

RETHINKING FOOD: HOW UNITED STATES AGRICULTURE
PRODUCTION AFFECTS SECURITY POLICY
AND GLOBAL MARKETS

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General Studies

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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

RETHINKING FOOD: HOW UNITED STATES AGRICULTURE PRODUCTION AFFECTS SECURITY POLICY AND GLOBAL MARKETS, by David Dilly, 94 pages.

The United Nations projects the global population will reach over nine billion by 2050. While current projections indicate the world will produce enough food to feed everyone, unequal access to food, lack of infrastructure, and other factors will likely prevent an ideal distribution of food. The United States has been and remains a major exporter of several key commodities giving US production capacity great weight on world food export markets. This thesis looks from 1961 to the present at how the capability to be a net food exporter has affected foreign security policy. Using available theory and writings on using food as a means of national power, the study analyzes case studies where the United States used agriculture to secure political objectives by looking at background, actions, and effects of using “food power.” In addition to the case study material, this thesis analyzes several facets related to agricultural production such as domestic policy, World Trade Organization trade negotiations, and agricultural development. The intent is to find what elements of food exports have the most beneficial effects in order to re-evaluate the value of using US agricultural output as a means of national power.

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ACRONYMS

ACRE	Average Crop Revenue Election
CCP	Counter Cyclical Price
CIA	Central Intelligence Agency
CRS	Congressional Research Service
DIME	Diplomacy Information Military Economy
DPRK	Democratic People's Republic of Korea
EU	European Union
FSA	Farm Security Administration
GATT	General Agreement on Trade and Tariffs
GOI	Government of India
IAEA	International Atomic Energy Agency
MMT	Million Metric Tons
NGO	Non-Governmental Organization
OECD	Organization for Economic Coordination and Development
PD	Policy Directive
PL-480	Public Law 480
SALT	Strategic Arms Limitation Talks
RTAA	Reciprocal Trade Agreement Act
UN	United Nations
USDA	United States Department of Agriculture
USIAD	United States Agency for International Development
USSR	Union of Soviet Socialist Republics
WACIP	West Africa Cotton Improvement Program

WFP World Food Program
WTO World Trade Organization

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CHAPTER 1

INTRODUCTION

Background

In 1798, Thomas Malthus published his essay, “Principle of Population,” in which he famously theorized there was a limit to the amount of food the planet could produce and that famine and war would be the ultimate check on world population (Malthus 1978). At that time, according to U.S. Census Bureau estimates, there were approximately one billion humans (Department of Commerce 2013). Fast forward 200 years to present day and our global population has grown seven fold. Technically speaking, the developed world is capable of feeding the entire population (Global Harvest Initiative 2012, 6). However, despite the capability to produce enough food for seven billion people, there are inefficiencies and inequalities throughout the world and millions go hungry each day.

These inefficiencies and inequalities are not only in farm production and distribution networks, but also government and society. Indeed Amartya Sen believed hunger related to, “the operation of the political and social arrangements that can, directly or indirectly influence people’s ability to acquire food and to achieve health and nourishment” (Sen 2001, 162). In today’s modern society, it is these political and social relationships that determine a country’s ability to produce sufficient food or trade in order to feed its populace.

In 2010, the gross value of global agriculture was \$3.2 trillion while exports represented \$642 billion, or 20 percent of that total (Food and Agriculture Organization of the United Nations 2012). In that same year, U.S. agriculture exports totaled \$115.8

billion or about 18 percent of the global agricultural export market (Department of Agriculture 2013). Although this share of exports is relatively large already, this figure masks even further the strength American farmers possess in the world market. For example, the following are the 2010 U.S. global export shares for some key products: corn (53 percent), soybean (44 percent), cotton (42 percent), and wheat (28 percent) (United States Department of Agriculture 2014c). As a result of having such a large share key commodity areas, even slight U.S. production increases or decreases can greatly affect market prices. In the humanitarian realm, the United States has similar effect.

Andrew Natsios, a former director of USAID stated:

In most emergencies, U.S. leadership can make a remarkable difference in the behavior of the UN agencies, the funding of NGO responses, and the mobilization of international donor government support. . . . U.S. government opposition or disinterest can therefore depress responses to emergencies because the United States is the only stakeholder that can reliably move food in large amounts early, and because its diplomatic leverage is frequently required to convince other governments to contribute. (Natsios 2001, 135-6)

Clearly, the United States can wield power in both food production and humanitarian assistance. The challenge comes in divining how to utilize this power for the best possible uses.

Problem

The true costs and benefits of using agriculture as a means of power have not been clearly analyzed and understood. There have indeed, the calculus for how to apply “food power” as it were appears to differ based on the desired effect on the country or population. While this may seem to make the problem esoteric, defining the political and economic costs of inputs and juxtaposing those with policy objectives may help in

developing a framework to determine how U.S. agriculture exports affect foreign security policy.

Primary Research Question

How does the US's ability to be a net food exporter affect its foreign security policy?

Secondary Research Question 1

In what cases has the US exerted agricultural power?

Secondary Research Question 2

How have domestic US policies shaped its agriculture production?

Secondary Research Question 3

How does foreign agriculture development affect US production?

Assumptions

This study assumes the following: first, population growth and demographic estimates will continue as currently projected. Not only will there be more people to feed leading to increasing demand, but also rising incomes will continue enlarged demand for higher quality sustenance and more protein. Second, the United States will use food as a means of power in order to achieve a policy objective or secure another states' action. Third, the United States' market share in agricultural products will remain constant or increase over time. This is necessary in order to ensure American production and policies will continue to have a significant impact on world production and prices.

Significance

The United States is a large exporter of many of the world's staple commodities. Its domestic, trade, aid, and development policies have an effect on where food will be exported and at what price. The United Nations estimates that between 2011 and 2013, one in eight people around the world were suffering from chronic hunger (Food and Agriculture Organization of the United Nations 2012). The United Nations also estimates the world population will increase to 9.6 billion by 2050, with a corresponding increase amongst the ranks of the suffering (UN News Centre 2013). This is set against a backdrop where the majority of population growth is expected to be in Africa and Asia; areas that are already net food importers (Global Harvest Initiative 2012). Where these countries import their food from along with its availability and affordability will increasingly matter. In the meantime, the United States will continue to be the dominant player in the world food export market.

This ability to provide food through international organizations and indirectly control markets through domestic policy gives the United States a unique opportunity to help shape the global landscape. As noted earlier, Asian and African nations will not only require more food to feed more people, but will likely see a rise in overall living conditions resulting from greater wages, higher value foods and proteins. It is increasingly important that the United States has effective policies regarding agricultural production and understand how this affects its foreign security policy.

Delimitations

Data considered for analysis will range from 1961 onward in order to include major domestic agriculture legislation and foreign aid consolidation under the *Foreign*

Assistance Act of 1961. In looking for case study material, the critical questions that determine inclusion—exclusion are: (1) Has the United States led a particular negotiation? (2) Was there a policy objective tied to the negotiation? (3) Was food (agriculture) a major component of the negotiation? The first two questions are broad in order to determine eligibility while the third is a qualifying question in order to ensure data is relevant to this thesis.

Limitations

This study is limited to unclassified information found on open domains. This limits the study's potential to assess how current or future policy affects the research questions. Although there is a relatively small time frame for the study to explore, this is mainly due to aid program consolidation under the Executive Branch. Consequently, this is a major reason to conduct this study—because there is little written on the subject. Another limitation is the lack of access to Department of State or Agriculture personnel and their unwillingness to discuss policy matters related to this thesis. Lastly, there is little information on other countries' policy reactions to American legislation or actions to gauge their relative importance on the world stage.

Definitions of Key Terms

The following major terms and definitions used in this thesis are described below.

Bumpers—An amendment named after Senator Dale Bumpers attached to the appropriations bill for USAID mandating project analysis regarding potential harm to American markets or exports (Becker 2014).

DPRK–The Democratic People’s Republic of Korea is the official name of North Korea. However, this study will use these names interchangeably but will refer to the regime in the upper half of the Korean peninsula.

Ethanol Mandate–A section of The Energy Independence and Security Act of 2007 requiring 36 billion gallons of ethanol and other fuels be blended into traditional fuel sources by 2022 (United States Energy Information Administration 2008).

Farm (United States)–A farm is any place from which \$1,000 or more of agricultural goods (crops or livestock) were sold or normally would have been sold during the year (Wimberly 2014).

Farm Bill–United States legislation that covers a wide range of agriculture related issues. It is normally passed in multi-year increments. The current farm bill is the Agricultural Act of 2014 and remains in effect through the year 2018 (HR 2642).

Feed the Future–This development program is the United States’ contribution to G-8 commitments to “achieving sustained and inclusive agricultural growth and raising 50 million people out of poverty by 2022 . . . and aligning G-8 commitments behind country plans to expand Africa’s potential for rapid and sustainable agricultural growth” (United States International Development 2013, 3).

OECD–Organization for Economic Co-operation and Development. “The mission of the Organisation for Economic Co-operation and Development (OECD) is to promote policies that will improve the economic and social well-being of people around the world. The OECD provides a forum in which governments can work together to share experiences and seek solutions to common problems . . . analyse and compare data to

predict future trends . . . [and] set international standards on a wide range of things, from agriculture and tax to the safety of chemicals” (OECD 2014).

PD-X–Policy Determination-X are USAID internal policies given to field agents that assist in implementing broad US policy statements or legislation (Becker 2014).

PL-480–Public Law 480, or Food for Peace. This law is part of the Agricultural Trade Development Assistance Act of 1954 and is the main authority used to give humanitarian aid (*Agricultural Trade Development Assistance Act of 1954*).

UN WFP–The United Nations World Food Program is the food aid arm of the United Nations (World Food Programme 2014).

USAID–The United States Agency for International Development is an agency under the Executive Branch under policy guidance from the Department of State. It is “the lead U.S. Government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential” (USAID 2014).

USDA–The United States Department of Agriculture is a department of the United States government with the following mission: “provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management” (USDA 2014b).

World Bank–An international financial organization consisting of five institutions working provide “a vital source of financial and technical assistance to developing countries around the world” (World Bank 2014).

WTO–The World Trade Organization “provides a forum for negotiating agreements aimed at reducing obstacles to international trade and ensuring a level playing

field for all, thus contributing to economic growth and development” (World Trade Organization 2014).

Summary

As a result of domestic policies, the United States produces, and to some extent controls, a large portion of the global food export market. Meanwhile, as a result of a greater population and rising incomes, demand is expected to increase well into the century. Much of this population growth (and subsequent demand) is expected to originate in Africa and Asia. This sets the stage for a supply and demand scenario that can shape global politics and alter the security landscape for many years to come. Here, the supplier, the United States must understand how its internal and foreign policies affect not only markets but production in other countries as well. On the other hand, America must also understand the demand aspect and comprehend the ramifications of answering or not answering the world’s demands and how this can affect the stability and security of other nations. To continue this study, the next chapter will examine the body of work and literature associated with this multi-faceted problem.

CHAPTER 2

LITERATURE REVIEW

The following chapter provides a description of literary works related to agriculture and its effects on American foreign security policy. In order to more properly review the relevant material, this chapter is sub-divided into five sections (1) US Government Policy, (2) Bihar Famine Resources, (3) Soviet Embargo Readings, (4) North Korea Material, and (5) Relevant Analysis. The study focuses on primary and secondary sources of data regarding multiple case studies along with relevant official US government laws and policy. Works analyzing the specific country involved, third party case study analysis and non-governmental agency reports are also included in the review. Case study selection criteria will be discussed in depth during chapter 3, research methodology. In its totality, the review will lay the foundation for evaluating how the ability to export food affects American foreign security policy.

US Government Policy

For the purpose of this study, it will be necessary to understand the historical roots of the *Foreign Assistance Act of 1961* and how prior domestic policies shaped the agencies and policies in place today. With the demise of the Smoot-Hawley act in 1932, and the start of the Great Depression, President Franklin D. Roosevelt enacted a series of domestic policies known as the New Deal. A component of these policies included the establishment of the Farm Security Administration (FSA) intended to increase farm ownership and the Reciprocal Trade Agreement Act (RTAA) allowing the president to modify tariffs by 50 percent without congressional approval. The FSA currently survives

as the Farmers Home Administration while the RTAA served as the model for the General Agreement on Tariffs and Trade (GATT) (Department of State 1921-1936). In 1954, the US government enacted another landmark piece of legislation dubbed the Agricultural Trade Development and Assistance Act of 1954, more commonly known as PL-480 or Food for Peace. Food for Peace formalized and consolidated food aid into a permanent program under executive control and administered by the departments of State and Agriculture along with the International Cooperation Administration. However, it was not until the passage of the *Foreign Assistance Act of 1961* that a single agency was responsible for the coordination of foreign assistance (Department of State 1961-68).

The *Foreign Assistance Act of 1961* as amended through 2003 delineates American policy for development assistance and aid. It states, “the Congress declares that the individual liberties, economic prosperity, and security of the people of the United States are best sustained and enhanced in a community of nations . . . which work together to use wisely the world’s limited resources in an open and equitable international economic system” (*Foreign Assistance Act of 1961*). The Act further describes US acceptance in leading the international effort in assisting countries to “acquire the knowledge and resources essential to development and to build the economic, political, and social institutions that will improve the quality of their lives” (*Foreign Assistance Act of 1961*). The first criteria for assistance is if it provides an “increase in agricultural productivity per unit of land through small-farm, labor-intensive agriculture.” Countries designated by the United Nations as “least developed” will receive special attention (*Foreign Assistance Act of 1961*).

The *Agricultural Act of 2014* (the 2014 farm bill) was signed into law on 7 February 2014 and will remain in effect until 2018. For the purposes of this study, the review will focus on the assistance and legislation given to US farms. Most notable in this year's farm bill is the elimination of direct payments to farmers under the CCP (Counter Cyclical Price) and ACRE (Average Crop Revenue Election) programs (Chite 2014, 2) effectively eliminating the US government as a major purchaser of agricultural products. Additionally, the legislation made permanent disaster assistance with two types of subsidies for crop insurance with payments determined by either a percentage of historical revenue or a combination of established benchmarks and rolling averages for selected commodities.

Bihar Famine Resources

Lyndon Johnson Confronts the World is a compilation of President Johnson's foreign policies and actions from 1963 to 1968. For the purposes of this study, the chapter covering South Asia applies. In it, the author gives a brief recount of the 1963 Sino-Indian conflict (prior to the Kennedy assassination) to serve as backdrop to the tensions and motivations of the primary key players: India, Pakistan, China, the Soviets, and the US. The author's analysis draws from primary source documents, embassy cables, and US agency assessments to paint the picture of a troubled South Asia foreign policy. The chapter outlines US policy as conflict erupts between India and Pakistan while attempting to stop the spread of Chinese Communism and minimizing Soviet influence. The unfolding events lead policy makers to choose warmer relationships with India over Pakistan despite continuing aid to both. Johnson "accepted the logic . . . that India's prospective alignment with the West offered strategic benefits to the United States

that far outweighed any likely damage to the Pakistani-American alliance” (Cohen and Tucker 1994, 146). The piece ends documenting US food aid to India to avert famine and Johnson’s desire to exercise additional leverage to discourage Indo-Soviet rapprochement.

President Johnson made a special public appeal to the American Congress regarding the need for the United States to send food aid to India. He outlined how Indian crops had failed and there was impending famine. The President indicated it was not only a moral duty to bring aid to the Indian people, but merely a small front of the newly designated “war on hunger.” It was argued India required assistance in order to stave off catastrophe and that the country had, and continued to make improvement on a variety of issues related to increasing agricultural production and improving farming inputs.

Several years after the Bihar Famine of 1966 and 1967, Paul Brass conducted an analysis of the politics in India surrounding this event. The author argues the declaration of famine was politically motivated only after the local government could not sufficiently address the food requirements of several Indian cities. Brass analyzes the Indian government’s *Bihar Famine Report* and other statistics to substantiate his claim that empirically, the Bihar Famine was not worse than other [relatively] recent Indian disasters. The article in fact uses historical crop yields to show native crops could have fed India’s population through internal food redistribution. This, however, did not occur due to Indian politics and caused the central government to seek aid from the United States under the auspices of PL 480–Food for Peace.

Soviet Embargo Readings

Robert Paarlberg authored an article during the Soviet grain embargo of 1980. He wrote both on the immediate effects of the embargo and the emerging consequences. In his article, he lays out his viewpoint on, “[the] effective exercise of food power requires an unbroken chain of favorable developments, in three distinct arenas, all at the same time.” The three arenas were control of local producers and markets, coordination with other countries to prevent “leakage” to the target nation, and the “political and economic system of the target nation . . . must be adequate and appropriate to produce the desired effect” (Paarlberg1980, 145). Paarlberg notes that while the US partially succeeded on point one, increased Argentine grain exports to the Soviets limited the embargo’s effectiveness. The article goes on to posit best and worst case scenarios for the embargo’s future and how this might play out both inside the USSR and politically in the US.

Time magazine published an article soon after President Jimmy Carter announced a series of sanctions including a grain embargo against the Soviet Union. The article delineates the sharp rise in US grains production from post-World War II to the present (1980) and the seemingly international reliance on US grain exports. The writers primarily analyze the immediate effects on US farmers and grain exporters. The most obvious effect was the precipitous fall in grain futures while the reaction from growers and exporters was decidedly negative due to projected losses even after a promised grain embargo bail-out. The article also analyzed Russian actions to dull the effects of the embargo by shifting resources to cattle while chickens and pigs could go to slaughter sooner and since the latter two animals are more easily replaced. Lastly, the article discusses the importance of agricultural exports to the US economy and some of the

increasing challenges in maintaining farm productivity such as rising property and equipment costs.

North Korea Material

Chone-AeYu studies the rise and fall of agriculture in North Korea up to 2005. This paper lays out Kim Il-Sung's approach to industrialized agriculture and heavy reliance on irrigation, electrification, seed hybrids, and chemicalization to achieve food self-reliance. The author explains that it is this approach to maximizing agricultural output that establishes interdependency between North Korean agriculture, energy, and industry. When the economy declined (presumably due to the fall of the Soviet Union), so too did each of these intertwined sectors. The monsoon rains of 1995 and 1996 destroyed part of the complex irrigation systems and reduced the amount of available North Korean arable land. Due to an absence of official North Korean data after 1984, the author attempts to piece together various data sets to estimate North Korean agricultural output. Using this, Yu notes agricultural output officially peaked a decade before the monsoons of 1995 and 1996 and offers there are likely other unseen contributing factors to North Korean agricultural decline. Yu concludes her paper arguing North Korea is an example of why industrialized agriculture is unsustainable both there and around the world.

Victor Cha writes a Washington insider's perspective on North Korea as a state and global security challenge. Based on historical events, he includes personal experiences, reflections, and unique introspective from key negotiating insiders from multiple countries to give clarity and insight into some of the most important negotiations regarding North Korea. Mr. Cha argues North Korean decline can be traced to five major

decisions, most of which took place before 1990. Meanwhile, the demise of the Soviet Union while not directly related to North Korean decline, helped exacerbate the effects of these five decisions. The book continues with Mr. Cha's perspective and analysis on each country involved in the Six Party Talks. In closing, this work conducts a brief analysis on how North Korea may experience its own "Arab Spring moment." While the author does not state change is looming, it is inevitable and it will come from within. Mr. Cha believes North Korea will eventually lose its monopolistic control over information into the country and ultimately serve as the catalyst for change from within.

Nicholas Eberstat analyzes the North Korean economy and how it affects its foreign policy as well as domestic socioeconomic issues. The author cobbles disparate data sets; many from "mirror" data points, or rather data from North Korean trading partners (Eberstat 2007, 62), along with his own unpublished research. The data along with his analysis point to a flagging North Korean economy even before the fall of the Soviet Union poignantly noting stunting in North Korean children, as a result of malnutrition, likely began well before the famine in the mid-1990s (Eberstat 2007, 134). The ends with a brief analysis on the political motivation that enacts seemingly ludicrous policies offering that the Kim family "needs" to keep market forces out not necessarily due to communist ideology, but rather keep a feeble economy to continue exporting strategic insecurity (Eberstat 2007, 300) and secure various forms of aid to keep the regime in power.

The Congressional Research Service (CRS) published a report entitled *Foreign Assistance to North Korea*. In this document, the CRS outlines what kinds, how much aid, and under what circumstances the United States has given assistance to North Korea

from 1995 to the present. The report makes a clear distinction between food and energy assistance; although there have been other types of aid, the report notes over 90 percent of US aid was in the form of food or fuel (Manyin and Nikitin 2013, Summary). The report outlines how energy, de-nuclearization, and food are intertwined with historical events and agreements. This interconnection forms the analytical basis of the report and its findings. Key among them for purposes of this study was, “diplomatic factors have always affected decisions over aid to North Korea, the degree to which they have been linked has varied over time” (Manyin and Nikitin 2013, 12). Going forward, the report acknowledges the North Koreans’ 2013 nuclear test as a hindrance to secure US aid in the near term. However, even if the American President were to offer a rapprochement strategy with North Korea, current US legislation curtails executive power to provide foreign developmental aid.

In *The Great North Korean Famine*, Andrew S. Natsios discusses the search for, the response to, and the consequences of the great tragedy that befell the DPRK in the 1990s. Natsios, then working for World Vision, details his interactions with other Non-Governmental Organizations, the State Department, and other parts of American government. Firmly adhering to the Reagan Doctrine that “a hungry child knows no politics,” Natsios describes his efforts to bring humanitarian aid to North Korea. He discusses his first-hand accounts of visiting North Korea and conducting assessments to determine whether or not the country needed foreign food aid. A realist, he describes the politics associated with the famine and sees the humanitarian aid issue from a variety of viewpoints. The author applies these various perspectives to discuss both private and governmental responses to the North Korean famine played out. Natsios ends by

outlining out his own assessment on how the famine irrevocably changed North Korea from a social, political, and military perspective.

Relevant Analysis

In the aftermath of the 1980 Soviet Grain Embargo, Robert A. Paarlberg penned an article entitled *Food as an Instrument of Foreign Policy*. In it, he conducts an analysis of how effective food may be used as a foreign policy asset. Paarlberg goes through a series of scenarios of how food power may be applied along with the positives and negatives associated with each theoretical situation. He posits there is a cycle of Food Power in which “country X” lessens its exposure to US food imports and therefore lessens the effect of this particular political instrument. He ultimately argues that despite its enormous agricultural advantage, the United States could not use effectively use food as a weapon. The dynamics of free markets along with the diplomatic and economic costs to launch a coordinated effort to use food as a weapon made its usefulness fleeting at best.

Major Jack Le Cuyer penned an article titled “Food as a Component of National Defense Strategy.” In it, Major Le Cuyer discusses the advantages and disadvantages of using “food as a weapon.” The author outlines the relative advantage in food production the United States has over the rest of the world. Although written in 1977, many US advantages in major export crops hold true to this day. More importantly though, Le Cuyer’s analysis indicated there would have to be “necessary and sufficient conditions” for the United States to effectively use food as a diplomatic lever (Le Cuyer 1977, 57). These conditions included creation of a cartel similar to limit supply of a particular food item. Next, that item’s price needed to be inelastic relative to demand—or rather, such that

demand would remain high despite an increase in cost. Lastly, the participants of the cartel needed to align with US interests. Aside from these conditions, the author addresses the moral aspect of a nation denying a people sustenance for political gain. Ultimately, Le Cuyet argues, the fatal flaw for this strategy is open markets and the inability to control grain exporters in order to restrict food shipments to a particular country. He argues that although it is seductive to think the United States can use food as a weapon, the thought is misguided and policy makers should better focus on creating law to increase farm production, domestic price stability, and better distribution (Le Cuyet 1977, 69).

In *Development as Freedom* Amartya Sen discusses how freedom is both the primary end and principal means to development (Sen 2001, 36). This freedom begets development while un-freedom retards the development of an individual, group, or nation. Additionally, poverty, while relative, also acts as a form of capability deprivation not allowing an individual to reach their full potential and exercise their full freedom even if living in a free country. Citing Adam Smith cross referenced with historical examples, this work outlines strong correlation between markets, development, and freedom. A running theme throughout the book is the central role democracy has within government and institutions that enable individuals achieve freedom. Sen touches on human rights and indicates he is skeptical of cultural relativism and notes there are dissenters in each supposed grouping of people. Development also describes the various forms of famine and other crises that result in food unavailability in one form or another and that democracy in of itself is a positive influence against famine (Sen 2001, 184). The book concludes by discussing that individual freedom is a social commitment and

how that commitment to freedom has a corresponding personal responsibility that cannot be ignored (Sen 2001, 283).

Roger Thurow and Scott Kilman co-author *Enough: Why the World's Poor Starve in an Age of Plenty*. In this work, the authors analyze the origins of the Green Revolution in 1944 along with its successes and failures through 2009. The book explains how global events such as 9/11, US farm bills, and World Trade Organization (WTO) negotiations affected agriculture, food, and farming in several African countries. The authors also attempt to explain how the Green Revolution, whose techniques and technology are globally available, has mainly missed sub-Saharan Africa. *Enough* uses farmer stories and anecdotes to highlight the causes of famine and crop failure in Africa and how international relief efforts have affected those countries. The book goes on to document how major US agricultural related legislation affected crop prices and their effects on the global market. The book also notes how private organizations such as the Bill and Melinda Gates Foundation and World Food Program have evolved from giving vaccinations, and direct food aid to helping direct agricultural development.

The Organization for Economic Cooperation and Development (OECD) in conjunction with the United Nations Foreign Agriculture Organization (UN FAO) publishes an annual report entitled "OECD FAO Agricultural Outlook". The latest available version dated 2013 will be used for this study. The report has a 10 year outlook and aims to provide an objective assessment and projection on global issues regarding major commodities and food staples. The report provides a comprehensive listing of projections for both supply and demand by commodity with a special focus on an

emerging China's burgeoning middle class and how their food demands are projected to shape agricultural requirements in the next 10 years.

Global Harvest Initiative is a private advocacy group focusing on finding sustainable solutions to meet the rising global agriculture and food demand of more than nine billion people by 2050. The group publishes an annual report named the Global Agriculture Productivity (GAP) Report. For the purposes of this study, the most current 2013 version will apply. Along with regional analysis focused on demand in 2050, the report highlights the anticipated growth in China and how much food the country is expected to import. The report's key findings include: (1) Farm productivity growth rates are lagging in developing countries (areas where population growth is expected to be strongest), (2) Trade facilitation is vital to meet projected demand, (3) High-income countries need to continue investment in research and development and focus on global solutions to food security and trade (Global Harvest Initiative 2012, 4).

Lester Brown, president of the Earth Policy Institute, writes *Full Planet, Empty Plates*, a modern description of the new geopolitics of food security. In this book, Mr. Brown argues that at current projections, the world's population is quickly outstripping the means to feed itself. The author outlines the global nature and challenges of feeding the world's ever growing population by citing stagnating crop yields, climate change, water scarcity, and lack of spare arable soil. In addition to the above challenges, he outlines how fuel ethanol production has increased demand for food stocks [while not directly feeding anyone] as a contributing factor to tighter supplies and distorting food markets. The book argues there is time for change and hope that the world can feed itself but only if countries of the world make significant changes toward a sustainable food

chain. Above all, the author highlights how food production is interconnected across the globe and makes relevant why fixing food production is everyone's responsibility.

In *The Food Wars* Walden Bello argues how government policies, World Bank structural adjustment programs, and globalization have contributed to the disappearance of peasant small farmers. Bello states the decline leads to a food production problem resulting in reduced food availability among the world's poor. Bello cites cases in Mexico, the Philippines, and Africa where previously food-exporting countries lost their peasant farmer base and became dependent on imported sustenance. *Food Wars* continues by highlighting increased meat consumption in China and corn based ethanol production in the United States as examples where food is going toward less productive uses instead of feeding the world's hungry. In conclusion, Mr. Bello argues the current agribusiness model of large-scale food production through mechanization and fertilization is unsustainable and the world should revert to smallholder farms to sustainably satisfy global food needs.

Summary

This chapter outlined the body of work associated with how agriculture affects American foreign security policy. Research included looking through applicable United States domestic policy, case study material, and relevant subject analysis. This thesis will use this information to outline the progression of American domestic policy and case study history interspersed with critique of current analytical models in order to answer the research questions. In the next chapter, research methodology, the study will look at how the information is approached, analyzed, and dissected in the forthcoming analysis.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

This chapter describes the research methodology applied to answer the primary research question: How does the U.S.'s ability to be a net food exporter affect foreign security policy? As discussed in chapter 1, there is significance and relevance to study the United States' willingness to use food as a means of power to achieve political objectives. Chapter 2 outlines the body of work covering relevant policy, case material, and prior analysis related to the research questions. This chapter focuses on developing case study criteria, what logic bounds the material, and how the study approaches the problem to answer the research questions. This chapter will describe some positives and negatives associated with the research methodology and close with some conclusions.

Method

The study includes multiple cases in order to reduce artifactual conditions and achieve more credible results (Yin 2011, 133-4). Within each case study, the writer examines both quantitative and qualitative aspects in order to gain a fuller understanding of each case. The quantitative portion focuses on areas where the study can draw clear parallels though time and geography. For instance, it is possible to compare crop yields from the same commodity across multiple years. While the qualitative side focuses on the context and rationale behind major decisions and actions. Doing so lends the study a fuller, more complete understanding of the how and why events unfolded such as they did. To achieve this, research includes extensive document review from national archives,

various U.S. department sites, media sources, acknowledged field experts, and the United Nations. Research continued until the study reached saturation and was able to make meaningful cross-case comparisons in order to make sound and logical conclusions relevant to the study. This cross case study aims to achieve what Robert K. Yin called, “cross case synthesis” (Yin 2011, 158), in order to best answer the research question. Therefore, this leads the author to conduct a qualitative research study.

Data Collection

This study focuses on cases where the United States used agriculture export as a means of national power after the year 1961. This bounding is necessary to incorporate the effects of significant legislation such as the Agriculture Adjustment Act of 1938 and the Agriculture Act of 1949—laws that helped define the American agricultural production landscape to this day. Additionally, it includes the Agricultural Trade Development Assistance Act of 1954 or better known as Public Law (PL) 480—Food for Peace; the authority the United States frequently uses to give humanitarian aid. Most importantly the study includes the effects of the Foreign Assistance Act of 1961, which consolidated aid efforts, created the United States Agency for International Development (USAID), and placed all humanitarian aid under executive control. Studying cases after this consolidation is necessary to understand how national actions affect national security. Another strong consideration for bounding data collection after 1961 was to ensure modern factors such as current farming methods and seed technology are taken into consideration while distortions of war from WWI and WWII are precluded. Potential case studies arose after applying author created criteria. Case studies included a purposeful sampling across time and geography to discover common underlying themes

and their significance. This provides a starting point to see cases where the research questions could be answered.

The study used the following criteria to determine eligible cases:

1. U.S. lead in a particular event. This is important to ensure relevance to the study since the U.S. has participated in numerous multi-lateral agreements and has not always been the lead state or negotiator.

2. There was a policy objective tied to negotiation. The United States conducts acts of good-will and benevolence; this study aims to focus on instances where America sought to exact an action from another state as a result of a deal.

3. Food or agricultural products were a main component of negotiation. This last criterion is necessary to focus data collection and binds the first two in order to find case studies that could answer the research questions. In order to find eligible cases, the author conducted a review of available documentation and historical records to understand which case studies applied.

Qualitative Research Strength

There are several strengths associated with conducting qualitative research as opposed to other methods. According to Creswell, qualitative research is needed in order to gain a complex, detailed understanding of an issue (Creswell 2007, 40). Using Creswell's logic, this deeper understanding will transmit itself to more insightful analysis in order to explain the phenomena of using "food power." As it currently stands, there are some analyses, but no generally accepted theory as to how "food power" can or should be applied. This lack of theory is viewed as a strength since according to Merriam (1998), the lack of existing theory allows the researcher to "build abstractions, concepts,

hypotheses, or other theories . . . research findings are in the form of themes, categories, typologies, concepts, tentative hypotheses, even theory” (Merriam 1998, 7-8), whereby these outputs can be derived from the data to further explain answers to the research question. Therefore, despite a lack of accepted theory, this enables the researcher to perform an inductive research strategy (Merriam 1998, 7) in order to detail how agriculture exports affect foreign security policy.

Qualitative Research Weakness

The primary detractor of qualitative research is the absence or perception of rigor in data collection. This particular negative is controlled by applying a methodical approach to case selection. While it is true the selection criteria were author created, it is necessary to properly bind the study in order to examine modern, relevant answers to the research questions. Another issue is the relatively small amount of cases relating to the research question. While it may be more challenging to write generalizations, the depth and breadth of research for each case will allow a strong understanding for each. To increase the reliability of the case studies, “multiple sources of information are sought and used because no single source of information can be trusted to provide a comprehensive perspective” (Merriam 1998, 137). To this end, a variety of primary and secondary sources is used in order to triangulate and confirm relevant findings in order to make well-reasoned analysis leading to sound conclusions.

Researcher bias is another weakness that erodes confidence throughout the study. From case selection, to analysis, and conclusions, bias can color the study and reduce its significance. To control for this, the author draws from a variety of sources for study material. Both primary and secondary sources of information are considered. Primary

sources include original documentation from the U.S. State Department, the U.S. Department of Agriculture, and relevant portions of the United Nations while secondary sources of data include news agencies and relevant trade group publications. The inclusion of different angles aims to analyze data seen through unbiased, competing, and at times, contradictory points of view.

Summary

This chapter outlined the studies' method, data collection, research strengths and weaknesses. It focuses on describing the qualitative research approach, and how this enables the author to conduct an in-depth analysis of complex cases. Each of which is selected using rigid criteria to study possible answers to the primary research question. The next chapter, analysis, will look at several case studies and important aspects of American agriculture to derive underlying themes and aim to explain what answer, if any, there is for the research question.

CHAPTER 4

ANALYSIS

Introduction

This chapter will analyze the historical roots of the modern agricultural industry by looking at US farm-related policies in the 1930s and 1940s. These resultant laws, the foundation of today's agriculture base, later capitalized on the benefits of the Green Revolution and helped establish US dominance in several major agriculture exports. This export capability along with the passage of PL 480 (Food for Peace) and the *Foreign Assistance Act of 1961* showed several cases where the US exercised agricultural power to achieve policy objectives. The result of these case studies will be further examined and explained throughout this chapter.

In addition, this chapter will analyze how those same policies and laws, which enabled the US to exercise agricultural power, affected it in other arenas such as the Doha Round of World Trade Organization negotiations (Lee and Wilkinson 2007, 13-14). Although the Doha Round trade negotiations had many facets such as manufacturing and intellectual property rights, this study will focus on agricultural aspects. This chapter will continue by explaining some of the linkages between US domestic agriculture production capacity and the affect it had on African agriculture development. In conclusion it reviews new US global development policy changes along with recent implementation of the Feed the Future program.

Roots of Modern US Agriculture

Although agriculture in the United States currently enjoys global primacy in multiple commodity areas, this was not always the case. During the Great Depression, approximately 25 percent of the US population lived on farms and were financially worse off than the rest of the country (Thurow and Kilman 2009, 63). As part of President Roosevelt's New Deal, Congress passed the *Agricultural Adjustment Act of 1938*, a permanent law designed to support farmers by providing payments to lay some land fallow while providing price supports for some major commodities. Closely related is the *Agriculture Act of 1949*, also a permanent law, which further outlines the price supports for "basic agricultural commodities" defined as corn, cotton, rice, and wheat while all other commodities not listed are considered "non-basic" (*Agricultural Act of 1949*). This determination would be critical since basic listed commodities would be eligible for subsidies while non-basic listed foodstuffs are not eligible for government support.

Within these two laws are two glaring issues. First, the laws are permanent, meaning they are in effect unless continually suspended by further legislation. Second, the arithmetic used to determine prices and farm subsidies depended on a complex calculation of price determinations (made by the Secretary of Agriculture), acreage reports, and allocations for production by commodity (*Agricultural Act of 1949*). As of 2008, the USDA did not have complete records to make such determinations and it was, "unclear how USDA could meaningfully translate these historical allotments into future program payments" (United States Department of Agriculture 2008, 2). Therefore, the issues of the second problem with this legislation is typically dealt with by avoiding the first and suspending these permanent laws. While it is beyond the course of this study to

determine why these laws have not been replaced or repealed, it is clear their affect is felt to this day. For example, the 2014 Farm Bill expressly changes the suspension dates for both the AAA1938 and AA 1949 to 2018 (HR 2642).

As the Marshall Plan concluded, and with European reconstruction underway, the Cold War with the Soviet Union began. US agriculture production was reaping the benefits of the green revolution and rapidly increasing production. This rapid growth led to passage of the Agricultural Trade Development Assistance Act of 1954, more popularly known as Public Law (PL) 480–Food for Peace. At the time, President Eisenhower declared PL 480, would “lay the basis for a permanent expansion of our exports of agricultural products with lasting benefits to ourselves and peoples of other lands” (United States International Development 2004). While the President probably intended to increase and strengthen the US agricultural base, he may not have realized what the combination of PL 480, farm mechanization, and the then nascent Green Revolution would eventually produce. In fact, as the table below shows, US grain production nearly tripled from 1961 to 2013.

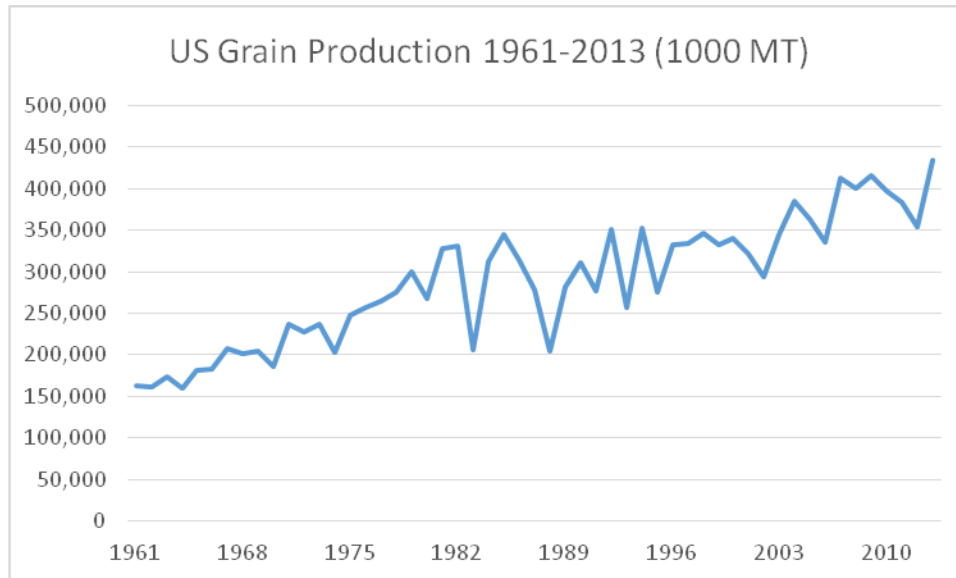


Figure 1. U.S. Grain Production 1961-2013

Source: Created by author from Department of Agriculture, Production, Supply and Distribution, *PSD Online*, <http://apps.fas.usda.gov/psdonline/psdQuery.aspx> (accessed 18 May 2014).

The *Foreign Assistance Act of 1961* was important in that it established the United States Agency for International Development (USAID) and placed it under executive control with responsibility for policy guidance delegated to the Secretary of State (*Foreign Assistance Act of 1961*, Part 1, ch1, sec 101). This organization, although not specified by law, meant future development (including agriculture) would be a means of exerting diplomatic power. While USAID in of itself would not directly affect domestic agriculture production, its actions and authority to assist other countries would impact US domestic production. Chief among them was the 1986 Bumpers Amendment intended to protect US agricultural producers from economic harm and lost markets as a result of overseas USAID development projects (Lincoln 2010). As a result, USAID conducted a Bumpers review for all development projects. Their internal policy reads:

No funds may be used for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training) that would compete with a similar commodity grown or produced in the United States unless the activity:

(a) Is designed to increase the food security in developing countries and where such activities will not have a significant impact in the export of agricultural commodities of the United States; or

(b) Is a research activity intended primarily to benefit American producers.
(Becker 2014)

The effect the Bumpers Amendment and subsequent USAID policy would have on US agricultural producers will be discussed later in this chapter.

Food as an Element of National Power?

Traditional international relations employ four elements of national power: Diplomacy, Information, Military, and Economy (DIME) in order to execute national policy and achieve objectives. This thesis examines the fact that over the years some administrations have embraced agriculture as an element of the United States' national power. Indeed, the relative comparative advantage US farmers produce over the remainder of the world is great. The 2010 United States global export shares for selected key commodities were: corn (53 percent), soybean (44 percent), cotton (42 percent), and wheat (28 percent) (Department of Agriculture 2014c). In this regard, two authors, Le Cuyler and Paarlberg, analyzed the prospect of using food as a component of national power. This study will use these analyses to validate some components while discussing possible shortfalls throughout the chapter.

In 1977, Major Le Cuyler's article entitled "Food as a Component of National Defense Strategy" discussed the advantages and disadvantages of using "food as a weapon." His analysis indicated in order to use food as an effective diplomatic lever,

there would have to be “necessary and sufficient conditions” (Le Cuyer 1977, 57). These conditions included creation of a cartel of similar products to limit supply, the item’s price needed to be inelastic (at least in the short term), and the participants of the aforementioned cartel needed to align with US interests. While this analysis focused on the suspension of food exports, it neglected to consider agriculture export guarantees to increase dependence. Le Cuyer did not argue for using the food weapon, but noted it was “best viewed as a policy instrument for dealing with short to intermediate-term political disputes” (Le Cuyer 1977, 61). His analysis realized the linkage between domestic and foreign policy and the growing importance it would play. This portion of his Le Cuyer’s analysis features more prominently later in the chapter.

Robert A. Paarlberg conducted an analysis of how food may be used as a foreign policy asset. Here again, the author focused on the withholding of food from a particular country. Using the premise of an embargo, he posits there is a cycle of Food Power in which “country X” lessens its exposure to US food imports after each embargo cycle (Paarlberg 1980, 37-38). This analysis differs from Le Cuyer in the assumption the target country would return to import (albeit less so). Paarlberg’s analysis further proposes that if food were used for political advantage, it should be used when yields were lowest around the world to maximize the US position and weaken the market’s power. In this instance, he argues the prospects of beginning/rising food exports is the most powerful time to receive political concession (Paarlberg 1980, 37-38). However, the window to utilize food power would decline inversely proportional to the rise of realized exports. This notion is particularly important since negotiations could quicken due to humanitarian need, impending disaster, or other pressures. Indeed, it could be a short

window considering futures contracts can be made in multi-year increments. Thereby reinforcing one of Paarlberg's main points that the food lever may only yield short-term gains at the cost of long-term commitments.

Case Study: Bihar Famine

Background

India achieved independence from Great Britain in 1948 and began to assert itself as an independent democratic country. In 1965, India started to recover from the Second Kashmir War, which resulted in stalemate with Pakistan along with souring Indo-US relations when the U.S. suspended Indian military aid (Cohen and Tucker 1994, 169). Due to inadequate rainfall, Indian crop yields twice failed to meet projections in 1965 and 1966. President Johnson's estimates for the Indian crop shortfall were approximately 18 percent in 1965 and 10 percent in 1966 (President of the United States 1967). Elsewhere, the United States pursued a containment strategy against Communism in the Cold War, specifically against Chinese influence in south Asia (Cohen and Tucker 1994, 165), and was in the midst of escalating the conflict in Vietnam. On the opposite side, India itself was officially neutral on Vietnam and by 1966 had committed approximately \$256 million in Soviet military equipment (Mallon, Smith, and Patterson 1999, 351). Seemingly drifting from Western influence, and feeling under threat from both Pakistan and China, India tenuously remained the world's most populous democratic country.

Objective

Even though President Johnson never clearly spelled out a political objective tied directly to food aid, Indian support or non-criticism of US involvement in Vietnam was

one of his goals. “When I put my wheat down here [for Indian aid], and it costs me a few hundred million, I want to see what you're putting on the other side.” Johnson wondered, “I would think they [Indians] could help us if they could understand our objectives in the world and our viewpoint, and try to be a little more sympathetic in recognizing them. I don't say just rubber-stamp anything we do, but I don't think they need to denounce us every day on what we're doing in Vietnam.” Mallon, Smith, and Patterson 1999, 288). Other American congressional representatives echoed the President's feeling by stating donations to India should, “help persuade GOI officials and the Indian press to move more quickly toward the United States position regarding Vietnam and to change open criticism of U.S. military strategy to one of condemnation of communist aggression” (Mallon, Smith, and Patterson 1999, 405).

Although not publicly stated, but plainly evident with the President's own words, was American desire for India to purchase US grains on the open market. Johnson wrote: “The Indians should give equal priority to *buying wheat commercially* in the U.S. It does not set well for us to read of larger purchases elsewhere when we are carrying the bulk of the concessional burden” (Mallon, Smith, and Patterson 1999, 399). While it is not likely President Johnson wanted to establish Indian dependency on US food production, he clearly wanted Indian actions to help facilitate his negotiations with Congress in order to provide future aid (Mallon, Smith, and Patterson 1999, 399).

Actions

In response to the Bihar Famine, President Johnson used the Food for Freedom act of 1966 to send eight million metric tons of food aid to India (Mallon, Smith, and Patterson 1999, 401). Publicly, food aid was conditional on Indian agricultural self-

development and other reforms such as currency devaluation (Mallon, Smith, and Patterson 1999, 428). In 1967, the United States sent aid through the India Consortium, an organization managed by the World Bank. Of the estimated 10 million metric tons of food needed that year, the United States alone provided over half. The aid also included added funding to the Commodity Credit Corporation and CARE (President of the United States. 1967). That year, aid was not approved all at once; President Johnson approved food shipments month by month. In fact, Indians were not pleased with President Johnson's short tether policy of sending small shipments of grain and causing India "to go begging for food" (Cohen and Tucker 1994, 169).

Immediate Result

American aid to India assisted in averting a humanitarian catastrophe during the Bihar Famine. In exchange, India as early as August 1966, worked diplomatic channels with Yugoslavia, Egypt, Russia, China, and North Vietnam in order to find a way to move the Vietnam issue from the "battlefield to the conference table" (Mallon, Smith, and Patterson 1999, 368). It is unclear if Indian posturing led to a possible 1968 US—USSR agreement on weapons, Vietnam, and the Middle East, but Johnson remarked that just before they "got on the elevator, they invaded Czechoslovakia" (Mallon, Smith, and Patterson 1999, 514). Therefore, any influence India may have had in assisting with Vietnam would have been for naught since Johnson noted negotiations with the Soviets could not take place due to their Czechoslovakian invasion in August 1968.

Case Analysis

The application of food power was a moderate success. The United States was able to provide large quantities of grains to a fellow democratic country in order to secure some measure of assistance with the Vietnam issue. Using Le Cuyet's analytical model for this case mainly points to the policy reforms he was arguing for (trade liberalization, access to free markets) which were already in place. However if one looks to Paarlberg's cycle of food power, it is clear the US wanted to keep India as close to the promise of food aid and the illusion of rising imports. In fact, Johnson's National Security Staff recognized this fact when attempting to persuade India to purchase US grains to restock Indian reserves, "this agreement gives us little new political leverage because the Indians aren't in the dire need of the famine years" (Mallon, Smith, and Patterson 1999, 507). This seemingly validates Paarlberg's assessment that leverage wanes after food imports (deliveries) have already taken place.

After the events in Bihar, controversy regarding political machination over declaring a famine appears to hold some measure of truth. Paul Brass analyzed the Indian government's *Bihar Famine Report* and surmised the famine was fabricated by ineffectual local governments unable to redistribute available foodstuffs (Brass 1986, 265). Indeed the Indian Minister of Agriculture argued for increasing US aid and its impact upon the upcoming 1967 election stating "those [opposition] candidates have relied on the Americans, and this is all they could get" (Mallon, Smith, and Patterson 1999, 418). Realizing this, Johnson's advisors raised their aid recommendation more in line with the Indian position to avoid a change in government and presumably maintain some measure of leverage over the then current Gandhi administration. Ironically, the

minister lost his job but Indira Gandhi's government survived the election to continue negotiation with the Johnson administration through the remainder of the crisis.

Overall, although India survived the Bihar Famine mainly with US food shipments, relations between the two governments actually became more strained from 1965 to 1967. Contrary to Johnson's desires, Indian non-alignment on Vietnam never turned to support while their diplomatic efforts were possibly destroyed by the Soviets invading Czechoslovakia. Johnson's short tether on food aid irritated India and caused them to desire greater independence and autonomy from US influence. Meanwhile, using food aid to bring India to the negotiating table to address the overarching issue of Indo-Pak conflict was never an objective. Therefore, the greatest objective the US achieved with India during the Bihar Famine was development of Indian agriculture production capacity to reduce their reliance on US aid shipments.

Case Study: Soviet Grain Embargo

Background

The Soviet Union started purchasing US grain under the John F. Kennedy Administration in 1963. While the Soviet aim was to purchase US grain to fulfill Communist Bloc commitments, Kennedy saw opportunity for engagement, profit for US agriculture, weakening the Soviets, and an increase in American soft power (President of the United States 1963). Grain sales continued into the next decade until 1972 when the Soviets purchased approximately 40 percent of US wheat exports causing a price spike reverberating back to the US consumer in the form of higher bread, flour-based products, and animal products (Government Accounting Office 1973, 25). As a result, the US instituted reforms for prices to fluctuate and grain dealers to register sales to qualify for

grain subsidies. Afterward, the Ford administration signed the US-Soviet Grain Agreement in 1975 agreeing to sell six million metric tons and obligating the Soviets to purchase the same for a period of five years (1976 to 1981) with an option to purchase an additional two million tons without additional approval (Paarlberg 1980, 146).

On the political side, the United States was dealing with the Iran hostage crisis just as the Soviet Union was preparing to invade a faltering Afghanistan. Coincidentally, the United States was seeking Soviet assistance for resolving the Iran-hostage crisis (Taylor and Howard 2013, 237). After the US confronted the Soviets regarding possible preparations against Afghanistan, the Soviet charge d'affaires in Washington deflected by stating, "US focus on Afghanistan was designed as a diversion to detract attention from planned US action against Iran" (Taylor and Howard 2013, 240). It was soon apparent the Soviets were moving sizeable forces into Afghanistan claiming they were deploying to deter external aggression at the behest of the Afghan government under Article 51 of the UN Charter (Taylor and Howard 2013, 246). After some initial dialogue between Leonid Brezhnev and President Carter, the State Department began an analysis of options consisting of unilateral and multilateral actions along the diplomatic, information, military, and economic spectrum.

Objective

President Carter's public objective was to punish the Soviet Union for invading Afghanistan. However, according to his NSC staff, the President was determined to "stop Soviet expansion in Southwest Asia and into the Persian Gulf . . . [the US must] adopt a firm and unequivocal policy of resistance to Soviet machinations. . . . Afghanistan should not be viewed as an isolated event, but that it has to be seen in the context of what has

been happening elsewhere in the world” (Taylor and Howard 2013, 255). Therefore, while Carter publicized he was merely punishing the Soviets, he believed his actions should impose such a high cost on the Russians that it would force them to retreat from conducting Communist expansionism.

Actions

When President Carter instituted the grain embargo early in 1980, the Soviets had come off a particularly poor harvest (due to bad weather) and contracted to import 35 million metric tons of grain from around the world (Paarlberg 1980, 144). Of that total, approximately 70 percent was US grain; on the surface a very high percentage. However, that figure was much lower when contrasted with the fact that U.S. import share represented only 11 percent of all Soviet grain consumption (Desai 1981, 42). Yet, President Carter bound by the 1975 agreement mentioned earlier, chose to honor its provisions to sell the Soviets eight million metric tons of grain. Therefore, he cancelled contracts for the remaining 17 million metric tons of grain or roughly half of Soviet grain imports for 1980.

On the domestic front, President Carter ordered a trade suspension of grain markets for two days after announcing the embargo. Prices plummeted when markets resumed trading and farmers publicly worried if they would survive stating, “we planted fence post to fence post like they wanted, and now this is what happens” (Ganzel 2009). A week after the administration announced the embargo, it offered low cost farm loans to farmers affected by the embargo to purchase the grain from the cancelled Soviet contracts. The administration stated the grains would be used for foreign aid, gasohol,

and excess would be stored until it could be released at a less disruptive time. The cost for these measures was estimated at around \$4 billion (Nelan 1980).

Overseas, the United States requested support from major grain exporters to support the U.S. measure. Canada and Australia stated they would not make up the U.S. shortfall but their countries would still honor (like the US) their established contracts. Argentina though, refused to cooperate and instead increased production to fill as much of the Soviet need as possible (Paarlberg 1980, 153). Other European allies (though not significant grain exporters) such as France and West Germany declined to change their Soviet stance. Britain alone stated it would stand with the United States, but Margret Thatcher's actions could not amount to more than moral support for the embargo.

Immediate Result

Immediately after the embargo was announced, world grain prices plummeted (due to a sudden increase of supply) and American farmers claimed to be bearing the main burden of the embargo (Taylor and Howard 2013, 275). As noted earlier, most Western grain exporting allies limited sales so as not to meet Soviet grain needs due to the US embargo. However, by May 1980 the coalition was fracturing as Canada was seeking US agreement to sell excess grain to the Soviets since Canada's farmers had quixotically also "borne the main brunt of the embargo" (Taylor and Howard 2013, 275). Meanwhile, Argentina had grabbed the Soviet market share and established a new long-term contract to export at least 5 MMT thereby undercutting the embargo's effect. In fact, Argentina doubled wheat production from 7.7 MMT to 15 MMT from 1980 to 1982 in response to their Soviet deal (Department of Agriculture 2014c). Although the US made diplomatic efforts to curb Argentine exports to the Soviets, the US had little leverage to

convince them to do so. Carter Administration officials concluded American efforts to reduce Argentine grain exports might not be possible because it would require the US to back down from other policies such as human rights and nuclear non-proliferation (Taylor and Howard 2013, 275).

Case Analysis

In this instance, both Paarlberg and Le Cuyer's analysis apply. Carter's grain embargo was clearly meant to exact Soviet withdrawal from Afghanistan. The administration did try and create Le Cuyer's "necessary and sufficient conditions" and establish an ad-hoc (informal) cartel between major grain producers. Although Carter achieved this by coordinating with most major Western exporters, Argentine resistance reduced the embargo's overall effectiveness. With Le Cuyer's second point, the price of grains proved to be fairly elastic when grain prices dropped requiring the President to announce additional price supports the embargo continued. Although the Soviets paid a premium on the world market, as much as 25 percent above American prices to Argentina (Paarlberg 1980, 153), the Russians must have concluded the financial cost was worth the political benefits of blunting the effects of the US embargo.

Following Paarlberg's analytical method, the President initially enjoyed public and congressional support for his actions, although it began to wane by late spring. On Paarlberg's second link, the administration failed to prevent grain leakage into the target country. As shown earlier, US officials would not incur the political costs to pressure the Argentines to curb wheat exports. Additionally, although the research could not find definitive evidence of re-exporting, it is assumed some countries (like Argentina did) must have done so for either economic or political gain with the Soviets. Following this,

the embargo never tested the third link—effect. In fact, during a review of official State Department archives, the researcher noted the Soviets hardly mentioned the grain embargo as a point of contention or a way to improve US-Soviet relations. Even Anatoly Dobrynin the Soviet Ambassador to the US in March of 1980, listed human rights, the Middle East, disarmament, Cuba, and SALT as major reasons why US-Soviet relations had deteriorated (Taylor and Howard 2013, 272). Although it is peculiar the Soviet Ambassador did not mention the Afghan invasion, it is also noteworthy he did not mention grain. The grain embargo had not been enough to force the Soviets to contemplate a decision to change any policy or movement.

President Carter chose to enplace a grain embargo from a range of options the State Department had prepared immediately after the Soviet invasion of Afghanistan. While it is true there were more elements to the President's actions than just the grain embargo, the other elements such as electronics sales suspension, cancelled academic exchanges, and non-participation in the Moscow Olympic Games were more symbolic in nature (Taylor and Howard 2013, 295). Meanwhile, the CIA intelligence analysis regarding grain denial read, "The effect of even a one-year denial of grain on Moscow's consumer programs will be marked. A longer term curb on US grain would be even more effective if other producing countries cooperated" (Taylor and Howard 2013, 250). The report continued outlining the specific target was to negatively impact Soviet plans to upgrade consumer diets—not starve the Soviets into submission. The assessment continued, "A continued denial of Western grain would severely curtail the Brezhnev livestock program in the 1981–85 period" (Taylor and Howard 2013, 250).

Interestingly, prior to Carter publicly announcing US actions in response to the events in Afghanistan, Vice President Walter Mondale, provided the President with a dissenting view recommending against adding grain to the embargo measures. His main points included the view that grain sales benefitted the economy and the dollar (Taylor and Howard 2013, 253). Mondale foresaw the political costs in grain producing states; likely indicating his sensitivity that 1980 was a Presidential election year. More importantly, he realized these political costs would likely erode national support for actions against the Soviet Union. He concluded his argument noting the US had not withheld food from Iran to secure the embassy hostages; this change in policy would require some explaining. Mondale's implication seemed to be that the US was willing to do more against the Soviets than in securing American hostages in Iran.

In absolute terms, Carter marginally achieved his objective of punishing the Soviets given there was limited evidence they paid increased grain prices from Argentina during the embargo. However, in practical terms, the grain embargo was a complete failure for American foreign policy. In negotiations with the Soviets, they repeatedly stated they had no long-term interests in Afghanistan and planned to leave in "about a year or so." Soviet Ambassador Dobrynin even stated they would be "willing to give guarantees to us [the US] that it has no designs against Pakistan and Iran" (Taylor and Howard 2013, 268). Therefore, the effect of the grain embargo—damaging Brezhnev's livestock program, induced a slight additional cost on the Soviets, it never came close to negating Carter's imagined concern over Russian expansionist plans.

Case Study: North Korea

Background

After the Korean War North Korea made agricultural development a top priority. However, the challenges in increasing food production in that part of the world are daunting: mountainous terrain, small amounts of arable land, and a short growing season. In the spirit of *Juche* (self-reliance), Kim Il Sung overcame these difficulties “through irrigation, mechanization, the intensive use of agro-chemicals, and the development of hybrid seeds” (Yu 2005). An extensive rural electrification program facilitated the plan to farm every bit of arable land throughout the country.

To complement its agricultural plan, North Korea also geared its economy toward heavy industry. In the three years after the Korean War, approximately 81 percent of resources went into heavy industrial development (Cha 2012, 113). This newly industrialized North Korea of the 1960s and 1970s expanded trade with non-communist countries like West Germany and Japan. Although trade with other communist countries was still important, by 1974 nearly half of all North Korean trade was with Western and other OECD countries (Cha 2012, 25). Around this same time though, North Korea was falling behind on financing payments and in the late 1970s, “remained in virtual default on its hard currency debts” (Eberstat 2007, 65-66). By the end of the decade, North Korea returned once again to their communist patrons in the Soviet Union and China to replace lost trade revenue.

Kim Il-Sung returned to extracting aid from both the Soviets and Chinese playing one off the other. However, the return to this dynamic did not last long after Gorbachev ended the Sino-Soviet split in 1989 and visited Deng Xiaoping in May later that year

(Cha 2012, 326). This development ended the competition for North Korea's fealty as well as concessional trade terms from both countries. China, for its part quickly, started to warm up to an emerging South Korea eventually leading to normalized relations in 1992. On the Soviet side, trade in both absolute terms and on percentage basis actually increased (Eberstat 2007, 80). However, when the Soviet Union fell in 1991, the insular benefit from depending on Soviet trade turned into a liability. Meanwhile, the Clinton administration pursued its "soft landing" policy toward North Korea looking for a way to dismantle existing nuclear plants and get both North and South Korea to dialogue through proposed four party talks (Natsios 2001, 127). Isolated, and facing a collapsed economy, Kim Il-Sung entered into negotiations with the United States in a deal that would result in the 1994 Agreed Framework.

The Agreed Framework between the United States and North Korea outlined a pathway for "full normalization of political and economic relations" (Ju and Gallucci 1994). The United States agreed to provide: Assurances the United States would not threaten or use nuclear weapons, Light Water Reactor power generating capacity of 2,000 Megawatts, Alternative energy in the form of 500,000 tons of heavy fuel oil and as necessary, conclude a bilateral agreement for cooperation in the field of peaceful uses of nuclear energy. In exchange, the DPRK would freeze and dismantle its nuclear program subject to International Atomic Energy Agency (Ju and Gallucci 1994) verification, consistently take steps to implement the North-South Joint Declaration on the Denuclearization of the Korean Peninsula and engage in North-South dialogue (Ju and Gallucci 1994).

Soon after signing the Agreed Framework, in 1995 to 1997, North Korea experienced drought, flood, and a typhoon that would destroy farms, crops, and an “estimated 85 percent of the country’s hydroelectric capacity and ravaged its coal-power capabilities” (Cha 2012, 192). Due to the interdependent relation between power generation, irrigation, and crops, North Korea’s food production capability plummeted resulting in severe famine. Food aid from the World Food Program started flowing into North Korea in 1995. Even with international aid, approximately between 600,000 and 1,000,000 or 3 to 5 percent of the North Korean population perished as a result of the food crisis (Cha 2012, 188). In the midst of the famine in 1996, Kim Jong-Il remarked “the most urgent issue to be solved at present is the grain problem . . . the food problem is creating a state of anarchy” (Cha 2012, 189).

Objective

According to Ambassador Bosworth, Special Representative for North Korea Policy in 2011, “On the subject of food aid . . . we continue to pursue a longstanding U.S. policy on food aid. We do separate humanitarian assistance from political issues, but we provide food aid when we see a perceived need and in a situation in which we can monitor how the food aid is used, who are the recipients of that food aid, and does it go to the people for whom we intend it” (U.S. Congress, Senate 2011). While a 2013 Congressional Research Service report noted, “diplomatic factors have always affected decisions over aid to North Korea, the degree to which they have been linked has varied over time” (Manyin and Nikitin 2013, 12). Contrary to official policy, and aligned with the Congressional Research Service, this paper’s research finds the objectives linked to North Korean food aid are sometimes closely tied to talk initiation, or de-nuclearization

efforts. Because the North Korean issue is now over 20 years in the making, and spans three two-term presidencies, it will be necessary to outline each administration's objectives in order to study the nuances that separate them instead of applying a general approach to policy.

With respect to North Korea, Clinton administration officials always maintained there was no linkage connecting food requests and other issues between the governments' relationship (Natsios 2001, 152). In private, Chuck Kartman, lead negotiator with North Korea in 1997, "suggested that U.S. policy toward the North Korean food emergency would be based on a carrot-and-stick approach, or as he put it, a policy of 'tough love.' If the North Koreans were cooperative in the negotiations, then the United States would be cooperative with food aid" (Natsios 2001, 150). The negotiations were regarding the Four Party talks between the US, China, North Korea, and South Korea. The implication was to use food aid to make North Korea more pliable in crafting a long-term Korean Peninsula security arrangement.

President George W. Bush seemed to have largely de-linked food aid and political concessions from North Korea. President Bush's willingness to send food, despite the collapse of the Agreed Framework and after a nuclear test, brings credence to Victor Cha's description of Bush. Cha wrote that "His concern for the plight of the people was about as genuine as any human being could have had. His conviction on this issue was deep" (Cha 2012, 205). Although there was a gap in food aid during 2006 and 2007, it may have been politically impossible to continue aid to a belligerent, nuclear ambitious North Korea. Therefore, during the Bush administration it appears there was no linkage between political objectives and food aid.

The Obama administration publicly exercises strategic patience and as the President's North Korea policy director stated, there is no official link between humanitarian aid and politics. Strikingly, aid shipments effectively stopped after the second DPRK nuclear test in 2009 and remain suspended until the publication of this thesis. However the 2012 "Leap Day" Agreement between North Korea and the United States possibly offers more nuanced insight into the current administration's objectives vis-à-vis food aid. As one senior administration official put it, "the [Leap Day] agreement opens the door for serious negotiations to achieve irreversible steps by North Korea to achieve de-nuclearization" (Department of State 2012). Although the official de-linked policy of food and politics continues to stand, the closely timed announcements of food aid and North Korean actions indicate an administration that is willing to conduct a transactional relationship that includes food.

Actions

Even though the famine is widely marked as occurring between 1995 and 1997, the United States only began to send food aid to North Korea in earnest in the latter portion of 1997 onward. The increase in food aid was approximately three weeks after the State Department announced North Korea had agreed to join the Four Party peace talks (Department of State 1997). As shown in the figure below, US food aid to the UN World Food Program continued to increase and peaked in the year 1999 with nearly 600,000MT of grains sent to alleviate North Korea's food shortages. The subsequent fall in US food aid from 1999 onward not only corresponds with an official end to the famine, but also the end of the Four Party talks initiated two years earlier (Cossa 2003).

Interestingly enough, UNWFP aid to the DPRK continued to rise at the same time US contributions were declining.

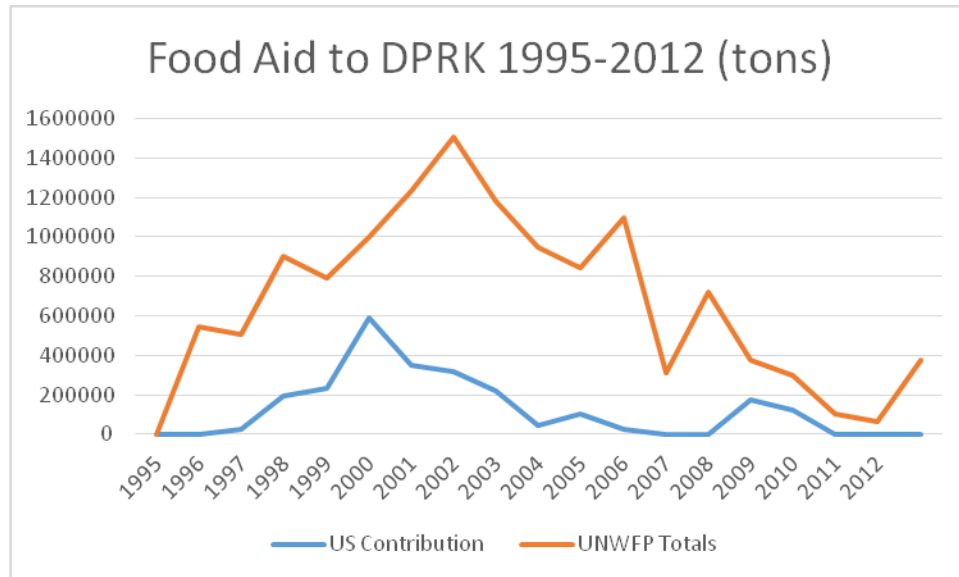


Figure 2. Food Aid to Democratic People’s Republic of Korea 1995-2012

Source: World Food Programme, *Quantities Delivered Report* (New York: United Nations, 2004), <http://www.wfp.org/fais/reports/quantities-delivered-two-dimensional-report> (accessed 1 May 2014).

In President Bush’s State of the Union Address in 2002, he famously proclaimed North Korea to be in the “Axis of Evil.” Even so, Bush was obliged to follow the terms of the Agreed Framework he inherited from the Clinton administration. In late 2002, North Korea disclosed the existence of a covert nuclear program and violated the terms of the Agreed Framework. Despite this development, the Bush administration chose to continue food aid shipments through the World Food Program up until North Korea detonated its first nuclear weapon in 2006 (World Food Programme 2014b). After a two year pause, in

2008 the administration announced a 500,000-ton food aid package contingent on greater access and monitoring more in line with official policy as noted earlier (Cha 2012, 205). This new aid package represented approximately a 14 percent increase from that year's yield. However the regime cancelled the agreement the following year in May and was willing to forgo the majority of the aid package amid increasing nuclear related tensions. This move may have been in anticipation of launching the Unha-2 (space launch missile) in April or more likely to conceal efforts prior to North Korea's second nuclear test in May of 2009. Clearly the DPRK valued secrecy more than external food aid to feed its people. This is somewhat surprising since DPRK grain production in 2009 was not much higher than during the Great Famine of the mid-1990s (United States Department of Agriculture 2014c). After this row, US food aid to North Korea stopped until President Obama would reach his own agreement with Kim Jong-Il's successor, Kim Jong-Un.

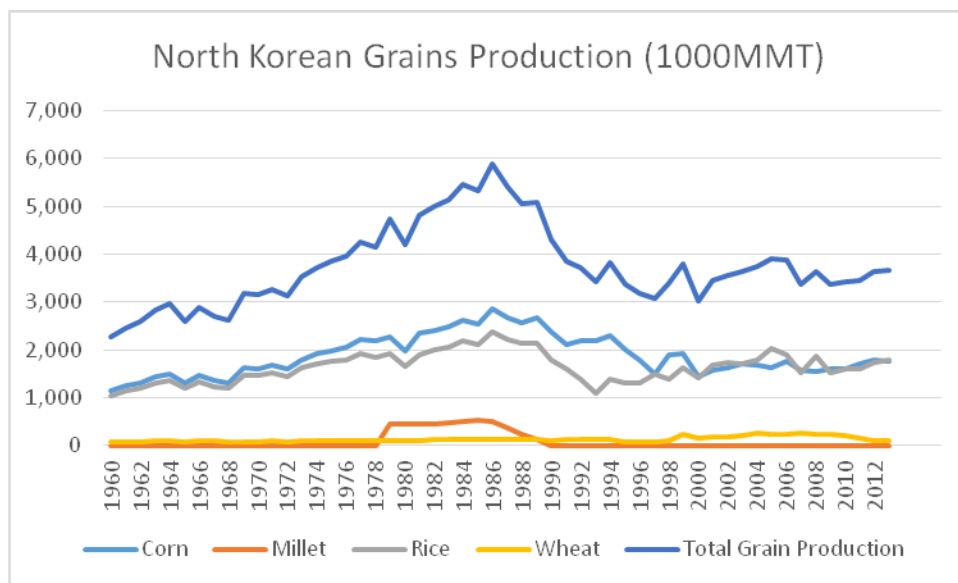


Figure 3. North Korean Grains Production 1960-2012

Source: Created by author from Department of Agriculture, *PSD Online*, <http://apps.fas.usda.gov/psdonline/psdQuery.aspx> (accessed 18 May 2014).

In February 2012, the Obama administration reached the Leap Day Agreement with North Korea. In the agreement, North Korea would adhere to a moratorium on nuclear testing and allow international inspectors back to its sensitive nuclear sites. This announcement was followed by another (separate) agreement whereby the United States would provide 240,000 tons of nutritional assistance over the period of one year. Despite this sudden and significant movement in US-DPRK relations, the plan was scuttled after North Korea used a ballistic missile to launch a satellite into space. While this launch was not in violation of this latest agreement, it was in contravention with standing United Nations Security Council Resolutions. As of the writing of this study, there is no known movement to re-initiate aid to the DPRK.

Immediate Result

It is notable that within the provisions of the 1994 Agreed Framework there was no mention of food aid or nutritional supplements in the exchange between North Korea and the United States. Although this agreement achieved one of Clinton's objectives by replacing existing North Korean nuclear reactors with light water versions, talks to secure a lasting peace between North and South Korea had not yet taken off. This achievement would come later in 1997 with a corresponding rise in food aid; or as noted earlier, "tough love." This policy was successful in getting North Korea to the bargaining table as evidenced by their acceptance to join the Four Party talks. However neither the aid nor the discussions that followed were able to address the underlying issues of conflict between North and South Korea. When these talks failed in 1999, the withdrawal of American food aid held less significant since the DPRK had secured aid from the rest of the international community.

Even after North Korean yields partially recovered from the lows in the 1990s, grain production to this day has yet to return to the lofty yields 30 years ago. It is interesting to note the Kim family has been able to hold onto power despite an overall reduction in food aid from the highs of 2001 (see chart). During his presidency, George W. Bush seemingly de-coupled food aid from political objectives and was still able to get North Korea to negotiate in the (then) new Six Party talks. This is peculiar in that food aid shipments (as shown above) continued to decline throughout much of the time the Six Party talks were being held. Political objectives aside, it can be reasoned that North Korea valued the incentives out of the Six Party talks more than securing additional food aid. A stark contrast from 1997 when North Korea demanded food aid for continuing talks (Cossa 2003).

The Obama Administration, like Bush before, inherited his predecessor's policies. Although this time there was no framework, no agreement, or pathway to normalize relations. While the North Korean nuclear test 2009 helped dampen food aid as it did before in 2006, there is seemingly no rebound in aid this time around. This lack of diplomatic traction, particularly from American, to provide aid seemingly reverberates throughout other donors as well. Andrew Natsios explained this phenomena:

In most emergencies, U.S. leadership can make a remarkable difference in the behavior of the UN agencies, the funding of NGO responses, and the mobilization of international donor government support. . . .U.S. government opposition or disinterest can therefore depress responses to emergencies because the United States is the only stakeholder that can reliably move food in large amounts early, and because its diplomatic leverage is frequently required to convince other governments to contribute. (Natsios 2001, 135-6)

It is likely North Korea understood this dynamic and therefore appealed to the United States for aid again in 2012 with the Leap Day agreement. Following Natsios'

2001 logic for American food aid leadership, it is telling that the current UN WFP \$200 million aid goal is only “21.3 percent funded,” and in 2013 distributed the lowest amount of food assistance [to North Korea] since 1996 (Russell 2014). It remains to be seen what Kim Jong-Un will try next in order to seek further aid; or rather America’s attention so that it may garner international support to help feed his people.

Case Analysis

Although food, energy, and political aspects of this problem are closely intertwined, Paarlberg and Le Cuyer’s analyses apply to North Korea. Looking first at Le Cuyer’s “necessary and sufficient conditions” pre-requisites, across all administrations, the US sought to create a cartel-like distribution through the UN WFP. However, price was not an issue in this case as all the food was donated and did not cost North Korea any hard currency. While food donations to the UN WFP are meant for humanitarian aid, evidence suggests both the Clinton and Obama administrations had political objectives beyond helping the starving people of North Korea. Indeed Clinton tried (and succeeded) to get North Korea to participate in Four Party talks.

However, Le Cuyer saw markets as the fatal flaw to using food as a means to secure political objective. What if, in the case of North Korea, there is no Adam Smith inspired free market to subvert the cartel? Clearly the DPRK made use of its political standing and geographic location to exact patronage from China and the Soviets during the cold war; the market in that dynamic was between the Chinese and the Russians. However following the end of the Cold War, and Chinese reluctance continue other than the bare minimum to keep the regime going (Cha 2012, 339), the “market” has become Japan, the US, the Republic of Korea, China, and the UN. Here North Korea shops

around for the “donor with the least stringent terms” (Manyin and Nikitin 2013, 10).

Therefore it stands that while Le Cuyet’s analysis was written for free world economics, North Korea has been able to find an alternative market of nations to subvert the cartel; using each at its own convenience or need.

Looking at Paarlberg’s analysis in the North Korea case study yields a similar picture though the view is through a different lens. First, during each administration, it was fairly easy for the president to maintain unity to utilize food power. It is convenient that the amounts of aid are relatively small when compared to total grain exports. Second, food could not leak into the target country. This posed problems with American allies and partners. North Korea continues to be very adept at changing donors when the diplomatic price is too high. Third, the action must produce the desired effect. In this circumstance the United States has failed. Time and again food alone has not been able to change North Korean behavior. In fact, from Andrew Natsios’ perspective, “the North Koreans ensured from the beginning of the relief effort that they, not the outsiders, would control the distribution of the food aid” (Natsios 2001, 140). In a totalitarian regime, the effect is even harder to attain since control ends once the food is off the boat.

Paarlberg also notes the diplomatic costs to maintain an embargo would weigh heavily and that the objective, if it is to be attained, should be short-term. Indeed, the North Korean problem set has lingered for 60 years. The ability for the United States to convince all other countries, most importantly China, to abandon the DPRK is prohibitively difficult. This study has not found mention of any terms the Chinese would accept to allow North Korea be fully exposed to American power. Likewise, the State

Department has been unable to coax China to cease aid to North Korea and prevent leakage to the country.

The use of food as an element of national power with respect to North Korea has only worked to gain statements and talks. In the Clinton era, the United States used the promise of food aid to induce the DPRK to participate in the Four Party talks. Bush maintained food was apolitical, but also ceased aid after North Korea detonated its first nuclear weapon. Meanwhile, Obama bargained with Kim Jong-Un for a moratorium on nuclear activities; this agreement did not last. It is clear the promise of food is powerful and has yielded some favorable North Korean actions. However if the diplomatic price is too high the DPRK has shown it will switch donors and seek out more favorable terms. In this case, food power has simply been a means to another means; not a means to an end or an end in of itself.

US Agriculture and Development Policy Effects

This portion of the study will outline how domestic agriculture policy has effects far beyond American borders. In the trade arena, disputes over agriculture issues are still the main source of friction to reaching an agreement for the World Trade Organization Doha Development Round. For development, the ability for USAID to assist foreign countries in particular projects is greatly affected by domestic interests and legislation. The Bumpers Amendment as noted earlier would have greatly unintended consequences. These consequences were amplified in certain cash crops that were important to many countries' agriculture sectors such as West African cotton and Latin American soybeans. Changes in American production in key commodities influence crop configurations around the world. Meanwhile, because of globalization, price fluctuations are seen near

instantaneously throughout the world's futures markets and change spot prices. These fluctuations alter the profitability or loss a particular industry will incur. This section will go into greater detail and discuss how American agriculture and development policy has affected global food production.

The World Trade Organization Doha Round

In 1994, the World Trade Organization produced the Agreement on Agriculture that aimed to liberalize market access, domestic support, and export subsidies (Lee and Wilkinson 2007, 39). Within this agreement were several important clauses including a “boxing” of subsidies (amber, green, blue) which placed restrictions on protections based on the level of market distortion their subsidy caused in their corresponding commodity area. The reference years for support reduction were set at 1986 to 1990, a historically high subsidy period. Most notably, negotiations exempted supports to agriculture earmarked to food aid. All this was delayed for ten years during a “peace clause,” time intended for governments to restructure their domestic policies to adjust to the new agreement (Lee and Wilkinson 2007, 40-41). While this seemingly represented movement toward lowering barriers to trade and leveling the playing field, by 2001 the OECD was still spending \$311 billion on agricultural support (Thurow and Kilman 2009, 60). It was against this backdrop WTO members gathered in Doha, Qatar to discuss the Doha Round of negotiations.

In November 2001, the members of the WTO gathered in Qatar and with respect to agriculture resolved to “market access, reduction of, with a view to phasing out, all forms of export subsidies, and substantial reductions in trade-distorting domestic support” (World Trade Organization 2001). The Doha Declaration went further to explain

that “special and differential treatment for developing countries [is] integral throughout the negotiations . . . the outcome should be effective in practice and should enable developing countries meet their needs, in particular in food security and rural development” (World Trade Organization 2001). The group had to overcome several major hurdles to reach an agreement: US cotton subsidies, EU sugar subsidies, and Japanese rice tariffs. Of these, the long pole in the tent was convincing the EU to reduce its farm support (Thurow and Kilman 2009, 176).

In May 2003, Benin, Burkina Faso, Chad, and Mali, known as the cotton-4 countries, submitted a paper to the WTO on the impact of cotton subsidies on their farmers and economies (World Trade Organization 2004). Their aim was to designate cotton as a Special Product for developing countries, phase out all cotton subsidies, and compensation for least developed countries during the transition phase (Lee and Wilkinson 2007, 42-43). This paper was aimed squarely at the United States since it was the largest exporter of cotton and the “only industrial state to grant cotton subsidies” (Lee and Wilkinson 2007, 9). America in turn looked to the EU to reduce its own subsidy programs to find an acceptable deal to appease developing countries. Failing this, in 2005 the United States sought a bilateral deal with the cotton-4 known as the West Africa Cotton Improvement Program “as a direct response to requests made in meetings of the ‘development track’ to cotton at the WTO” (United States Department of Agriculture 2005). Despite these efforts, the Doha Round is still not complete and no final agreement is in place.

A final key trade issue was global market access. Even if cotton or other food subsidies were removed, tariffs ensure other countries’ exports are not economically

viable. This is particularly acute for developing countries since “Market access opportunities for developing countries and especially poor producers in those countries, are to be found much more in agriculture than in other sectors” (Lee and Wilkinson 2007, 179). Even though US cotton subsidies are set to expire in 2016, the 2014 Farm Bill also sets maximum import quotas equal to 21 days of domestic mill consumption (HR 2642). This quota likely makes cotton imports economically infeasible because the US only imported 0.01 percent of its cotton in the 2013 and 2014 growing season (United States Department of Agriculture 2014d).

While agriculture was only one portion of the Doha Round of negotiations, it remains the most difficult to overcome. This is due not only to demands from African nations, but also competing interests from traditional trading partners such as the EU and Japan. While the United States is moving to eliminate cotton subsidies, cotton import quotas will remain in effect until 2018. Therefore, the challenge to meet the WTO’s single undertaking, “Nothing is agreed until everything is agreed,” is made all the more difficult due to US domestic policy.

US Foreign Development Assistance

The United States Agency for International Development “is the lead U.S. Government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential” (USAID 2014). For this study, this was particularly true for India. In 1967 Johnson stated, “Our long term objective is to help India achieve its goal of virtual self-sufficiency in grain by the early 1970s” (President of the United States 1967). In fact, by 1968 after the worst effects of the famine passed, Indian grain production had exceeded pre-crisis levels years earlier than the President had

intended. Although most of the attention for Indian aid was placed on outright food shipments, India accomplished Johnson's goal by reinforcing development assistance in staple crops such as corn and wheat. The key issue is that USAID provided assistance to developing crops United States growers exported. Even after its recovery from famine, India would not export significant amounts of food until 1977 after which it has remained a minor grain exporter.

However, the positive benefits of aiding developing nations become food secure had other negative ramifications on the US domestic side. Countries from around the world began to benefit from USAID development assistance and started their own agriculture export businesses. In 1978, USAID introduced Policy Directive 71, which affected palm oil, citrus and sugar projects, and related products. This internal policy required local mission managers to conduct an assessment (if it related to the aforementioned categories) for the subject country's export potential. Meanwhile, USAID in Washington, DC would assess potential injury to US producers and make a determination if the project would be approved or not (Becker 2014). The criteria associated with approval was the balance of development rationale and likely impact on US producers (Becker 2014). This subjective determination allowed Washington to be more flexible but wrested project approval from USAID field workers.

Later in 1986, the Bumpers Amendment discussed earlier followed the same line of thought as PD-71 but expanded the bureaucratic process for proposed projects that pertained to similar commodities grown or produced in the United States. The two exceptions were: (1) If the project would increase food security and not have a significant impact on US exports; or (2) If the research project benefited US growers (Becker 2014).

USAID interpreted and implemented the legislation through internal Policy Directive 15 (PD-15) which concentrated on developing food self-reliance through commercial agriculture, food distribution efficiency, purchasing power expansion, and trade (Becker 2014). After PD-15, this meant that USAID would focus on projects that would avoid direct competition with US exports in order to avert conflict with the Bumpers Amendment.

It is important to note that none of the policy directives or legislation prohibits development aid in a particular commodity. But, the important notion is that additional analysis on potential harm to US producers be taken into account before giving development assistance. The thought in the Department of Agriculture was more US-centric as Secretary John Block noted, “[The] idea that developing countries should feed themselves is an anachronism from a bygone era. . . . They could better ensure their food security by relying on US agricultural products, which are available in most cases, at lower cost” (Thurow and Kilman 2009, 32). Indeed, the Bumpers Amendment was likely a reaction to the then recent rise of Argentina and Brazil in the soybean market. With USAID research assistance, Argentina and Brazil began exporting soy meal in 1977. That same year Brazil displaced America as the top soy meal exporter in the world while Argentina would eclipse both by 1992 (United States Department of Agriculture 2014c). In this instance, USAID development assistance had indeed cost American farmers soybean market share. However, the consequences of losing that market share would be limited since US farmers could on the Farm Bill to prevent collapse. The safety net the Farm Bill afforded US producers would, and to some extent, could not be replicated throughout the world. The most prominent example of this would be in Africa.

After declaring independence, many African nations saw agricultural growth as the fast track to economic development. Lacking their own capital markets, African governments applied for loans from the World Bank as “a vital source of financial and technical assistance to developing countries around the world” (World Bank 2014). Among other things, these countries took development loans to institute agricultural subsidies to keep input costs low, maintain cheap credit, and promote export crops—all to encourage farmers to produce (Bello 2009, 69). Despite these incentives, production was held down by heavy taxation and unfavorable exchange rates. The system was called into question and deemed unsustainable by the World Bank in its report *Accelerated Development in Sub-Saharan Africa* in 1981. The Berg Report as it is known placed a strong emphasis on agriculture and repeatedly noted its importance to the continent. Berg noted the long-run strategy implications:

The agriculture-based and export-oriented development strategy suggested for the 1980s is an essential beginning to a process of long-term transformation, a prelude to industrialization. It is not a permanent course for any country, but one that in Africa generates resources more quickly than any alternative and benefits more people. Without these resources, the foundations of future development cannot be established. (World Bank 1981)

Following publication, World Bank structural adjustment programs required elimination of government agriculture incentives so private enterprise could fill the gap. But when African farmers faced American food aid competition and reduced development assistance from USAID, farmers chose to limit their risk by reducing investment and accepting lower yields. Therefore, when African economies liberalized as part of structural adjustment, they “prematurely exposed African ‘infant’ industries to global competition against much more mature industries” (Sundaram, Schwank, and Armin 2011, 6). Those agriculture exports that would generate the foundation for future

development would never materialize. Proof came in 2007 when the World Bank issued an evaluation on its performance and admitted underinvestment in African agriculture since the early 1980s (Dugger 2007). While it is true war and conflict have played their part in delaying African development, as of 2009 nearly every country was a net food importer with 25 percent of food needs coming from abroad (Bello 2009, 68).

American policy would officially change in 2010 when President Obama signed a Presidential Policy Directive on Global Development. In order to recognize the importance of development, it stated the United States would “Elevate development as a central pillar of our national security policy, equal to diplomacy and defense” (Office of the Press Secretary 2010a). An accompanying document to this policy, *President Obama's Development Policy and Global Food Security* clarified the strategy by declaring the United States leading the response against global hunger and the establishment of the Feed the Future Initiative (Office of the Press Secretary 2010b). Policy points contained therein would eventually form the basis of Feed the Future.

During the 2012 G-8 summit at Camp David, world leaders pledged to join the New Alliance for Food Security and Nutrition. The shared commitment was to “achieving sustained and inclusive agricultural growth and raising 50 million people out of poverty by 2022 . . . and aligning G-8 commitments behind country plans to expand Africa’s potential for rapid and sustainable agricultural growth” (United States International Development 2013, 3). USAID leads the United States’ contribution to these commitments with the Feed the Future program using a “new model for development that integrates assistance, diplomatic, financial, trade, research, policy, and analytical capabilities” (United States International Development 2013, 23). This “new

model” not only applies to how development will be executed on the ground, but also how it will be viewed in the United States. The White House made it clear that development will be treated as an element of national power with USAID as the lead department.

Overall, global development policy establishes this as a national priority; even drawing parallel objectives from the national security strategy (Office of the Press Secretary 2010a). The most salient program policy is the emphasis it places on food security. Another notable point is development aid now includes food production, marketing, and trade in products the United States exports. While the aim is still to create sustainable development, the approach differs markedly from earlier USAID policy implementation to focus on food self-sufficiency and avoid projects that caused Bumpers Amendment analysis. Going forward, how these changes may affect domestic and security policy will be further discussed in chapter 5.

Corn Based Ethanol

The first engine to run on an ethanol blend was first built in 1826 and in 1908 Henry Ford famously built his first vehicle, the quadricycle, to run on ethanol (United States Energy Information Administration 2008). Since the turn of the 20th century, ethanol production and usage in the United States ebbed and flowed with world events. However, after the oil shock of the 1973 OPEC oil embargo and the fall of the Iranian Shah in 1979, the United States committed to finding credible alternatives to oil based gasoline. In 1980, Congress enacted several key laws including the *Energy Security Act of 1980* and *Crude Windfall Tax Act of 1980*, which encouraged domestic ethanol production with loan guarantees, coupled with tax credits and imposed tariffs on

imported ethanol (United States Energy Information Administration 2008). Despite this assistance, ethanol did not take off nationally as a replacement fuel. Ethanol subsidies continued dwindling until 2005 when Congress passed the *Energy Policy Act of 2005*. This law created the Renewable Fuels Standard, targeted doubling renewable fuels by 2012, and created a six-year annual \$1 billion reverse auction subsidy for ethanol production (U.S. Congress HR6 2005). To complement this law, Congress passed The *Energy Independence and Security Act of 2007* which created “the ethanol mandate” and required 36 billion gallons of ethanol and other fuels be blended into traditional fuel sources by 2022 (United States Energy Information Administration 2008). Ethanol subsidies expired in 2011, but the mandate continues to keep ethanol production high.

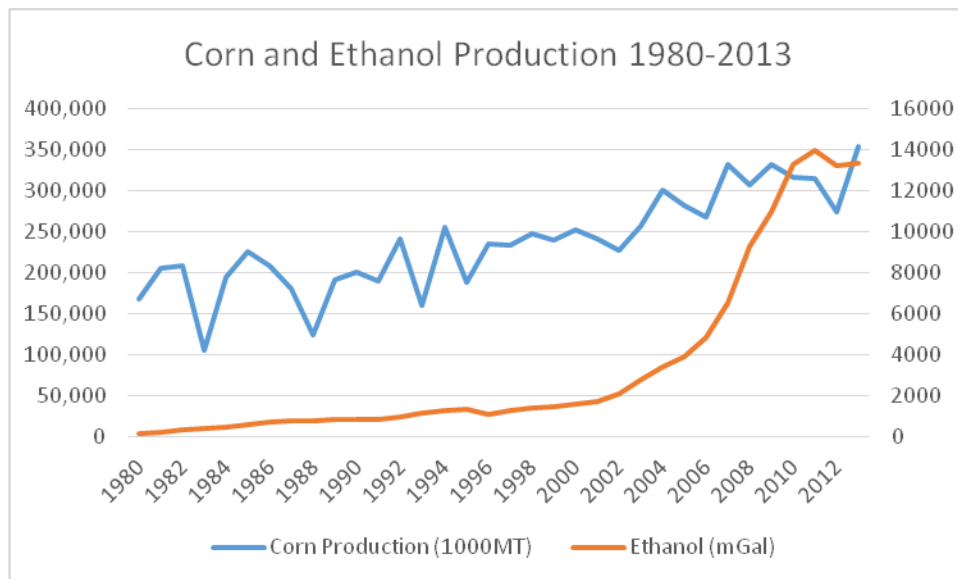


Figure 4. US Corn and Ethanol Production 1980-2013

Source: United States Department of Agriculture, *PSD Online*, <http://apps.fas.usda.gov/psdonline/psdQuery.aspx> (accessed 18 May 2014); Renewable Fuels Association, “Statistics,” <http://www.ethanolrfa.org/pages/statistics#A> (accessed 22 May 2014).

After passing the *Energy Security Act of 1980*, ethanol production was very slow to take off and enjoyed modest growth until the turn of the millennium. Interestingly, corn production growth does not show a marked change or reaction to legislation in 1980, 2005, or 2007. However, the most recent change in corn production in 2012 was due to a severe heat wave where crop yields dipped 12 percent; ethanol production in turn fell only 5 percent. Therefore while corn production seems unmoved by legislation or policy, ethanol production initially spurred by subsidies are now governed by the ethanol mandate contained in *The Energy Independence and Security Act of 2007*.

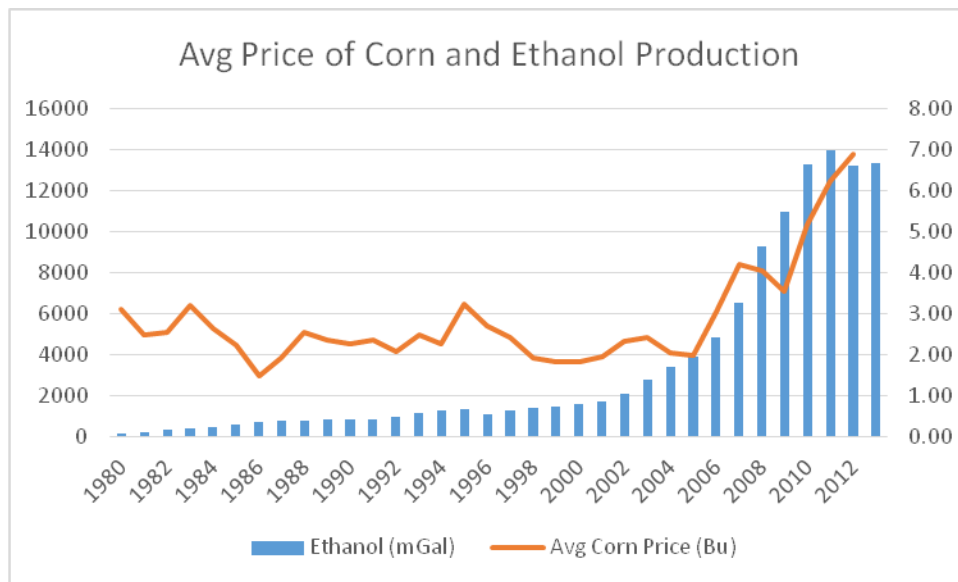


Figure 5. Average Corn Prices and Ethanol Production 1980-2013

Source: United States Department of Agriculture (USDA), *Feed Grains Data: Yearbook Tables*, March <http://www.ers.usda.gov/data-products/feed-grains-database/feed-grains-yearbook-tables.aspx> (accessed 11 April 2014); Renewable Fuels Association, “Statistics,” <http://www.ethanolrfa.org/pages/statistics#A> (accessed 22 May 2014).

Here, ethanol production is contrasted with the average price for a bushel of corn. From the inception of ethanol incentives in 1980, corn prices were on a slow downtrend moving to \$2 a bushel. However, between 2005 and 2012, corn prices rose 350 percent seemingly lockstep with ethanol production. After the commodity boom and bust in 2007 and 2008, prices did fall but quickly recovered and achieved more gains in recent years. While this study cannot prove causation, there is seemingly an unmistakable correlation between ethanol production and the price of corn.

While the above may be true, the market for corn is global and domestic policies have effects on growers in other countries. In figure five US and global corn production are set against one another. While there is variation throughout the chart, the difference between US and global corn production is fairly constant until 2005. At this point corn prices increased and the remainder of the world increased output as well. The reasons for this likely vary around the world but the core of the issue is higher corn prices make it a more profitable crop. Important to note that even though the world is producing additional corn, this additional supply has not yet appreciably affected the average price of corn. Looking at this from a simple supply and demand aspect, higher prices have caused increased production of a particular good.

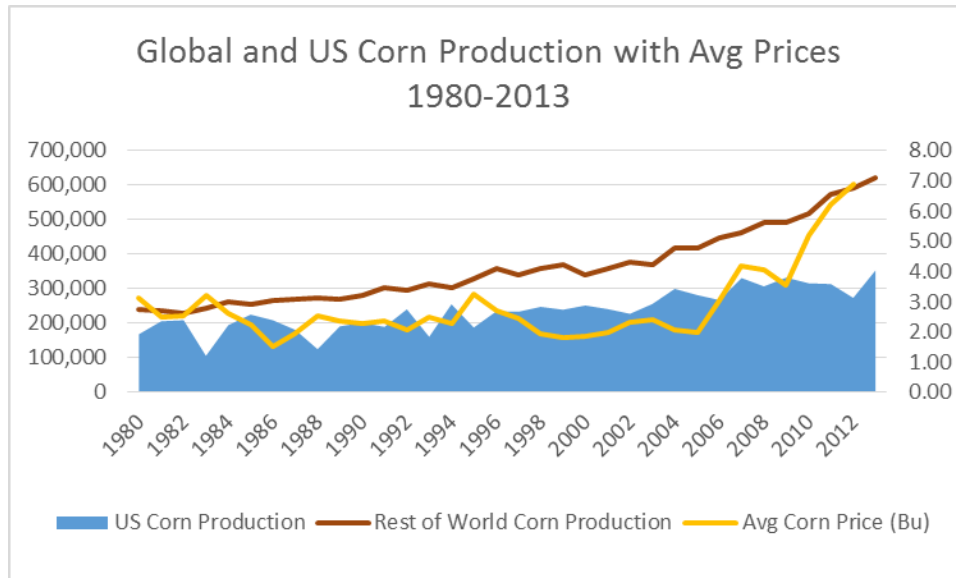


Figure 6. Global and US Corn Production with Average Prices

Source: United States Department of Agriculture (USDA), *Feed Grains Data: Yearbook Tables*, March <http://www.ers.usda.gov/data-products/feed-grains-database/feed-grains-yearbook-tables.aspx> (accessed 11 April 2014); United States Department of Agriculture, *PSD Online*, <http://apps.fas.usda.gov/psdonline/psdQuery.aspx> (accessed 18 May 2014).

Therefore, it stands to argue that although US policies regarding ethanol production have influenced markets. Although ethanol subsidies began in 1980, corn prices and production were unmoved. However, US legislation in 2005 with increased subsidies and the 2007 “ethanol mandate” changed the landscape and greatly affected prices to the upside. Arguments regarding commodity speculation may have played a part in 2007 and 2008, but prices have commanded even higher levels four years later. It remains to be seen if any change to the ethanol will affect market prices and how that will affect global corn production.

Summary

This chapter began with a brief overview covering major US legislation setting the conditions for US agriculture production. It also discussed how PL-480 Food for Peace falls under the executive branch while USAID falls under policy guidance from the Secretary of State. The chapter also looked prior analysis regarding food as a component of national security or national power. Although Le Cuyer and Paarlberg agreed food could only bring short-term gains, Le Cuyer argued for market freedom while Paarlberg saw the issue from a state perspective. Both argued against using food as a weapon of policy.

This thesis looked at three studies: India and the Bihar Famine, the Soviet Grain Embargo, and the ongoing North Korean challenge. In India, the US provided significant amounts of grain to stave off an oncoming famine. However in addition to humanitarian aid, President Johnson was keen on exacting Indian assistance on Vietnam. The aid not only helped to feed the Indian people, but Indira Gandhi's government survived an important election in 1966. Overall, aid did secure some Indian political support, but not nearly as much as Johnson had hoped since his ultimate objective of solving the Vietnam problem had more influences than India alone could affect.

In response to the Soviet invasion of Afghanistan, the United States placed a grain embargo against the Russians. Despite a rocky start with falling grain prices and farmer discontent, President Carter seemed to be successful for the first few months. However the Soviets had no intention of leaving Afghanistan because the United States placed an embargo. In this instance, the CIA had indeed assessed suspending grain shipments would negatively affect Soviet plans to increase protein allocations. Even then, good

Russian crops and market leakage eventually made the embargo a political liability for Carter who earlier promised food would not be a weapon. Even so, the end of getting the Soviets out of Afghanistan never matched the means of suspending grain shipments.

North Korea continues to be a perennial food importer whose food production peaked in the 1980s. The fall of the Soviet Union and great disasters in 1995-1997 compounded an already bad food situation. In dealing with North Korea, the United States has at times used food as a point of negotiation. President Clinton used this tactic to prod the DPRK sign the Agreed Framework while Bush seemingly decoupled politics from humanitarian aid. In the current administration, President Obama signed the momentous Leap Day agreement in 2012 only to scuttle it weeks later due to a North Korean missile launch. In this case, Le Cuyer and Paarlberg's assessment of being able to achieve short term gains held true. However, those gains were usually related to talks and not actions, or rather to other means leading to separate ends.

The study continued by looking at how agriculture has affected other aspects of government such as WTO negotiations, development policy, and domestic ethanol production. In the Doha Round of negotiations, agriculture was a major point of contention between developing countries and the US-EU. While developing countries wanted the US to lower agricultural supports and barriers, America required the same from the Europeans. To this day a tri-lateral deal agreeable to all parties eludes negotiators.

The US development policy has changed over time and was greatly influenced by domestic policies. When the United States aided India during the Bihar Famine with PL-480 shipments, USAID also helped increase Indian crop yields for better self-

sustainment. Although this was successful for India, USAID assistance in South America would come to harm American producers. Development would be restricted because of the Bumpers Amendment while PL-480 shipments (from the US) would depress local prices and provide disincentives for local farmers. However, with President Obama, his Global Development Policy raises development's profile and links it to national security. His Feed the Future program helps farmers raise yields and compete on the world stage; a significant departure from earlier USAID policy.

Lastly, the study looked at how policy influenced ethanol production in the United States. Even though incentives to produce ethanol started in 1980, it was not until increased subsidies 2005 and the "ethanol mandate" in 2007 where production increased dramatically. This study looked at how ethanol production may have influenced corn production and the correlation in grain price. Although this study cannot definitively determine if US ethanol production directly influences corn prices, it cannot ignore the strong correlation and the resultant increase in global corn production.

Looking ahead, the study will draw some conclusions as to how the US's ability to be a net food exporter affects foreign security policy. From the case studies, it is clear several American administrations have opted to use food as a means of national power albeit with varying degrees of success. Meanwhile, as a result of having such large market share in major commodity areas such as corn, wheat, cotton, and soybeans, domestic policies have shaped the agricultural landscape and affected markets throughout the world.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The previous four chapters outlined how United States domestic policy created the conditions to produce ever larger amounts of agricultural products and lead global production in several key commodity areas. The capacity to produce coupled with the capability to export gives America a unique place atop the agriculture export markets. This market leadership gives US producers, and by policy extension, the government the ability to exercise direct and indirect power over other nations. Since 1961, some American administrations used this power to provide or withhold food in order to reach political objectives. Meanwhile agriculture continues to play a large role in trade negotiations and global development. This is increasingly important in light of the May 2014 Climate Change report which detailed, climate change's positive and negative effects on location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales (Melillo, Richmond, and Yohe 2014, 12). This chapter will offer some conclusions and recommendations as to how the United States' ability to be a net food exporter affects foreign security policy.

Conclusions

The historical case for using food as a weapon is a poor one. The most obvious example in this thesis is the embargo against the Russians in 1980. This not only cost America money, market share, global prestige, and damaged Carter's image by repudiating his 1976 campaign pledge to not use food as a weapon (Nelan 1980). While

Le Cuyer foresaw the impossible challenge to contain capitalist markets, Paarlberg reflected on the growing financial and political costs noted above. Both agreed short term objectives could be satisfied, but with a multi-year horizon to achieve a significant impact the venture was failed from the start.

On the positive end, the United States used grain to aid a struggling India in 1965 to 1967. The aid succeeded in some respects since the study found some evidence India was willing to assist Johnson with his Vietnam problem. Incidentally, the transaction also likely limited communist influence due to the United States' generosity. However due to the "short tether" the President could not pursue further objectives because of his strained relationship with the Ghandi administration. In retrospect, neither Le Cuyer nor Paarlberg discussed the stabilizing effect American food shipments had on India. Meanwhile the development effort through USAID to help India become food self-sufficient is arguably America's greatest contribution to this case.

Counter intuitively, the North Korean problem set can also be seen as a positive for the application of food power. It demonstrates food's ability to bring a country to the negotiating table. This short term objective is both constructive to both sides, but also morally defensible in case of political liability. North Korea though, shows the limits of pursuing this course of action. Talks, statements and negotiations are no substitutes for contracts, alliances, or action. Although both Le Cuyer and Paarlberg are correct in that food might bring short term goals, they are just that: short term. This also brings up the problem that continual aid cannot solve the underlying problems that bedevil North Korea while the lack of agriculture development ensures a recurring need.

What then can the United States do with its untapped food power? In order to appropriately answer the question, it is necessary to make a distinction between immediate and chronic need. Immediate needs are the result of catastrophe or unseen dangers to the food supply. This can stem from natural disaster, drought, or plant disease. On the other hand, there are chronic needs rooted from farming practices that cannot produce sufficient food, insufficient farm inputs, local policy discouraging production, or high wastage from the field to market. These lists are not all inclusive but are intended to give scope and perspective on the differences between immediate and chronic food needs.

Case study analysis reveals America's ability to export food is most effective when there is an immediate need. This power allows the United States to utilize food to help stabilize a chaotic environment and can serve as a means to create additional opportunity for engagement. The Bihar Famine case study highlights this stabilizing effect whereby American aid not only provided for the hungry, but also allowed Indira Gandhi's administration to continue governance and maintain continuity. One could argue India would have eventually recovered on its own after the monsoon rains returned. But at what theoretical humanitarian and political cost? It is impossible to know. While this is considered a success, India also shows the limits of immediate food aid. Johnson incurred increasing political costs to continue shipments to India and knew it should eventually provide for itself. Therefore, while effective in the short term, food exports or aid alone cannot be the solution to a problem.

If the North Korean problem set is seen as a case of immediate need, it too shows how aid can help achieve short term goals. Seen in this light, North Korea agreed and

attended several rounds of de-nuclearization related talks after aid had been promised or rendered. However the important distinction between India and North Korea is the nature of each crisis. Evidence suggests there was indeed a great famine in the DPRK. But further research showed that for a variety of reasons, the DPRK is in chronic need for food aid. Unfortunately for the Chosen People, the totalitarian regime continues to practice *juche* and is loathe to accept food aid due to the access and accountability conditions America and the West place on aid shipments. Here too North Korea shows the limits of immediate food aid to address chronic issues.

These cases show that even short term gains can be long term liabilities if there is no strategy to address the underlying causes of sufficient food availability. This thesis does not discount short term gains as marginal. Indeed an early infusion of aid could avert greater disaster as it did in India. However addressing structural issues that lead to chronic shortage remains key. Here, the true success of the Bihar case study is agricultural development assistance. India is an excellent example of how aid plus development assistance helped avert the worst effects of famine and ensured India did not turn into a chronic aid recipient.

The sheer fact that the United States controls large portions of world food export markets and is able to even offer aid to feed large portions of another country gives it power and influence. The extent to which varies with the degree a particular nation relies on imported food or its economic dependence on agriculture. But the power to affect these markets is borne through domestic legislation which creates the conditions for American farmers to produce food at current levels. The ethanol mandate for example indirectly imposes higher corn prices by increasing consumption through producing corn

based ethanol. These increased prices have prompted higher global production. Seen in the perspective, legislation literally grows this form of power. Therefore the inextricable linkage between domestic farm policy, markets, and export capacity must be clearly understood.

Furthermore, the ability to export food (due to domestic policy) comes at a cost and has reverberations into international trade relations. This was evident in the World Trade Organization Doha Round negotiations. Although the talks continue to stumble over a multitude of issues, agriculture and its related subsidies continues to remain a sticking point between countries and contributes to the inability to reach an agreement. According to the Economist, this inability to agree forgoes a global potential value of \$280 billion per year (The Economist 2012). Although, there is some evidence the United States is unilaterally progressing to meet developing country demands such as establishing the West African Cotton Improvement Program and eliminating direct payments to farmers. But these efforts are reactionary and solve immediate problems. The ability to see longer term and prevent problems before they cause instability will continue to increase in importance. Indeed, the sharp food price increases in 2007 and 2008 caused riots to break out in approximately 30 countries (Bello 2009, 2) while discontent with food prices partially led to the 2011 Arab Spring uprising.

The cumulative analysis of all researched material leads this thesis to posit that although food may not be a suitable weapon, it is an effective tool to support immediate needs due to an unforeseen catastrophe. Additionally, the ability to control large portions of market share affords America some degree of market influence. This study also concludes that satisfying immediate needs cannot alleviate chronic shortage; agricultural

development assistance must be part of the solution. These conclusions fall in line with the FAA of 1961 where, “[the] security of the people of the United States are best sustained and enhanced in a community of nations which respect individual civil and economic rights and freedoms and which work together to use wisely the world’s limited resources in an open and equitable international economic system” (*Foreign Assistance Act of 1961*, sec 101).

In light of climate change where “[future] yield reductions will become more prevalent” (Melillo, Richmond, and Yohe. 2014, 155), United States development assistance is seemingly spreading production risk across the globe in order to maintain the current global order. In order to successfully do this, domestic policy must remain accommodative to production and development around the world yet ensure prices do not rise beyond the means of the masses. As Amartya Sen explained, “people suffer from hunger when they cannot establish their entitlement over an adequate amount of food” (Sen 2001, 162). Although this may mean higher food costs in the short term, longer term global instability may be reduced because other countries’ people are able to achieve freedom as a result of their own development.

Recommended Areas for Further Study

This thesis recommends the following topics for further research in order to better understand the complex dynamics regarding the global food trade.

Develop a clear understanding of what large agribusinesses operate out of what countries and what do they contribute to the global food supply. Their outsized production capacity and efficiency could transform food production to a protected

business area. National locations for raw material suppliers should also be known in order to better understand other countries' relative importance to the food supply.

Recommend studying the effects of price volatility and identifying a quantifiable time delay between changes in supply and demand. Chief among these metrics would be to understand the lead time needed to increase production after a decline. Also study the food storage capacity throughout the world must be clearly understood. Understanding this allows governments and business to assess risk associated with possible supply disruptions. This coupled with the political climate of a given nation may assist in better assessing the probability for instability. Collectively, this information would be able to feed into greater regional understanding of what interdependencies may exist between countries.

At this time genetically modified foods are not allowed in Europe. Modeling a policy change at different points in the future under different circumstances should be completed. Although currently unlikely, economic or future social pressures could prompt a switch. Understanding how this could impact prices and business models is needed. Correspondingly, an American policy strategy should be in place to respond to such a possibility.

Conduct assessments on the safety of the food supply and calculate the effects of successful disruption of food production. Understanding the true importance of the inputs and processes of the food supply can help assess risk to different sectors while being able to develop mitigation strategies for each.

Study the societal tipping points for food price increases. Food riots occur when there is no food, or is unaffordable, but how long after people realize this? Further

research could include the level of social media penetration and how this factored in into creating instability or social unrest as a result of the lack or inaccessibility of food.

Summary

This study conducted qualitative case study research to understand how the United States' capability to be a net food exporter affects foreign security policy. This thesis analyzed three case studies: the Bihar Famine, the Soviet Grain Embargo, and North Korea in order to understand how America used food to achieve political objectives. Analysis determines while food is a poor weapon, the ability to provide sustenance can indeed achieve short term objectives or help stabilize a chaotic situation where food is in short supply. The study also determines the ability to be net food exporter also has secondary effects in trade, foreign development, and market price influence. All of which leads this thesis to conclude that although food exports may be able to address immediate food needs and gain short term policy objectives, chronic food problems can only be solved through agriculture development assistance. Therefore, food aid and development assistance together can stabilize and improve areas to achieve long term security.

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