile phone business, computer monitor and flat screen

¹⁶⁴ Export, "China - 7-State Owned Enterprises."

¹⁶⁵ Ibid.

¹⁶⁶ European Think-tank Network on China, *Chinese Investment in Europe: A Country-Level Approach*, French Institute of International Relations, 2017, accessed April 26, 2018, https://www.ifri.org/sites/default/files/atoms/files/etnc_reports_2017_final_20dec2017.pdf, 11.

¹⁶⁷ Ibid., 65.

¹⁶⁸ Ibid., 94.

television technologies, and cell phone tower chip maker. These acquisitions were all part of a strategic effort to boost China's manufacturing capacity.¹⁶⁹

China's investments are not just limited to established technology companies, but also start-ups. "Chinese firms have become significant investors in American start-ups working on cutting-edge technologies with potential military applications."¹⁷⁰ This sort of early stage investment can be seen in the case of Neurala, a Boston-based start-up artificial intelligence company. Neurala had initially demonstrated its software's capabilities to the U.S. Air Force by programing a store bought drone to recognize and follow a targeted individual.¹⁷¹ Despite being impressed with the technology, the Air Force never followed up with an investment. Neurala eventually received an investment from Haiyin Capital, which is backed by Everbright Group, a Chinese state-run company.

China's numerous state owned enterprise, and intertwining relationships between private companies and state run companies, provides China with an avenue of approach to acquire high technology companies around the world. The acquisitions are divided between both established companies and start-up companies. A Chinese acquisition can also disrupt that company's originating state's ability to rely on that company's manufacturing and technical skills.

In order to counter the effects of Chinese purchases of strategic companies, the United States has blocked the sale of various companies to China. The United States

¹⁶⁹ European Think-tank Network on China, *Chinese Investment in Europe*, 94.

¹⁷⁰ Paul Mozur and Jane Perlez, "China Bets on Sensitive U.S. Start-Ups, Worrying the Pentagon," *The New York Times*, March 22, 2017, 1.

¹⁷¹ *Ibid.*, 3.

blocked the sale of semiconductor, electronics, and a money transfer company to deny China's acquisition of technology. This defensive measure can only be taken by the authority of the president under two conditions. First, there must be "credible evidence" the sale will weaken national security.¹⁷² Second, the president must determine current laws are insufficient to protect national security.¹⁷³ The Committee on Foreign Investment in the United States (CFIUS), an interagency committee within the Treasury Department, is tasked with reviewing all investments from a foreign entity to determine if the transaction poses a security threat. After reviewing the proposed investment, the committee will make a recommendation to the president to make the final determination.

The United States and China once again differs from the effects created by their use of investments. China's use of the investment tool allows it to advance, acquire, and disrupt technology. An illustration of China's effect is depicted in Table 6. The strength of China's investment tool is its reach and versatility. It can be very difficult to differentiate between a SOE, and a private Chinese company. The United States primary use of the tool is to protect it from foreign investors. An illustration of the United States effect is depicted in Table 7. This tool requires the United States to be able to identify the risk to national security before a transaction occurs.

¹⁷² Jonathan Masters and James McBride, "Foreign Investment and U.S. National Security," Council on Foreign Relations, last modified December 14, 2016, accessed September 19, 2017, <https://www.cfr.org/backgrounders/foreign-investment-and-us-national-security>.

¹⁷³ Ibid.

Table 6. Investment Policy Analysis United States				
	Advance	Acquire	Protect	Disrupt
Investments			X	

Source: Created by author.

Table 7. Investment Policy Analysis China				
	Advance	Acquire	Protect	Disrupt
Investments	X	X		X

Source: Created by author.

Foreign Aid

The 1961 Foreign Assistance Act is the primary document that directs the use of Foreign Aid by the United States. The act outlines the following five principal goals:

1. The alleviation of the worst physical manifestations of poverty among the world’s poor majority;
2. The promotion of conditions enabling developing countries to achieve self-sustaining economic growth with equitable distribution of benefits;
3. The encouragement of development processes in which individual civil and economic rights are respected and enhanced;
4. The integration of the developing countries into an open and equitable international economic system; and
5. The promotion of good governance through combating corruption and improving transparency and accountability.¹⁷⁴

¹⁷⁴ U.S. Congress, “Foreign Assistance Act of 1961” (Government Printing Office, March 23, 2018). 1-2.

The act allows for the United States to provide appropriate technology to help developing countries. The Act also calls for research in agriculture, health, and education. In section 118 part (c), the president shall support training and research in environmental sustainability, and expand knowledge of tropical forests.¹⁷⁵

The United States defines foreign aid as “the unilateral transfers of U.S. resources by the U.S. Government to or for the benefit of foreign entities.”¹⁷⁶ This definition does not take into account the amount of research that is directed by the 1961 Foreign Assistance Act. Foreign aid is often associated with the amount of money spent in a foreign country, without taking into account the amount spent on research beforehand. Regardless of how effective foreign assistance is to a developing country, the research it calls for contributes to technical advancements within the United States.

Contradictory to the U.S. foreign aid approach, China’s approach is based on “aid-trade-investment deals leveraging donor recipient synergy and mutual benefit.”¹⁷⁷ There is a fine line between aid and investment since aids are primarily in the form of cover grants, interest-free loans, and concessional loans. Even though aids come with a

¹⁷⁵ U.S. Congress, “Foreign Assistance Act of 1961,” 47.

¹⁷⁶ James McBride, “How Does the U.S. Spend Its Foreign Aid?” Council on Foreign Relations, April 11, 2017, accessed April 26, 2018, <https://www.cfr.org/backgrounders/how-does-us-spend-its-foreign-aid>, 2.

¹⁷⁷ Ron Matthews, Xiaojuan Ping, and Li Ling, “Learning From China’s Foreign Aid Model,” *The Diplomat*, last modified August 25, 2016, accessed April 14, 2018, <https://thediplomat.com/016/08/learning-from-chinas-foreign-aid-model/>.

no “strings attached” characteristic, there is still a business aspect since contracts are given to Chinese companies, who are sourced by Chinese supply chains.¹⁷⁸

Analysis of foreign aid used by the United States shows aid can help the United States with technological advancement. Table 8 shows the effects of foreign aid and technology. However, there is no evidence of technological advancement for the Chinese as a result of providing foreign aid. Despite a lack of technological achievement, Chinese aid can help boost China’s soft power, and develop relationships with other state powers.

Table 8. Foreign Aid Analysis United States				
	Advance	Acquire	Protect	Disrupt
Foreign Aid	X			

Source: Created by author.

Conclusion

The research in this paper illustrates the different effects achievable with economic power. The United States and China produced vastly different results despite using the same tools. Economic power in a globalized world is difficult to understand due to the numerous capabilities it possesses. It is only after a state understands these capabilities can it truly defend itself from this complex power.

¹⁷⁸ Matthews, Ping, and Ling, “Learning Form China’s Foreign Aid Model.”

CHAPTER 5

CONCLUSIONS

The purpose of this research is to analyze how economic power can be used to achieve technological security. The preponderance of research on economic power has traditionally been associated with economic security. That type of research has resulted in an abundance of scholarly work on ways to increase the economic power of a state through fiscal policies. The research of this paper was intended to add to the understanding of economic power by showing a way it can be used to achieve a specific strategic objective. The primary question of this research is: how can the use of economic power further the strategic interests of the United States and China in relation to their technology security objective?

The accompanying subordinate questions are:

1. What is the current U.S. economic policy in relations to technology?
2. What is China's economic policy in relations to technology?
3. What are the possible strategic capabilities of economic power?

This conclusion chapter will be organized based on the findings of chapter four. The majority of the chapter will focus on chapter four findings and its implications for the use of economic power. The analysis will begin with the United States, followed by China, and then a comparative review of both states. The research did result in an unexpected finding in regards to the versatility of foreign aid, which will also be reviewed. Lastly, the chapter will conclude with recommendations for further studies.

Interpretation of Findings

This thesis determined the United States primarily uses economic power as a way to protect its technology. As illustrated in Table 9, the United States uses the tools of trade and investments to protect its companies from the loss of intellectual property. The literature review in chapter two determined the interest of the United States is to lead in technology and innovation. The United States had identified threats to this interest, and responded to these threats through mechanisms within its trade and investment policies. The United States used tariffs as a way to address the unfair trade practices of China in regards to the required sharing of intellectual property. The United States used the CFIUS as a way to block investments from Chinese owned companies in strategic technology companies. These responses are in line with all five of Freeman's idea on factors that contribute to the success of using economic power to coerce behavior.

This thesis determined China primarily uses economic power as a way to advance, acquire, and disrupt technology. As illustrated in Table 10, the Chinese uses the tools of trade and investment to increase their capacity for technology security. Through the trade of education services, the Chinese are able to increase the ability of their people, and in turn increase their power to innovate and advance. Their most effective tool for technology advancement is in investments. China's investments are able to cause both internal advancement, and external disruption through the monopolization of technology industries. The application of economic tools by China are in line with its 13th Five-Year Plan's vision for China to be a world leader in technology and innovation.

Table 9. United States Economic Tools Effects				
	Advance	Acquire	Protect	Disrupt
Trade			X	
Investments			X	
Foreign Aid	X			

Source: Created by author.

Table 10. China's Economic Tools Effects				
	Advance	Acquire	Protect	Disrupt
Trade	X	X		
Investments	X	X		X
Foreign Aid				

Source: Created by author.

In regards to technology security, results from the research indicate that the United States is primarily on the defensive, and China is on the offensive. Despite the fact that the United States is the current world leader in technology, it is constantly in a reactive state. China has dedicated its efforts to both advance and acquire technology in any way it can. Success in these effort have the ability to sustain itself and multiple in force. The more Chinese companies are able to buy and monopolize the technology sector, the more they are able to grow in power and wealth. However, failure in the use of these tools can also mean both an economic and social disaster. Spending beyond their limits, or spending on unsuccessful start-ups can deplete their resources and limit their ability to sustain their strategy.

A surprising revelation from the research data is the fact that foreign aid can contribute to technology security. This research did not anticipate foreign aid having such

an effect. Due to the stipulations of the 1961 Foreign Assistance Act, the United States is required to conduct research into various fields such as agriculture, health, and environmental sustainability. Foreign aid can be a driver of innovative solutions because of the need to solve real world problems.

Recommendation

For further study, researchers should focus on measures that can be used to counter economic power. The case studies about the United States and China's use of economic power did not conclude an actual victor. Only time can tell if either side is successful in the deployment of their economic tools. Future researchers should be able to show which side was able to have true technology security. A historical case study of this current struggle can give insights to what tool was actually the most effective, and which was not.

The United States use of economic power does not have the same scope as China. It is a power tool that should be studied in-depth by military strategist alongside civilian experts. The current application of economic power by the United States is traditional in nature, and is not reflective of all its capabilities. The study of economic power with military strategist could help the United States broaden its understanding of the applications of economic power, and identify its own weaknesses.

The current geoeconomic landscape is a battle for technology, with a possible prize of world dominance. Technological advances are able to give states a constant position of advantage. The advancement of certain capabilities might one day lead to total information control. Economic power, combined with all the other powers and resources of a state is a truly dangerous weapon. The versatility of economic power allows it to be

used in various ways causing multiple dilemmas to an adversary. A single application of this power can result in multiple effects, with the capability of enabling the accomplishment of multiple desired end states. Even though economic power is just a tool, in the hands of a master artisan, it is able to build wonders that far surpass the tools original design.

BIBLIOGRAPHY

- Adams, John. "U.S. Reliance on Foreign Defense Supplies Risks National Security." *OrlandoSentinel*. Accessed February 26, 2018. <http://www.orlandosentinel.com/opinion/os-ed-defense-global-dependence-072915-20150728-story.html>.
- Adkins, Rodney. "America Desperately Needs More STEM Students. Here's How to Get Them." *Forbes*. Last modified July 9, 2012. Accessed April 25, 2018. <https://www.forbes.com/sites/forbesleadershipforum/2012/07/09/america-desperately-needs-more-stem-students-heres-how-to-get-them/>.
- Allison, Graham. *Destined for War: Can America and China Escape Thucydides's Trap?* Boston: Houghton Mifflin Harcourt, 2017.
- Ambrose, Mitch. "US Confronting Threat of Chinese Exploitation of Intellectual Property." Last modified March 16, 2018. Accessed April 25, 2018. <https://www.aip.org/fyi/2018/us-confronting-threat-chinese-exploitation-intellectual-property>.
- Amtrak. "Amtrak National Facts." Last modified 2017. Accessed April 25, 2018. <https://www.amtrak.com/about-amtrak/amtrak-facts/amtrak-national-facts.html>.
- Blackwill, Robert D., and Jennifer M. Harris. *War by Other Means: Geoeconomics and Statecraft*. 5th ed. Cambridge, MA: Belknap Press, 2017.
- Bryen, Stephen D. *Technology Security and National Power: Winners and Losers*. New Brunswick, New Jersey: Routledge, 2015.
- Central Committee of the Communist Party of China. *The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China: 2016-2020*. Accessed November 4, 2017. en.ndrc.gov.cn.
- Chan, Minnie. "China to Boost Marine Corps by 400 per Cent as Overseas Interests Grow." *South China Morning Post*. Last modified March 13, 2017. Accessed February 26, 2018. <http://www.scmp.com/news/china/diplomacy-defence/article/2078245/overseas-ambitions-expand-china-plans-400pc-increase>.
- Chomsky, Noam. *Who Rules the World?* New York: Metropolitan Books, 2016.
- Clover, Charles, and Emily Feng. "ISIS Use of Hobby Drones as Weapons Tests Chinese Makers." *Financial Times*. Last modified December 11, 2017. Accessed April 23, 2018. <https://www.ft.com/content/82a29f96-c9e7-11e7-ab18-7a9fb7d6163e>.

- CNN. "CNN In-Depth Specials - Visions of China - Profiles: Deng Xiaoping." Last modified 2001. Accessed April 25, 2018.
<http://www.cnn.com/SPECIALS/1999/china.50/inside.china/profiles/deng.xiaoping/>.
- Davies, Martin Brett. *Doing a Successful Research Project: Using Qualitative or Quantitative Methods*. Basingstoke England: Palgrave Macmillan, 2007.
- Defense Army Research Project Agency. "Testimony." Accessed April 8, 2018.
<https://www.darpa.mil/about-us/testimony>.
- Delahunty, Robert J, and John Yoo. "Statehood and the Third Geneva Convention." *Virginia Journal of International Law* 46 (2005). Accessed April 17, 2018.
<https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=2051&context=facpubs>.
- The Economist. "A Golden Opportunity." November 17, 2016. Accessed February 26, 2018. <https://www.economist.com/news/americas/21710307-chinas-president-ventures-donald-trumps-backyard-golden-opportunity>.
- . "Cold Steel." Last modified November 13, 2013. Accessed March 21, 2018.
www.economist.com/node/2206255.
- European Think-tank Network on China. *Chinese Investment in Europe: A Country-Level Approach*. French Institute of International Relations, 2017. Accessed April 26, 2018.
https://www.ifri.org/sites/default/files/atoms/files/etnc_reports_2017_final_20dec_2017.pdf.
- Export. "China - 7-State Owned Enterprises." Accessed April 4, 2018.
<https://www.export.gov/article?id=China-State-Owned-Enterprises>.
- Export Import Bank. "The Facts about EXIM Bank." Accessed April 4, 2018.
<https://www.exim.gov/about/facts-about-ex-im-bank>.
- Finn, Jerald D., ed. *China-U.S. Economic and Geopolitical Relations*. New York: Nova Science Publishers: 2007.
- Foot, Rosemary, and Andrew Walter. *China, the United States, and Global Order*. Cambridge: Cambridge University Press, 2010.
- Freeman, Chas W. *Arts Of Power: Statecraft and Diplomacy*. Washington, DC: United States Institute of Peace, 1997.
- Friedman, Thomas L. *The Lexus and the Olive Tree: Understanding Globalization*. New York: Picador, 2012.

- Gallagher, Kevin P. *The China Triangle: Latin America's China Boom and the Fate of the Washington Consensus*. New York: Oxford University Press, 2016.
- Gelb, Leslie. "GD Now Matters More Than Force: A U.S. Foreign Policy for the Age of Economic Power." *Foreign Affairs*. Last modified December 2010. Accessed February 12, 2018. <https://www.foreignaffairs.com/articles/united-states/2010-10-21/gdp-now-matters-more-force>.
- Gibson, Kate. "U.S. trade re: 'We are losing to China.'" *CBS News*. Accessed March 21, 2018. www.cbsnews.com/amp/news/us-trade-rep-we-are-losing-to-china/.
- Hassan, Danjuma Naisla, Habakuk Aboki, and Amos Anyesha Audu. "International Trade: A Mechanism for Emerging Market Economies." *International Journal of Development and Emerging Economies* 2, no. 4 (December 2014): 24–32.
- Health, Timothy R. "Strategic Consequences of U.S. Withdrawal from TPP." *The Rand* (blog). Accessed March 21, 2018. www.rand.org/blog/2017/03/stretegic-consequences-of-us-withdrawal-from-tpp.
- Hermann, Charles. "Defining National Security." In *American Defense Policy*, edited by John Reichart and Steven Sturm, 18–21. Baltimore, MD: Johns Hopkins University Press, 1982. Accessed April 12, 2018. <http://www.voxprof.com/cfh/hermann-pubs/Hermann-Defining%20National%20Security.pdf>.
- History. "Monroe Doctrine - Facts & Summary." Accessed February 26, 2018. <http://www.history.com/topics/monroe-doctrine>.
- Institute for Foreign Policy Analysis. *National Strategies and Capabilities for a Changing World*. IFPA-Fletcher Conference 2000. Arlington, VA: The United States Army, November 15, 2000. Accessed March 29, 2018. <http://www.ifpa.org/pdf/fletfinal.pdf>.
- Institute of International Organization. "Infographics." Accessed April 25, 2018. <https://www.iie.org:443/Research-and-Insights/Open-Doors/Fact-Sheets-and-Infographics/Infographics>.
- International Trade Administration. "2016 Top Markets Report Education Country Case Study." Last modified 2016. Accessed April 25, 2018. https://www.trade.gov/topmarkets/pdf/education_china.pdf.
- Jie, Shi. *Shi Jie, On China* 中國論. Translated by Devin Fitzgerald and Maura Dykstra. Accessed May 6, 2018. <http://devinfitz.com/translations/zhengtong-and-history/shi-jie-on-china-%e4%b8%ad%e5%9c%8b%e8%ab%96/>.

- Judson, Horace Freeland. "The Great Chinese Experiment." *MIT Technology Review*. Last modified December 1, 2005. Accessed April 25, 2018. <https://www.technologyreview.com/s/404987/the-great-chinese-experiment/>.
- Knight, Jane. *Trade in Higher Education Services: The Implications of GATS*. International Strategic Information Service. United Kingdom: The Observatory on Borderless Higher Education, March 2002. Accessed April 24, 2018. www.unesco.org/education/studyingabroad/highlights/global_forum_gats_he/jk_trade_he_gats_implications.pdf.
- Koleski, Katherine. *The 13th Five Year Plan*. U.S-China Economic and Security Review Commission, February 14, 2017. Accessed October 5, 2017. https://www.uscc.gov/sites/default/files/Research/The%2013th%20Five-Year%20Plan_Final_2.14.17_Updated%20%28002%29.pdf.
- Kosar, Kevin R. *Federal Government Corporations: An Overview*. Congressional Research Service Report for Congress. Washington, DC: Library of Congress, June 8, 2011.
- Kwak, James, and Simon Johnson. *Economism: Bad Economics and the Rise of Inequality*. New York: Pantheon, 2017.
- Masters, Jonathan, and James McBride. "Foreign Investment and U.S. National Security." Council on Foreign Relations. Last modified December 14, 2016. Accessed September 19, 2017. <https://www.cfr.org/backgrounder/foreign-investment-and-us-national-security>.
- Matthews, Ron, Xiaojuan Ping, and Li Ling. "Learning From China's Foreign Aid Model." *The Diplomat*. Last modified August 25, 2016. Accessed April 14, 2018. <https://thediplomat.com/016/08/learning-from-chinas-foreign-aid-model/>.
- McBride, James. "How Does the U.S. Spend Its Foreign Aid?" Council on Foreign Relations, April 11, 2017. Accessed April 26, 2018. <https://www.cfr.org/backgrounder/how-does-us-spend-its-foreign-aid>.
- McCarthy, Niall. "The Countries With The Most STEM Graduates [Infographic]." *Forbes*. Last modified February 2, 2017. Accessed April 25, 2018. <https://www.forbes.com/sites/niallmccarthy/2017/02/02/the-countries-with-the-most-stem-graduates-infographic/>.
- Merriam, Sharan B. *Qualitative Research: A Guide to Design and Implementation*. 3rd ed. San Francisco: Jossey-Bass, 2009.
- Miller, S. A. "Donald Trump Blocks Chinese Deal to Buy U.S. Chips with Military Uses." *The Washington Times*. Accessed February 26, 2018. <http://www.washingtontimes.com/news/2017/sep/13/trump-blocks-chinese-deal-buy-us-chips/>.

- Minevich, Mark. "These Seven Countries Are In A Race To Rule The World With AI." *Forbes*. Accessed April 25, 2018. <https://www.forbes.com/sites/forbestechcouncil/2017/12/05/these-seven-countries-are-in-a-race-to-rule-the-world-with-ai/>.
- Miskel, James F. *Buying Trouble*. Lanham, MD: University Press of America, 1993.
- Mozur, Paul, and Jane Perlez. "China Bets on Sensitive U.S. Start-Ups, Worrying the Pentagon." *The New York Times*, March 22, 2017.
- National Society of Professional Engineers. "Science, Technology, Engineering, and Mathematics Education." Last modified January 2017. Accessed April 25, 2018. <https://www.nspe.org/resources/issues-and-advocacy/take-action/position-statements/science-technology-engineering-and>.
- Neu, C. R., and C. Wolf. *The Economic Dimensions of National Security*. Santa Monica, CA: RAND Corporation, 1994.
- Newsweek. "What Does China Want? How U.S. Technology Turned Beijing into a Global Military Power." Last modified July 27, 2017. Accessed February 26, 2018. <http://www.newsweek.com/chinese-military-power-us-might-643022>.
- Nye, Joseph. *Understanding International Conflicts: An Introduction to Theory and History*. 5th ed. New York: Longman, 2004.
- . *The Future of Power*. Reprint ed. New York: PublicAffairs, 2011.
- . "How Sharp Power Threatens Soft Power." *Foreign Affairs*. Last modified January 24, 2018. Accessed April 14, 2018. <https://www.foreignaffairs.com/articles/china/2018-01-24/how-sharp-power-threatens-soft-power>.
- Office of the United States Trade Representative. "Section 301 Fact Sheet." Last modified March 2018. Accessed April 23, 2018. </about-us/policy-offices/press-office/fact-sheets/2018/march/section-301-fact-sheet>.
- Our Documents. "Transcript of Monroe Doctrine (1823)." Accessed February 26, 2018. <https://www.ourdocuments.gov/doc.php?flash=true&doc=23&page=transcript>.
- Parameswaran, Prashanth. "China, Russia Launch First Military Drills in Baltic Sea." *The Diplomat*. Accessed February 26, 2018. <https://thediplomat.com/2017/07/china-russia-launch-first-military-drills-in-baltic-sea/>.
- Parker, Kim, Anthony Cilluffo, and Renee Stepler. "6 Facts about the U.S. Military and Its Changing Demographics." Pew Research Center, April 13, 2017. Accessed February 26, 2018. <http://www.pewresearch.org/fact-tank/2017/04/13/6-facts-about-the-u-s-military-and-its-changing-demographics/>.

- Rosenfeld, Everett. "China's Trade Surplus with the US Hit a Record High in 2017." *CNBC*. Last modified January 11, 2018. Accessed February 26, 2018. <https://www.cnbc.com/2018/01/11/chinas-trade-surplus-with-the-us-hit-a-record-high-in-2017.html>.
- Ruiz, Neil G. "The Geography of Foreign Students in U.S. Higher Education." *Global Cities Initiative* (2014): 1–52.
- United Nations. "Foreign Direct Investment (FDI) Net Inflows and Net Outflows as Share of GDP." Accessed April 8, 2018. http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/global_econ_partnership/fdi.pdf.
- U.S. Congress. "Foreign Assistance Act of 1961." Washington, DC: Government Printing Office, March 23, 2018.
- U.S. Department of Defense. Joint Publication 1, *Doctrine for the Armed Forces of the United States*. Washington, DC: Government Printing Office, 2017.
- U.S. Department of State. *A New Era of Engagement: 2009 Agency Financial Report*. Washington, DC: U.S. Department of State, 2009. Accessed December 1, 2017. <https://www.state.gov/documents/organization/132214.pdf>.
- U.S. President. *Budget of the U.S. Government: A New Foundation for American Greatness, Fiscal Year 2018*. The White House, November 2017. Accessed October 26, 2017. <https://www.whitehouse.gov/wp-content/uploads/2017/11/budget.pdf>.
- . *National Security Strategy of the United States of America*. The White House, December 2017. Accessed February 26, 2018. <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.
- Wile, Rob. "The True Story Of The 1980s, When Everyone Was Convinced Japan Would Buy America." *Business Insider*. Accessed February 26, 2018. <http://www.businessinsider.com/japans-eighties-america-buying-spree-2014-9>.
- Worland, Justin. "Trump Wants to Impose Steel Tariffs. It Didn't Work for Bush." *Time*. Accessed March 21, 2018. www.google.com/amp/amp.timeinc.net/time/5180901/donald-trump-steel-aluminum-tariff. Xinhua. "China Concentrates on Sci-Tech Innovation." *ChinaDaily*. Last modified September 18, 2017. Accessed October 2, 2017. https://www.chinadaily.com.cn/business/2017-09/18content_32161378.htm.