Credible Commitments, Credible Threats, and Environmental Policy

by

Earl Brigham Daniels

Nicholas School of the Environment
Duke University

Date:_____
Approved:

_____
James Salzman, Co-Supervisor

_____
Erika Weinthal, Co-Supervisor

_____
Margaret A. McKean

_____
Christopher Schroeder

Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in the Nicholas School of the Environment
in the Graduate School of Duke University

2010

ABSTRACT

Credible Commitments, Credible Threats, and Environmental Policy

by

Earl Brigham Daniels

Nicholas School of the Environment
Duke University

Date:_____

Approved:

_____
James Salzman, Co-Supervisor

_____
Erika Weinthal, Co-Supervisor

_____
Margaret A. McKean

_____
Christopher Schroeder

An abstract of a dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in the Nicholas School of the Environment
in the Graduate School of Duke University

2010

Abstract

This dissertation includes three articles. In different ways, each focuses on the way credible threats and credible commitments are used to moderate consumption of environmental and natural resources and commons resources more generally. The first of these three argues that the trend of states jockeying to hold presidential primaries and caucuses as early as possible is a classic tragedy of the commons. This article argues that recognizing the problem as a commons dilemma provides a powerful explanation for the trend towards earlier primaries and, more importantly, provides insights into how best to reform the nomination system. The second applies the work of Thomas Schelling—particularly that focuses on nuclear deterrence—to particularly large regulatory tools given to agencies. The article uses game theory to explain why Congress would give agencies unusually large sticks and how agencies use them. The last article reexamines the foundational literature devoted to overcoming the tragedy of the commons. Specifically, the article argues that institutions most able to solve the tragedy of the commons often cause a tragedy of another sort. The article ends by proposing a set of draft principles to help us overcome institutional rigidity.

Dedication

I dedicate this dissertation to my love, Kellie.

Contents

List of Tables

List of Figures

Acknowledgements

I would like to thank my PhD committee for all of their help, patience, and insights. Committee members included Jim Salzman, Erika Weinthal, Meg McKean, and Chris Schroeder. One of the things I value the most about the PhD experience was getting to know each one of these committee members.

I am extremely grateful for my family. I thank Kellie for not divorcing me when I told her that after years of schooling that I wanted to go back. I thank Kellie and the kids for their sacrifices that made it possible for me to complete the program. It ended up being a great experience for all of us, but it was tough particularly at the start of the program. I appreciate them hanging with me, supporting me, and making my PhD years some of the best of my life. I am also grateful for my father for reading all the bad drafts of this dissertation and for my mother and in-laws for not killing me when I took the grandkids to the other side of the country.

I am thankful for the friends that have in North Carolina. There are too many to name, so I won't try. However, I am particularly grateful that the Bookers also made the trip from Stanford to North Carolina and that they were willing to open their home to me and my family every major holiday we were in Durham. At least the way I count, the world does not have better people than that family.

I thank Tim Profeta, Jim Salzman, Erika Weinthal, Craig Galli, Adam Caldwell, and Kristen Rowles for providing me work that helped me keep my family afloat during this period of my life. I also gratefully acknowledge that this dissertation is based upon work supported under a National Science Foundation Graduate Research Fellowship.

I count all these things as blessings from God and recognize that I will never be able to repay my debt to Him.

1. Introduction

A few years ago, I took my family to Disneyland. My favorite ride of the day was the ride out of the parking lot. Don't get me wrong, we had a great time. But we left the park along with tens of thousands of other people just as the park closed. As the crowd made its way to the parking lot, I saw all the elements of misery on the horizon: a long wait, with exhausted kids, in a compact car. In fact, in the past I had stayed in one of the hotels across the street from Disney just to avoid this very situation. Bracing for misery, we all raced to the car and crammed in. Yet, to my surprise, we were out of the parking lot within minutes. The exuberant joy that my children had felt all day in that moment was all mine. It was not dumb luck either. I had Disney engineers and planners to thank for my quick getaway. Disney had built a masterpiece parking lot that allowed traffic to easily flow out of the lot—all in a way that was completely painless for the driver. Even though traffic picked up dramatically once we had left the lot, I determined I would never patronize the hotels across from Disneyland. How could I not resist the temptation to stay at cheaper hotels further away, and then hop in the car to travel to the paved parking paradise that beckoned me?

Often, when I am leaving a concert, a ballgame, or a crowded shopping center's lot, I think longingly about Disneyland's parking lot. Far too often, I find myself stuck in traffic thinking that Disney's parking creation, if implemented widely, could revolutionize the parking experience. I have told my students that Disney manages potential congestion so well that—if properly understood—its parking lot very well could be the envy of resource managers the world over. After all, too much demand for

resources is the central problem facing those managing not only parking lots but also fisheries, rivers, public roads, the radio bandwidth, or other a myriad of other commons resources. And, the free-for-all that we often face in crowded parking lots is a textbook example of the tragedy of the commons (Hardin, 1968).

Disney seems to have avoided this tragedy. But still, Disney's management of its parking lot might be seen a dimmer light. If my experience is typical, even though Disney has created a parking nirvana, it has also implemented a plan with potential to adversely affect the public and commercial infrastructure surrounding the park. It seems likely that the reason we hit traffic congestion once outside of the parking lot is that the public infrastructure was designed to facilitate Disney's parking when traffic flowed like a spigot and not a fire hose. Additionally, if people do the calculus of the relative values of staying near the park or further away, the restaurants, hotels, and shops surrounding the park no longer have the allure they had when people could be certain of the misery that awaited them as they exited Disneyland. With this in mind, we might wonder what sort of future this commercial district faces.

Additionally, despite my periodic longing for the proliferation of Disneyland-like parking lots, this might give some pause. If Disney's scheme were widely adopted, it might give people yet another incentive to drive. It could reduce incentives to take the train or bus. It could kill walkable shopping districts in favor of megastores and malls. And, if this parking lot were typical, it might further entrench the prominence of the car in our culture. Some may ask, do we really want to make driving even more attractive

that it already is? Perhaps, one might argue, it's best to leave Disney's parking magic in Disney's Magic Kingdom.

Painting with a broad brush, there are three—and often sequential—phases of institutions that are experienced in across common-pool resources. The first phase is characterized by the lack of governance of the commons, meaning weak or non-existent institutions. If a resource is particularly robust or if the demand for the resource is modest, this phase might introduce little friction among resource users. In fact, in some instances, the bounty of the resource may lead many to believe—or at least act like—the resource is virtually inexhaustible. Yet, resources are not always robust and demand not always modest. When demand for a resource approaches or outstrips the robustness of a resource and when institutions are weak, we would expect to see what Hardin (1968) labeled "the tragedy of the commons."

Rather than suffer a tragedy, however, many commons are ultimately actively managed to avoid this result. This brings us to the second phase of governing common-pool resources. This phase is the story of the challenges related to solving looming or raging tragedies of the commons. In significant part, the literature surrounding common-pool resources challenges one of Hardin's (1968) core assumptions—that without outside intervention, commons users could not free themselves from their tragic circumstances (Ostrom, 1990; Rose, 1994; Hardin, 1982). For the most part, this scholarship has relied on empirical case studies and to a lesser extent game theory. And,

above all, it has illustrated many situations where commons users can free themselves from the tragedy of the commons by building institutions. The power of institutions in this context is that they can restrict access to the commons. Elinor Ostrom (1990) and a number of other scholars (Wade 1988; Baland and Platteau 1996; McKean 1992; Agrawal 2002) have attempted to glean out design principles of governance institutions that have successfully warded off the tragedy of the commons. These design principles are the jewels of the scholarship focused on this second phase of institutional trajectory within the commons.

While it is not explored much in the literature, I propose that there is a third phase to consider. In this phase, the institutions that were built to ward off the tragedy of the commons begin to outlive their usefulness—at least in some respects. Specifically, as the way society values a common-pool resource changes, institutions designed to promote stability end up providing rigidity as well. The concern of institutional rigidity, of course, is not a new one. In fact, at the inception of the United States, Thomas Jefferson (1816) observed,

> I am certainly not an advocate for frequent and untried changes in laws and constitutions…. But … I know also, that laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths disclosed, and manners and opinions change with the change of circumstances, institutions must advance also, and keep pace with the times. We might as well require a man to wear still the same coat which fitted him when a boy, as civilized society to remain ever under the regimen of their barbarous ancestors.

More recently, Douglass North won a Nobel Prize in large part for his pioneering work that documented how the staying power of institutions can bind us to decisions and values of the past (North 1990). Within the context of natural resources—many of which are classic commons—Charles Wilkinson has famously asserted that "natural resource policy is dominated by the lords of yesterday," by which he meant institutions designed during a different time and under different circumstances (Wilkinson, 1992, 17).

Of course, not every commons experiences every one of these phases. Yet, these three phases provide a useful heuristic that can be used to classify the relationship between institutions and common-pool resources. And more importantly, once properly classified, we might begin to untangle the pathologies that plague each phase and provide a roadmap for progress or at the very least increased understanding. In fact, in many ways, this highlights the usefulness of the commons literature: it shows us that what we learn about one commons (e.g., a fishery) might have relevance to how we might manage another commons (e.g., a subway station).

This research proposal attempts to make a unique contribution to each of these three phases of institutional challenges within common-pool resources. The dissertation project is designed as three discrete but related chapters.

Chapter 2, previously published as an article entitled *Governing The Presidential Primary Commons*, is meant to contribute to the body of literature that focuses on

identifying and remedying the tragedy of the commons—the problem of the dreaded congested parking lot discussed above. This is the first scholarly contribution that has given substantial attention to identifying the presidential primary system as a commons resource and discussing the implications of this. In this way, the Chapter makes a contribution to the literature referred to as New Commons, which attempts to apply the common-pool literature in unconventional settings. This essay argues that the competition among states to frontload their primaries and caucuses is not so much unlike, for example, fishermen angling for prime fishing holes and other resource races. In addition, the Chapter explains, now that once we understand the presidential primary system behaves as a commons resource how we might leverage lessons from other common-pool resources to inform us about how we might reform the presidential primary system.

Chapter 3 adds to the rich literature that explores how institutions can be used to make credible threats with the end goal of securing regulatory compliance. Compliance with institutions is a linchpin of the second phase of institutions within common-pool resources. Back to the Disney example, it is major reason the parking situation at Disneyland is under control. Institutions in many contexts have been used to provide a credible threat for those tempted to circumvent the rules of the game (Shelling 1960) and have proven key in the commons in helping commons users overcome constant "temptations to free-ride and shirk" (Ostrom 1990, 15). The importance of credible

threats in the commons particularly is captured well in the several compilations of design principles that promote institutional stability (Ostrom 1990; Wade 1988; Baland and Platteau 1996; McKean 1992; Agrawal 2002). For example, among the various design principles that ease in monitoring, such as clear boundaries (Ostrom 1990; Wade 1988; Baland and Platteau 1996; McKean 1992; Agrawal 2002) and clearly defined users (Ostrom 1990; Wade 1988). A number of authors cite robust monitoring specifically (Ostrom 1990; Wade 1988; Baland and Platteau 1996; McKean 1992), as well as gradated sanctions (Ostrom 1990; Wade 1988; McKean 1992; Agrawal 2002), simple rules (Wade 1988; Baland and Platteau 1996; McKean 1992; Agrawal 2002), and predefined conflict mechanism devices (Ostrom 1990; Agrawal 2002). All of these principles underscore the important of compliance with institutions used to govern the commons.

This Chapter looks at a particular sort of institution use to secure regulatory compliance, which I refer to as regulatory nuke. Regulatory nukes are regulatory tools that are given to agencies mainly for their threat value to deter regulatory compliance rather than actual implementation of the tool. It is the power to harm that is held in reserve. Examples of regulatory nukes include the power of the EPA to halt highway funding under the Clean Air Act or the Department of Education to close large swaths of public schools around the country under the No-Child-Left-Behind Act. The Chapter analyzes the behavior of regulatory agencies from a game theoretical perspective. Specifically, this Chapter probes the extent to which games of deterrence (particularly

the games developed by Thomas Schelling) can help us understand why Congress delegates such powers and how agencies use such powers.

Chapter 4, previously published as an article entitled *Emerging Commons and Tragic Institutions*, attempts to lay out the case for why even commons that do not suffer from the tragedy of the commons still might suffer from a problem that is endemic in the commons. Just as Disney's wonderful parking lot caused traffic congestion on surrounding streets and created hardships for the surrounding business district, what works to the advantage of those with particular values of a commons resource might prove problematic to those with competing visions of why a commons has value. The literature on the commons developed by Ostrom (1990) and others have highlighted how we might find lasting solutions to the tragedy of the commons. The point of this Chapter is to highlight the downside of stability: for those who have competing values of a commons, stability proves to be rigidity. While many scholars have noticed this problem with specific common-pool resources, to my knowledge, this is the first scholarship that explores in depth the problem of institutional drag within the context of the commons literature. The Chapter highlights that often when we commit to manage a commons for the benefit of a particular set of users of the commons, we very often lock out potential rivals and make change more costly. Because commons resources can be used for many purposes and are complex, it is typical that when we attempt to solve a

problem in the commons, we find that laws and policies put in place to solve past problems complicate our efforts, and may in fact be the very source of our frustrations.

In 2009, Elinor Ostrom and Oliver Williamson were awarded the Nobel Prize in economics. The decision to give the award to share is appropriate because both of them have made great progress in helping us understand how to make credible commitments, Ostrom within the context of the commons and Williamson in the context of Business. These awards also harmonize well with the Nobel Committee's recent award provided to Thomas Schelling for his contribution to game theory and his help in unraveling credible threats. This dissertation incorporates the work of these Nobel Laureates to show how credible commitments and credible threats are and can be leveraged to address environmental problems. While the implications of the work in this dissertation can be used to explain things as mundane as the parking lot at Disneyland, its implications also touch on one of the great challenges facing our times: the push and pull over the Earth's resources, given the shared stake we have in the planet. While the dissertation does not provide a clear roadmap of how to save us from ourselves, it does add to the conversation. It is a conversation worth having.

2. Managing the Presidential Primary Commons

The 2008 presidential primaries featured two highly contested races—one among the candidates hoping to represent their party and one among the states vying to hold the earliest primary or caucus. In fact, the 2008 election cycle was the most front-loaded in the country's history. Much attention during the last cycle focused on what to do with Florida and Michigan's delegates at the convention. After all, these states had flaunted the national parties' rules by scheduling their primaries immediately after the January opening bell. But they were just the only states who pushed it so far that they got caught. More than half of the states had voted by the first week of February, a good seven months before the party conventions.

Front-loading is more problematic than states simply rushing to the starting line. It weakens our democracy by encouraging uninformed voting, greater prominence of money, and sound-bite tarmac campaigns—all trends that threaten the integrity of a process aimed, we hope, at finding better candidates for the most powerful political office in the country and probably the world.

States rushing to vote presents a riddle. Observers almost uniformly agree that front-loading is bad for the country, yet few states have shown any interest in holding back. Why would state politicians, closely attuned to both popular sentiment and the importance of political institutions, eagerly participate in the derby that undermines both of these concerns?

On one level, this riddle is not so difficult. State leaders allow parochial interests to trump all other interests. States want more influence over the nomination process. They want candidates and the media to pay attention to *their* states and energize *their* voters. This obvious explanation that states use the system to win local benefits has satisfied many political scientists.

But the explanation is incomplete. On closer inspection, it becomes apparent that this problem is eerily familiar. The rush to vote is a tragedy of the commons (Hardin, 1968).[1] The script of the tragedy of the commons is simple. We have a valued commons resource; we fail to limit access to the resource adequately, and the result is a free-for-all that threatens collective interests. The tragedy of the commons explains many problems: why fur traders nearly pushed the buffalo and the grizzly bear to extinction; why the crabbers on the Discovery Channel's *Deadliest Catch* put their lives on the line in pursuit of Alaskan king crab; why we see oil booms and busts; and, here, why states clamber over each other to gain from the nomination process. In all these situations, we see a rush to satisfy narrow self-interests work to the detriment of broader interests—individually rational decisions leading to collective catastrophes.

We frequently use a tragedy of the commons to explain problems in the natural resources area; we use it less in the political sphere. But, its insight here is just as

---

1. At least one other scholar has fleetingly recognized that the presidential primary system represents a tragedy of the commons (Mayer and Busch, 2004, 50). This Chapter develops this insight and explains not only why it helps demystify the presidential nomination system and its challenges but also how it provides a playbook of potential solutions.

important. Understanding the rush for early nomination contests as a commons problem allows us to draw on a wealth of experience and insights from many other commons areas for potential solutions. Consider several examples. First, both of the major political parties set a timeline after which any state can vote, and both parties allow a few states like Iowa and New Hampshire to move even ahead of this line. By drawing a line in the sand, parties provide ground rules, but also inadvertently encourage crowding up to that line. A farmer with river rights uses that water; a fisherman likes to catch his uppermost limit. It is not surprising that so many states have ventured right to the line. While only Florida and Michigan jumped over the line in the last cycle, it is no accident that pundits came to dub the very first Tuesday in 2008 available for voting under the rules as "Tsunami Tuesday." Given the incentives at work in the commons, we should only expect the wave to grow with each election cycle.

Second, getting states to space out their primaries and caucuses will take more than finger wagging. State leaders understand the national importance of the nomination system, but they nevertheless consistently put local interests ahead of national interests. Yet, this is hardly different from other dysfunctional resource allocation systems, like the relentless pursuit for codfish that wiped out the fishery or the slash-and-burn agriculture that continues to destroy the Amazon. The tragedy occurs because what is irrational for society makes complete sense to individuals—those holding back are just suckers. The important point is that the tragedy is not inevitable.

It is possible to end resource races in the commons, but it takes more than well-founded criticism. It will take a solution crafted with the commons in mind.

Perhaps the greatest lesson we can learn from the literature on the commons is that we need well-constructed institutions to avoid commons resource problems. Many natural commons, like our national parks, are managed quite successfully. And one thing is certain: we can do better than the primary leapfrog the states now play.

I explore these issues in depth below. Part 2.1 sets out why the commons provides a useful lens to explain the presidential nomination system. It identifies the types of benefits states seek and how moving contest dates rewards these parochial interests. The Chapter supports this argument by providing new empirical evidence that demonstrates why state decision makers change their contest dates.

Part 2.2 explores how the tragedy of the commons has played out in the context of the presidential nomination system. It provides a snapshot of how states' decisions to compete for primary dates have unfolded over the past few decades and explains the main costs of front-loading as symptoms of typical commons resource problems.

Part 2.3 moves from diagnosis to prescription. It applies what has been learned about managing commons resources generally to the challenges facing the presidential nomination commons. This Part draws on lessons learned from governing resources as diverse as groundwater, national parks, and the radio spectrum to show us how to help reform the presidential nomination system.

2.1 The Presidential Nomination System as a Commons Resource

This Part presents the case for why we should view the benefits states receive from the presidential nomination system as commons resources. The Part begins with a description of the rationales state decision makers provide for moving their states' contest dates and discusses how each of these rationales is tied to a state's influence over the presidential primary system. The Part then provides an explanation of what makes a resource a commons resource and why it makes sense to view influence over the presidential primary system as a commons resource.

2.1.1 How Influence Unlocks the Benefits of the Nomination System

The presidential nomination system can provide states many benefits, ranging from increased candidate visits to drumming up voter turnout. I argue here that we can reduce virtually all the benefits states seek down to a common denominator: influence. Now, if we were to ask state leaders why they changed the dates of their nomination contests, admittedly, the response we would receive would almost certainly be more nuanced than, "Simple, we want more influence." One of the better examples of what might be on the minds of decision makers comes from the findings section of a bill the California legislature passed when it moved up its primary for the 2008 nomination cycle. The bill states:

> The Legislature finds and declares all of the following:

(a) California has the largest population and largest congressional delegation of any state in the union yet California's current June presidential primary election date virtually ensures the presidential nominees for the major political parties will be determined before California voters have an opportunity to cast their ballots.

(b) It is vital to restore to California voters the opportunity to vote in a presidential primary election that is timely and meaningful in choosing presidential candidates.

(c) Conducting the California presidential primary election on the first Tuesday in February will encourage presidential candidates to campaign in California, and to debate and discuss issues and policies important to the people of California.

(d) Conducting the California presidential primary election on the first Tuesday in February will encourage voter registration, voter interest, and voter participation in the 2008 presidential primary election and subsequent presidential primary elections in California.[2]

While California's list is extensive, it is not comprehensive. In order to get a broad picture of what motivates decision makers to change their contest dates, I reviewed and coded—with the help of an excellent research assistant—approximately 700 documents from the public record. In addition to rationales in bills like the one from California above (which are unfortunately a rarity), the review included other legislative materials and media content where decision makers were quoted or interviewed. Parsing the public record in this way provided an interesting window into the motivations of the decision makers who opted to change a state's nomination contest.[3]

---

2. S. Res. 113, 2007 Leg., (Cal. 2007).

3. Admittedly, the statements on the public record of state decision makers are not a perfect window into the mind of legislative bodies or political parties. It only allows us access to the remarks meant for the general public and ignores the fact the legislative bodies are a "they" and not an "it." (Shepsle, 1992). Despite the obvious warts, statements on the public record

As shown in Table 1, 37% of the rationales provided by decision makers on the public record involve direct attempts to appropriate influence or to avoid irrelevance. Smaller shares of the rationales included the following aims: compete with other states (13%), attract candidates and media (18%), improve the voters' experience (11%), and further a political interest (20%). While I will discuss these rationales in further detail below, at this point I will briefly address my claim that all these motivations boil down to influence.

Table 1: Explanation for why states altered contest dates

Influence	
Gain Influence Over Process	22%
Avoid Contest After Nomination Secured	15%
Competition	
Competition with Other States	13%
Attract Candidates and Media	
Candidate Attention	12%
Media Attention	3%
Economic Benefit	3%
Improve Voting Experience	
Turn Out Voters	8%
More Candidates for Voters to Consider	3%
Advance a Political Interest	
State Interest	9%
Regional Interest	6%
National Interest	4%
Help Specific Candidate or Type of Candidate	1%

provide at least a version of the truth of what individual decision makers were thinking and, taken as a whole, provide a useful snapshot of the rationales of decision makers more generally.

Consider the example of a state that wants to attract candidate visits. What makes a candidate want to visit? It is not much of a leap to assume that candidates visit mainly because they want to improve their chances of becoming the nominee and then president. In other words, what the candidate assesses is the state's influence. Taking it a step further, how can states alter the way a candidate assesses that state's ability to help his or her candidacy? There are a myriad of factors that a candidate might find relevant. For example, a candidate might see the number of delegates a state can bring to the national convention as a measure of state influence. However, the number of delegates that a state is allowed to bring to the convention is based mainly on population and to a lesser extent past voting trends. So, there is not much a state can do about that. In fact, there is not much state leaders can do about most of factors a candidate might see as relevant. State leaders have very limited influence to sway voters from one candidate to another, to create the candidate's desired setting for a message he or she is pushing, to increase the candidate's ability to raise money in the state, to lessen the burden imposed on a candidate who travels to the state, or to change the degree a candidate believes the state is important in the event he or she becomes the nominee.

Yet, there is something that state leaders can do quite easily that will change candidates' calculus. As discussed below in greater detail, states that vote earlier tend to have more influence in the process. For this reason, candidates tend to visit states slated

earlier in the nomination cycle much more than those states that come later. About the only thing a state can do to change a candidate's perception of that state's influence is to change its contest dates. Similar stories can be told with at least all of the parochial justifications state leaders put forward in the summary above in Table 1. While the justifications vary, the means of accomplishing them are the same.

Before getting into too many of the details about how influence acts as a commons resource, it is first necessary to explain briefly what is meant by commons resource.

2.1.2 Commons Resources and the Nomination Commons

2.1.2.1 Influence Has the Characteristics of a Commons Resource

Commons resources have two defining characteristics. First, use of a commons resource is consumptive (Ostrom, 1990). A consumptive use does not necessarily permanently diminish the amount of a commons resource available, but it diminishes opportunities for rival users at least for a time. For example, a pedestrian on a sidewalk takes up space on the sidewalk only while using it; other resources like fisheries are renewable with time; still others like hard rock minerals are gone once consumed.

The second trait that characterizes commons resources is that it is difficult to stop others from using them (Ostrom, 1990). It takes a lot of effort, for example, to keep others from using the radio spectrum or from fishing in a lake or river. And, the more difficult it is to exclude others, the more the resource works like a commons resource.

Taken together, these traits often spell trouble for commons resources: the resource is consumed when used, and it is difficult to keep people from consuming it.

Commons resources are just about everywhere we look. Consider the diversity of resources that scholars have identified as exhibiting traits of a commons resource. Most natural resources of significant size have traits of commons resources including groundwater aquifers (Ostrom, 1990), beaches (Rose, 1986), air sheds (Hardin, 1968), and the polar ice caps (Joyner, 1998), to name a few. Much of our developed environment also exhibits traits of commons resources, such as parking spots (Epstein, 2002) and sidewalk vending (Kettles, 2004). Over the past decade, scholars devoted to an area often referred to as "new commons" have identified much less intuitive things that exhibit the traits of commons resources including knowledge (Ostrom and Hess, 2007), government budgets (Shepsle, 1983), silence (Illich, 1983), and e-mail inboxes (Melville, et al, 2006). New commons resources are *new* in one of two respects (Hess, 2008). First, they might be considered new in that, like an e-mail inbox, they are a fairly recent invention. Second, they might be familiar but only recently categorized as a commons resource, as in the case of silence or knowledge.

This Chapter argues that influence over the presidential nomination system should be considered a commons resource, and therefore fits within the new commons literature. How is influence over the system a commons resource? First, states compete for influence because it is a finite resource. Regardless of what dimension of the

commons is at issue, this is the case: candidates only have so much time to visit states, only so many commitments to make, and only so much money to spend; the media coverage—no matter how big the story—always has some limits; and a state can only hold a finite amount of sway over the voters in other states.

Furthermore, when one state appropriates any one of these finite benefits, its gains come at the cost of the states. Just as the fish hauled into the boat are not available to other fishermen, the benefits of early contests are no longer available to other states. And, while one may argue that these benefits are not strictly limited because the number of visits a candidate makes, for example, can fluctuate, the same is true of most commons resources. A fishery can generally be managed in a way that leads to a more robust fishery; we can usually plant another tree in the forest. The main requirement—which is satisfied here—is that appropriation of the commons resource results in a diminishing stock of the resource base.

Second, it is very difficult for a state to exclude other states from trying to gain more influence. State leaders only control when they hold their respective contests; they have virtually no control over the dates of other states' contests. If any at all, the only recourse a state has is to participate in a game of one-upmanship. This harmonizes with my review of the public record: as Table 1 illustrates, 13% of states' rationales for changing their contest dates explicitly referenced the need to respond to another state's movement or the desire to change where the state stood in line. Sometimes a movement

by one state prompted another to do likewise even if they were only "stealing each other's oxygen" (Carney, 2007). However, competing is not only how a state gets to hold a contest at a preferred time, but also how a state protects itself when other states move. This is how one lawmaker from Connecticut framed his support for moving up the state's contest in 2008: "The choice is between being lumped in with everybody else on Super Duper Tuesday or being completely irrelevant in the beginning of March when everybody has come and gone . . . . So we take the best position we can with the flawed system that we have . . . " (Dixon, 2007).

Additionally, the harsh labels that commentators placed on the state actions that make up the presidential primary calendar illustrate that at a macro level, states work to compete with each other. Consider a few of these: a "chaotic mad dash" (Prah, 2008), a "free-for-all" (Dunkelberger, 2008), a "frenzy" (Nichols, 2008), a "hyper-drive video-game world" (Shapiro, 2007), a "pell-mell scramble" (Stearns, 2007), an "arms race" (Stevens, 2007), a "high-speed demolition derby" (Mayer and Busch, 2004, 14), "a sound-bite-saturated sprint" (Mayer and Busch, 2004, 14), and a "lemming-like rush" (Mayer and Busch, 2004, 14). In large part, these labels speak for themselves and could be used to describe any group of appropriators pushing each other further into a tragedy of the commons.

2.1.2.2 Appropriators and Appropriation in the Nomination Commons

Appropriator is the term used to describe those who seek to consume a commons resource, and *appropriation* is how consumption occurs. A miner, for example, is an appropriator, and steam shoveling, for example, is how the miner goes about appropriating.

Commons resources are often complex and frequently serve multiple, and sometimes conflicting, purposes. For example, a forest might serve as a place for recreation for hikers, wildlife habitat for hunters, a source of income for loggers, and a greenhouse gas sink for still others. Understanding resource appropriators is an important step to understanding the commons resource itself.

While many interests explain the motivations of commons resource users, there are a few generalities that stand out. First, we would expect to see commons resource appropriators appreciate how costs and benefits play out in the commons: those extracting the resource gain virtually all the benefits of that behavior whereas the costs of such extraction are borne by all the potential consumers of the resource (Hardin, 1968). In Hardin's (1968) famous yet fictional example of the herdsmen on the open pasture, the herdsman that puts the cow on the pasture brought it home for the slaughter, whereas all herdsmen shared the cost of the additional cow eating and tromping on the commons.

The second and closely related point is the way in which an appropriator perceives the actions of other appropriators. When an individual user of the commons resource unilaterally decides to cut back in the commons resource, the appropriator is only leaving more for others. This is the case because one characteristic trait of a commons resource is that it is difficult to exclude others from using the resource. Particularly in light of how the commons resource allocates benefits and costs, it does not make sense to cut back unilaterally.

The appropriators of concern for this Chapter are the states that stand to benefit from the nomination system.[4] As mentioned above, states attempt to appropriate benefits from the presidential nomination system by changing the timing of state candidate selection contests. And, while states may seek influence in itself (for example, Delaware wants more of a say in the nomination process) and as a means to many other benefits (for example, if Maryland had more influence, more candidates would visit), this is not unusual in the commons. Consider the example of appropriating water in a river. Some might want the water for the water itself—for drinking, household use, or to fill a pond. In other instances, the water is part of the means to a different end. It is

---

4. Of course, states are not the only ones to benefit from the presidential nomination system. And, there might be other potential ways to use the commons lens to explore these actors in ways not employed in this Chapter. Perhaps the most obvious users of the presidential primary system not explored in depth below are the candidates themselves. For example, one could attempt to frame political candidates as potential resource users where the resource is, for example, media or voter attention (Hsu, 2005). Along similar lines, the commons paradigm could be used to frame how media outlets use the system to attract viewers, how interest groups gain supporters or attention from candidates, or how various entities attempt to extract money from the candidates' war chests. As discussed in Chapter 4, the fact that a number of resource users might view the commons as serving different purposes is entirely consistent with a large number of commons resources.

what makes the crops grow, it is an input in an industrial process, or it provides a habitat for fish and wildlife. One can also think about the radio spectrum: what users of the spectrum want is control of a particular bandwidth—that is what they appropriate. However, the reasons for wanting to use a portion of the bandwidth range from sending a radio station's signal to using Wi-Fi on a laptop. Thus, the fact that states have many reasons to appropriate influence from the nomination commons is in line with the commons more generally.

At first glance, it might seem odd to think about states moving the dates of their contests as a form of resource appropriation. However, in many ways it is not so out of the ordinary. Timing of appropriation is an important factor in many commons resources. Fishers and hunters worry about seasons, irrigators need water when their crops are in season, and finding a seat on the subway is much easier during off-peak than on-peak hours. Additionally, while not every commons resource requires temporal spacing, physical spacing is often an issue in the commons: tapping an oil well or water aquifer in large part relies on choosing a prudent spot to drill; identifying the best spot is often a key to a successful hunting or fishing excursion; and, use of radio bandwidth requires spacing in order to avoid signal interference.

As for the mindset of the states appropriating influence from the nomination commons, my review of the public record suggests that state decision makers almost always make the decision to move their contests in a way that is consistent with the

commons paradigm. We would expect that decision makers in a commons would focus on potential parochial benefits of appropriation and largely ignore the larger costs at stake. This is exactly what we see; sometimes it is as if policymakers were reading right off of Hardin's (1968) script. For example, in 2000, as California considered moving up its primary, many of the other states squawked, and the California Secretary of State responded: "I didn't get elected to be secretary of state of New York. My job is to get Californians in the game" (Lindlaw, 1998). A similar statement came from a state leader in Massachusetts who came to the same conclusion but with a somewhat more remorseful tone: "We won't be left out of the process . . . . I was very reluctant to support moving [the primary date]. But to do otherwise would have left Massachusetts voters with no voice in this election at all" (Wedge, 2007).

Even if one were to take the rationales on the record in the light most negative to the commons framework, at least 88% of the rationales reported in Table 1 have a parochial focus—excluding rationales aimed at advancing a regional interest (6%), advancing the interests of a particular candidate or type of candidate (1%), and advancing a national interest (4%). Even among these, one could argue that regional interests—similar to state interests—can undermine national interests as could assistance to a particular candidate or type of candidate. As for national interests, the record reviewed did not provide a single instance where state decision makers suggested a move arguably served a national interest without also referencing some

other parochial interest the move would also serve. One of the more interesting justifications for an attempt to change a primary was put forward by California State Senator Bill Jones. When attempting to justify legislation that would move California's primary from the back of the pack to much closer to the front, he explained, "a side benefit [of moving up the primary] is that it does create an energy in other states to look at options to alleviate this problem [of front-loading], and we are proposing an alternative [in the form of rotating regional primaries]" (Willis, 1998). But, regardless of how we frame arguments focused on regional interests, helping a particular candidate or sort of candidate, or justifications rooted in at least the rhetoric of national interests, the evidence I reviewed is still overwhelming.

2.1.2.3. What About States that Stay Out of the Fray?

While the commons lens explains many of the challenges facing the presidential nomination system, it is not perfect. Even in the front-loaded election cycle of 2008, where about half of the states had held their respective contests by the beginning of February, there were other states that did not move up their contests. This became highly apparent as the race for the Democratic nomination continued into June. How does this square with the commons paradigm?

While some states' decisions to hold later primaries still might be viewed as rational given the commons paradigm, it is important to concede that the paradigm is not a perfect one—which should not be surprising. Yet the actions of the states holding

back are not completely unlike actors in many commons resources. Potential appropriators opt out of the commons all the time: not everyone who can register domain names, use parking lots, or even tap into oil fields chooses to do so.

It is interesting to note that many of the states that ultimately opted to move their primary dates did so only after determining that it would come at a cost. The main costs that bothered decision makers were the costs of holding a nomination contest separate from other state primary elections that generally came later on in the year—holding off allows states to get the nomination contest and regular state primaries in a single shot. For example, in 2008, Alabama estimated the costs of holding an earlier primary at more than $3.3 million (Rawls, 2006). This approach seems to square with the theory of many who study consumption of commons resources: appropriation stops when the costs of appropriating outstrip the value gained from restraint (Clark and Munro, 1975; Faustmann, 1995; Hotelling, 1931). Additionally, while very few states moved their primaries back in the primary calendar, Oregonian decision makers decided to move back their contest because they felt that the calendar was so front-loaded that they no longer enjoyed the influence that they once had and therefore determined that the cost of an early primary was no longer worth it (Ayres, 1999).

Lastly, there are some aspersions that at least in one case, a state held back its contest date because those in power did not approve of the voting inclinations of the populace at large. Specifically, in 1988, Alabama joined many southern states and held a

contest on a March Super Tuesday (Whitmire, 2007). In its Democratic primary, Alabamans came out for Jessie Jackson. Thereafter, Alabama moved its primary to near the end of the nomination cycle. Some have speculated that disapproval with the voters' choice of Jackson prompted the leaders of Alabama to move back its primary (Whitmire, 2007). While it does not seem likely that many states holding back fit into this category, some states might be holding back their contests because there is a rift between the interests of those charged with making the decisions and the voters, and state leaders can get what they want out of the nomination commons by making their own state less important.

2.1.3 Dimensions of the Nomination Commons

Influence in the nomination commons has many faces. In this Part, I try to provide a window into the various dimensions that state appropriators find valuable. Below, I provide a brief overview of these dimensions. In several instances, I add to the empirical evidence already available in applicable scholarly literature.

2.1.3.1 Influence, Lack of Influence, and Competition

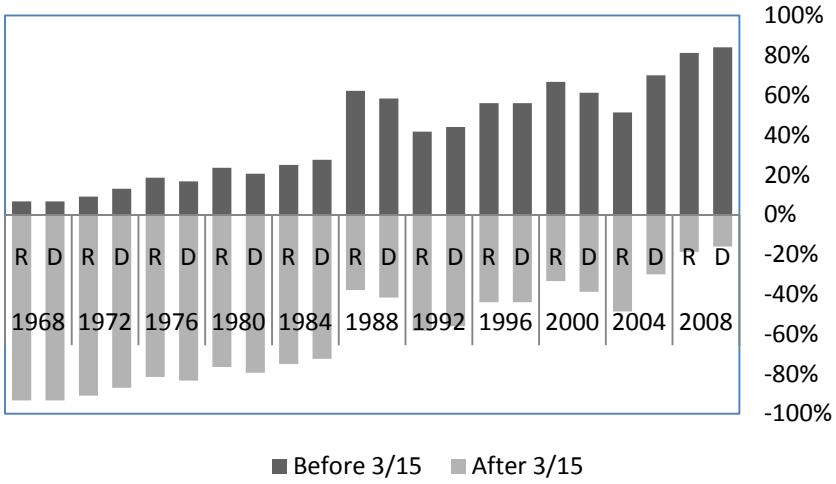
As shown in Table 1, the two most cited reasons decision makers altered the dates of their nomination contests were to gain influence over the process (22%) and to avoid irrelevance in the process (15%). These two responses rest on opposite sides of the same spectrum. Generally speaking, that spectrum is also rooted in time, with a great

deal of influence associated with the early contests and very little influence associated with the later contests.

Table 1 also reports that competition among states was the third most-cited reason for changing contest dates (13%). Competition relates directly to the influence spectrum because states readily understand that it is not the date of their contest that matters as much as where their contest falls in the sequence of contests. The way states attempt to secure influence over the process and frustrate each other is by upping the ante with earlier contest dates.

States competing to both get to the front of the line and to avoid the back of the line is what creates nomination leapfrog. The net effect of this, as leapfrog would suggest, is that we see continual pressure to move up the calendar. One way to illustrate this trend is by setting a benchmark. For example, as illustrated in Figure 1, in 1972, the vast majority of primaries and caucuses occurred after March 15th. In 1988, when the first Super Tuesday was held, it was held on March 9th. So, mid-March is what divided the early contests from the later contests. By 2008, March 15th was late in the process. This trend towards earlier contests is illustrated in Figure 1. There is little reason to believe the trend will change going forward.

Figure 1: Percentage of primaries and caucuses held before March 15 (1968-2008)



One important thing to note is that while states may move their contests towards the front of the cycle and appropriate some of the influence other states once enjoyed, this does not make the back of the line any more appealing. Even as the amount of influence a state may gain diminishes, the crowd up front makes it increasingly likely those in the back of cycle will hold their contests after enough other states have weighed in to determine the nominee. Thus, the advantage of moving up shrinks even as the penalty for holding back grows. Holding back only transfers influence to those unwilling to show restraint. This is why even commons scholars give those willing to hold back in the commons labels such as "patsy" (Thompson, 2000, 242), "sucker" (Ostrom, 1990, 44), or "chump" (Hasnas, 2009, 97). As states left in the dust have reconsidered their position, it shows that they think that they need to play or get played.

Consider this from a state political leader from California: "One thing I am sure of: Never again will the voters of California allow us to choose the role of irrelevance" (Farragher, 1993). This inertia is what creates the *tragedy* in the tragedy of the presidential nomination commons: "[T]he earlier nomination races get settled, the more the incentives for front-loading increase" (Mayer and Busch, 2004, 49). How the tragedy plays out is discussed in greater detail below.

In reviewing the record, the competition among state leaders was often palpable. The animosity was particularly clear when it came to the privileged role given in the process to Iowa and New Hampshire. Consider a few examples: "I'm so sick of New Hampshire. They're a little two-bit state up in New England and they think they run the whole process" (Leavitt, 2005). Or, "The method we have now, eulogizing New Hampshire and Iowa, raises them to a level they don't deserve" (Hallett, 1993).

As compared to the angling that goes on to get to the front of the line, the pressure of staying out of the back of the line is something that has been only given relatively scant attention, despite its importance to states. As a leader from one state put it, "If we don't change, we'll be dead-last to go again next year and the candidates won't even be willing to send in their dog-walkers to talk to us" (Addis, 1999).

While there might be a couple of ways to think about what it means to hold an "irrelevant" nomination contest, even the narrowest meaning would include a contest held after a candidate secured a mathematical lock on a party's nomination. As shown

in Table 2, over the past five election cycles, fifty-nine state Democratic contests and eighty-nine Republican contests have occurred after a candidate secured a mathematical lock on the nomination.

Table 2: Number of contests held after candidate holds numerical lock

	Democratic	Republican
2008	0	12
2004	16	28*
2000	20	18
1996	22*	14
1992	1	17*

* Indicates incumbent running

However, waiting for a mathematical lock may seem overly cautious. For example, a contest might seem quite irrelevant in the process if one candidate mounts such a lead that the end result seems like a foregone conclusion. This often happens well before a candidate secures a mathematical lock. In the last cycle, for example, pundits began to treat John McCain as the apparent nominee well before he secured a mathematical lock. This began after Mitt Romney dropped out of the race in early February (Balz, 2008). Once a candidate becomes the "inevitable" nominee, it not only takes the drama out of the race, but with each step it also makes it all the more difficult for any challenger to stage a comeback.

While a numerical lock is much easier to get our arms around than this sense of "inevitability," political futures market data might help put this into perspective. The political futures market is like the futures market for wheat or corn, but instead of crop

yields, futures payoff based on political outcomes. The markets provide a macro picture view of the impressions of the large number of market participants who one would suspect at least follow politics casually; after all, they are wired in enough not only to know about political futures markets but also interested enough to wager money on the enterprise. Perhaps due to the nature of market participants, political futures markets have been trumpeted for their reliability (Lovenheim, 2008).

While the political futures market is priced in a number of ways, the simplest market to understand is the winner-take-all market. Simply put, if you had put money behind Barack Obama to win the Democratic Party's nomination, the futures market would pay one dollar for each future purchased. On the other hand, had you chosen any other Democratic candidate, the market would pay out nothing. The market prices candidates based on demand. So, if the market prices a candidate at five cents, this suggests investors collectively think that the candidate is a long shot. (At that price, if the candidate becomes the nominee, the market pays out one dollar for each nickel put into the market.) On the other hand, the price of ninety cents suggests much more certainty in the minds of investors, and the price of fifty cents suggests investors see the bet as something like a toss-up.

For illustrative purposes, consider that a sustained market price of at least eighty-five or ninety cents on the Iowa Electronic Market suggests a national sense of

"inevitability" that a candidate will become the nominee.[5] The Iowa Electronic Market has kept political futures data since 1992 on all nomination contests without an incumbent running. Looking at these races, in most instances there is a great deal of certainty about which candidates will become nominees well in advance of candidates mathematically clenching their respective nominations. As shown in Table 3, in four of the seven elections for which there is data, more than half of the states had yet to vote at the point the market price for a particular candidate stabilized at the ninety cents level. In five of the seven elections, more than half of the states had yet to vote when a candidate's political future price stabilized at the eighty-five cents level. Given these measures, at the ninety cents level, more than twice as many states held "irrelevant" contests than those holding contests after a candidate locked up the nomination; at the eighty-five cents level, the number escalates to almost three times the mathematical lock.

Table 3: States remaining to vote at the time a candidate secures a numerical or perceived lock on the nomination

	Numerical Lock	States Yet to Vote	Perceived Lock at $.90	States Yet to Vote	Perceived Lock at $.85	States Yet to Vote
2008 Democratic	June 3	0	May 21	2	May 6	5
2008 Republican	March 4	12	February 5	22	February 2	42
2004 Democratic	March 13	16	February 29	31	February 21	34
2000 Democratic	March 14	20	January 25	49	January 22	50
2000 Republican	March 14	18	March 1	39	February 21	45
1996 Republican	March 26	14	March 5	31	March 5	31
1992 Democratic	June 2	1	June 5	1	April 6	23

Source: Data generously provided to the author by the Iowa Electronic Market administered by the University of Iowa College of Business.

5. For example, the closing price for Obama futures to win the Democratic nomination did not reach $.95 until August 5, 2009. On the other hand, I note that the market hit the $.90 and $.85 levels a few days before Romney bowed out.

2.1.3.2 Candidate Visits, Press Coverage, and Campaign Spending

As shown in Table 1, of the statements reviewed on the public record, 12% of state decision makers' rationales for why they changed contest dates related to the desire to attract candidates to visit the state. Three percent of the rationales related to attracting press coverage and another three to attracting campaign-related spending. Scholars have often noted that states change their contest dates in hopes of attracting all three of these factors (Butler, 2004; Crotty and Jackson, 1985).

The degree candidates desire to visit or spend money or the degree the press will cover a state, in large part, is beyond states' control. To the extent that state decision makers can change the calculus of candidate visits, press coverage, and campaign expenditures, it is with the timing of their nomination contests. If this sounds similar to the story of a state's relative influence, it should; candidate visits, press coverage, and campaign-related spending are substantially driven by a state's importance in the nomination process. Candidates have come to understand that the contest schedule matters a good deal: early states can be used as a launching pad for candidates—as Iowa was for Barack Obama (Murray, 2008); they also might work as a brick wall—as was Iowa for Joe Biden's 2008 presidential run (Cooper, 2008). A frustrating third place finish in Iowa was, in fact, what precipitated Howard Dean's 2004 *I Have a Scream* speech.

This is why conventional wisdom suggests that New Hampshire and Iowa are so important: "[T]he results in New Hampshire and Iowa can dramatically reshape the standings in a contested nomination race. Candidates who win or do 'better than expected' in these two states generally see a large increase in their support across the country; candidates who lose frequently see their stock tumble" (Mayer and Busch, 2004, 27). And, it is not just popular support that hinges on the results of early contests; it is also the candidate's organizational strength and support base: "Morale is boosted or deflated, volunteers join up or leave discouraged, and most importantly, money flows in faster or it begins to dry up. The underachieving candidates quickly find themselves unable to sustain their campaigns and are gone" (Keeter and Zuckin, 1983, 31).

Looking at the actual visits candidates made in past election cycles, it is easy to see why states believe an early contest can persuade candidates to visit them. A number of entities track presidential candidates' visits. One of these is the *New York Times* (Wheaton and Magdalena, 2008). To my knowledge, academics have ignored this data set. For the 2008 nomination cycle, the *New York Times* tracked more than 6000 visits (3214 for Republican candidates and 2943 for Democratic candidates).[6]

Here are some of the highlights of the data. Amazingly, about half of all visits entailed visits to either New Hampshire or Iowa (1025 and 2017, respectively) (Wheaton

[6] Although the newspaper began tracking the data as of April 1, 2007, and continued to track the data through the election, I only reviewed data through the last primary contest in June 2008.

and Magdalena, 2008). While that statistic is startling enough, a couple of factors underscore the point. First, candidates made roughly the same number of visits to Des Moines, Iowa (333) as they did to the five largest cities in the nation—New York, Los Angeles, Chicago, Houston, and Phoenix—combined (337) (Wheaton and Magdalena, 2008). Second, the Democratic candidates collectively visited New Hampshire roughly 17 times per delegate and Iowa 21 times per delegate. Republican candidates collectively visited New Hampshire roughly 42 times and Iowa 21 times per delegate. And, while the numbers of the first few contests are the most striking, as seen in Table 4, the relationship between the sequence of contests is still correlated (Wheaton and Magdalena, 2008). Similar analyses of other data sets have come to similar conclusions (Ridout and Rottinghaus, 2008).

Similarly, states can do very little about media attention other than changing the timing of their nomination contests (Mayer and Busch, 2004; Norrander, 1992). There are a number of intuitive reasons that the press would be likely to pay more attention to earlier races. First, the media covers the candidates, and as just discussed, candidates spend much of their time trying to gather support in states holding early nomination contests. Second, the further the nomination process goes, the more likely that a front-runner emerges and other candidates begin to fade, making the coverage of the race generally less appealing.

Table 4: Candidate visits to states
(total and per delegate 2008 Election Cycle)

	Democrats			Republicans		
	Contest Date	Total Visits	Visits Per Delegate	Contest Date	Total Visits	Visits Per Delegate
Alabama	2/5/2008	16	0.267	2/5/2008	12	0.250
Alaska	2/5/2008	3	0.167	2/5/2008	1	0.034
Arizona	2/5/2008	1	0.015	2/5/2008	30	0.566
Arkansas	2/5/2008	21	0.447	2/5/2008	6	0.176
California	2/5/2008	62	0.141	2/5/2008	279	1.613
Colorado	2/5/2008	32	0.457	2/5/2008	5	0.109
Connecticut	2/5/2008	15	0.250	2/5/2008	9	0.300
Delaware	2/5/2008	0	0.000	2/5/2008	3	0.167
Florida	1/29/2008	148	1.403	1/29/2008	202	3.544
Georgia	2/5/2008	44	0.431	2/5/2008	9	0.125
Hawaii	2/19/2008	0	0.000	5/16/2008	0	0.000
Idaho	2/19/2008	7	0.304	5/16/2008	1	0.031
Illinois	2/5/2008	87	0.473	2/5/2008	11	0.157
Indiana	5/6/2008	48	0.565	5/6/2008	21	0.368
Iowa	1/3/2008	1326	23.263	1/3/2008	691	17.275
Kansas	2/5/2008	2	0.049	2/9/2008	6	0.154
Kentucky	5/20/2008	9	0.150	5/20/2008	14	0.311
Louisiana	2/9/2008	9	0.136	2/9/2008	31	0.660
Maine	2/10/2008	2	0.063	2/1/2008	4	0.190
Maryland	2/12/2008	14	0.141	2/12/2008	5	0.135
Massachusetts	2/5/2008	40	0.331	2/5/2008	10	0.233
Michigan	1/15/2008	105	1.338	1/15/2008	43	1.433
Minnesota	2/5/2008	2	0.023	2/5/2008	18	0.439
Mississippi	3/11/2008	14	0.350	3/11/2008	4	0.103
Missouri	2/5/2008	28	0.318	2/5/2008	35	0.603
Montana	6/3/2008	10	0.400	2/5/2008	4	0.160
Nebraska	2/9/2008	2	0.065	5/13/2008	5	0.152
Nevada	1/19/2008	132	3.882	1/19/2008	49	1.441
New Hampshire	1/8/2008	447	14.900	1/8/2008	578	48.167
New Jersey	2/5/2008	18	0.142	2/5/2008	22	0.423
New Mexico	2/5/2008	15	0.395	6/3/2008	5	0.156
New York	2/5/2008	12	0.043	2/5/2008	115	1.139
North Carolina	5/6/2008	38	0.284	5/6/2008	26	0.377
North Dakota	2/5/2008	6	0.286	2/5/2008	0	0.000
Ohio	3/4/2008	63	0.389	3/4/2008	25	0.284
Oklahoma	2/5/2008	1	0.021	2/5/2008	20	0.488
Oregon	5/20/2008	11	0.169	5/20/2008	20	0.667
Pennsylvania	4/22/2008	30	0.160	4/22/2008	104	1.405
Rhode Island	3/4/2008	1	0.030	3/4/2008	8	0.400
South Carolina	1/26/2008	309	5.722	1/19/2008	156	6.500
South Dakota	6/3/2008	5	0.217	6/3/2008	11	0.407
Tennessee	2/5/2008	6	0.071	2/5/2008	32	0.582
Texas	3/4/2008	126	0.553	3/4/2008	50	0.357
Utah	2/5/2008	1	0.034	2/5/2008	21	0.583
Vermont	3/4/2008	0	0.000	3/4/2008	4	0.235
Virginia	2/12/2008	21	0.208	2/12/2008	52	0.825
Washington	2/9/2008	5	0.052	2/19/2008	33	0.825
West Virginia	5/13/2008	12	0.308	5/13/2008	2	0.067
Wisconsin	2/19/2008	18	0.196	2/19/2008	27	0.675
Wyoming	3/8/2008	11	0.611	1/5/2008	3	0.214

And third, even as the primary calendar moves past states, the press might decide to give a limited amount of coverage to past contests in order to provide a backdrop for the reader.

There are a number of ways one might go about empirically testing the intuition that the press is likely to cover earlier contests more. One way is to monitor a particular media outlet and consider its coverage over time. For example, studies like this were completed for the 1980 cycle—one that focused on stories covering the contests on *CBS Evening News* and one that tracked inches of coverage devoted to the various races in *United Press International* (Robinson and Sheehan, 1983). The findings of these studies showed that the media covered earlier states more than later states and that Iowa and New Hampshire received a great deal of the coverage devoted to state contests.

Could the same generalizations be made of current media coverage and in a way that considered the media more generally rather than focusing on a particular media outlet? To explore this question, I ran search queries on Lexis-Nexis. Specifically, I queried the number of times different states were referenced in a Lexis-Nexis source material folder called "Campaign 2008 News."[7] This snap shot of media coverage is generally helpful but not perfect. A review of one hundred articles randomly selected from the database yielded six that did not address the nomination contests in some way.

---

7. According to Lexis-Nexis, "The Campaign 2008 News combined source contains 2008 election stories from all the English, language full-text news sources in the combined source News, Most Recent 2 years." This source folder is created by a complex indexing algorithm, the specifics of which Lexis-Nexis does not make public due to intellectual property concerns.

Because the queries produced hundreds of thousands of hits, the data could not be purged of its degree of imprecision.

Specifically, the queries ran focused on campaign coverage between October 2, 2007, and June 10, 2008. The data, seen in Table 5, highlights the importance of early primaries. In total, the top ten states receiving media mentions were New York, Illinois, Iowa, New Hampshire, Florida, California, Texas, Massachusetts, Pennsylvania, and Ohio. The two states that really stick out of this group are Iowa and New Hampshire. Seven of these top ten (New York, Illinois, Florida, California, Texas, Pennsylvania, and Ohio) are, in terms of population, the seven largest states in the Union. Additionally, three of the states on the list are home states of prominent candidates (Clinton and Giuliani from New York, Obama from Illinois, and Romney from Massachusetts). Some of the states are also classic battleground states (Florida, Pennsylvania, and Ohio). One state (Florida) was broiled in controversy due to its decision to move its primary to January despite the threat of sanctions from the national parties. The only reason for Iowa and New Hampshire to make the top-ten list is their early contests.

The importance of Iowa and New Hampshire are much clearer when one considers coverage on a per delegate basis. Using this lens, the top ten states are New Hampshire, Iowa, South Carolina, Arkansas, Michigan, New York, Florida, Arizona, Massachusetts, and Illinois. The three states with the most coverage using this lens (Iowa, New Hampshire, and South Carolina) are all early contest states. The other states

near the top were caught up in controversies for moving their primaries (Michigan and Florida) or home to candidates (Huckabee is from Arkansas and Clinton has roots there too, Clinton and Giuliani are from New York, McCain is from Arizona, Romney is from Massachusetts, and Obama is from Illinois). Furthermore, looking at the bigger picture, the correlation between the contest dates and media coverage seems substantial.[8]

Grabbing the attention of candidates and the media can spell dollars for state economies (Mayer and Busch, 2004, 27; Ridout and Rottinghaus, 2008, 123). Campaigns bring volunteers and campaign workers, advertise, and make investments in campaign organization and infrastructure. During the last nomination cycle, Democratic and Republican candidates combined received nearly a billion dollars. Add to this amount the expenditures by political action committees, parties, and others making independent expenditures, and the total grows even higher.

For small states particularly, this campaign spending can have a tangible impact on the economy. A study on the 2000 cycle by New Hampshire estimated that it received a $264 million benefit due to its early primary. And, some have argued that this number is overly conservative (Mayer and Busch, 2004, 187).

---

8. The data has correlation coefficients of .23 and .25 to the Democratic and Republican election dates respectively and both have a .3 value when adjusted on a per-delegate basis.

Table 5: Articles found on Lexis-Nexis per state
(2008 cycle total and per delegate)

	Contest Date	Total Articles	Articles Per Delegate
Iowa	1/3/2008	42,817	334
New Hampshire	1/8/2008	36,082	703
Michigan	1/15/2008	24,477	186
Nevada	1/19/2008	12,055	128
South Carolina	1/26/2008	23,949	248
Florida	1/29/2008	35,513	172
Alabama	2/5/2008	6618	46
Alaska	2/5/2008	3766	54
Arizona	2/5/2008	26,445	164
Arkansas	2/5/2008	20,562	191
California	2/5/2008	33,137	44
Colorado	2/5/2008	8875	58
Connecticut	2/5/2008	8228	73
Delaware	2/5/2008	4659	85
Georgia	2/5/2008	10,764	47
Illinois	2/5/2008	45,098	146
Kansas	2/5/2008	7324	66
Massachusetts	2/5/2008	30,553	155
Minnesota	2/5/2008	9121	57
Missouri	2/5/2008	7755	41
New Jersey	2/5/2008	12,991	59
New Mexico	2/5/2008	12,236	129
New York	2/5/2008	84,908	184
North Dakota	2/5/2008	2232	33
Oklahoma	2/5/2008	5001	41
Tennessee	2/5/2008	10,808	59
Utah	2/5/2008	5342	57
Louisiana	2/9/2008	7761	52
Nebraska	2/9/2008	4378	49
Maine	2/10/2008	4221	61
Maryland	2/12/2008	12,550	76
Virginia	2/12/2008	16,978	80
Wisconsin	2/19/2008	9234	57
Ohio	3/4/2008	27,032	85
Rhode Island	3/4/2008	5151	75
Texas	3/4/2008	30,603	64
Vermont	3/4/2008	4355	82
Mississippi	3/11/2008	6840	63
Pennsylvania	4/22/2008	30,166	95
Indiana	5/6/2008	13,600	73
North Carolina	5/6/2008	19,717	77
West Virginia	5/13/2008	7745	84
Kentucky	5/20/2008	7149	51
Oregon	5/20/2008	7072	60
Montana	6/3/2008	5922	85
South Dakota	6/3/2008	5665	80

Source: Lexis searches performed on Lexis-Nexis' "Campaign 2008 News" Folder, circa June 2009. "Per Delegate" counts weighed Republican delegates equally with Democratic delegates. Hawaii, Wyoming, and Idaho were excluded because Democrats and Republicans had different contest dates. South Carolina was still included even though it had different dates because dates were so close in time. Washington was excluded because I had a difficult time getting Lexis-Nexis to discriminate between references to the District of Columbia and Washington state.

It is not just the first states that benefit either. Others have noted that the amount of resources candidates invest in a state largely depends on how early a state votes

Table 6. Dollars Spent on Primaries
(1988 Nomination Cycle)

State	Date	Total Dollars		Dollars Per Delegate	
		Democrats	Republicans	Democrats	Republicans
Iowa	2/8/1988	$4,133,228	$3,768,711	$71,263	$101,857
New Hampshire	2/16/1988	$2,944,879	$2,421,122	$133,858	$105,266
South Dakota	2/23/1988	$515,543	$777,795	$28,641	$43,211
South Carolina	3/5/1988	***	$1,763,055	***	$47,650
Alabama	3/8/1988	$455,037	$518,093	$7,460	$13,634
Arkansas	3/8/1988	$50,934	$122,062	$1,185	$4,521
Florida	3/8/1988	$1,299,798	$2,148,512	$8,903	$26,201
Georgia	3/8/1988	$633,175	$811,028	$7,363	$16,896
Kentucky	3/8/1988	$230,664	$296,890	$3,844	$7,813
Louisiana	3/8/1988	$230,737	$600,290	$3,250	$14,641
Maryland	3/8/1988	$364,876	$429,851	$4,678	$10,484
Massachusetts	3/8/1988	$729,923	$2,998,214	$6,697	$57,658
Mississippi	3/8/1988	$130,607	$407,704	$2,902	$13,152
Missouri	3/8/1988	$330,213	$844,749	$3,978	$17,973
North Carolina	3/8/1988	$863,964	$1,082,261	$9,707	$20,042
Oklahoma	3/8/1988	$349,520	$636,565	$6,853	$17,682
Rhode Island	3/8/1988	$19,725	$174,283	$759	$8,299
Tennessee	3/8/1988	$59,531	$570,704	$773	$12,682
Texas	3/8/1988	$2,757,348	$1,589,074	$13,926	$14,316
Virginia	3/8/1988	$496,780	***	$5,844	***
Illinois	3/15/1988	$1,574,265	$2,155,263	$8,419	$23,427
Connecticut	3/29/1988	$190,107	$279,118	$3,222	$7,975
Wisconsin	4/5/1988	$928,354	$287,211	$10,549	$6,111
New York	4/19/1988	$2,996,636	$762,412	$10,897	$5,606
Pennsylvania	4/26/1988	$769,294	$508,167	$3,986	$5,293
Indiana	5/3/1988	$170,735	$176,115	$2,009	$3,453
Ohio	5/3/1988	$446,277	$393,267	$2,565	$4,469
Nebraska	5/10/1988	$262,413	$406,114	$9,049	$16,245
West Virginia	5/10/1988	$87,633	$6,165	$1,992	$220
Oregon	5/17/1988	$93,022	$88,491	$1,824	$2,765
Idaho	5/24/1988	***	$45,132	***	$2,051
California	6/7/1988	$1,377,380	***	$4,099	***
Montana	6/7/1988	$33,265	$497,846	$1,331	$2,845
New Jersey	6/7/1988	$822,230	$91,848	$6,968	$1,435
New Mexico	6/7/1988	$59,586	$10,472	$2,128	$455
North Dakota	6/14/1988	***	$15,859	***	$991

Data for the contests dates and delegates comes from Norrander (1992, 36-39). The data on campaign spending comes from the Federal Elections Commission.

(Mayer and Busch, 2004, 30-32). It is somewhat difficult to verify this claim empirically because the data on where candidates spend money is somewhat limited. The major limitation in the data is that the Federal Elections Commission does not require this sort of reporting for candidates who refuse federal matching dollars.

The last nomination cycle where all major candidates reported their spending was 1988. During that cycle, as shown in Table 6, Iowa and New Hampshire captured a quarter of the money spent on the thirty-three Democratic primaries and about a third of that spent in the thirty-four Republican primaries. On a per delegate basis, the first three primaries fared better than those further back in the pack; for Republicans, this is true of the first four states to vote. Statistically, it appears to pay to go earlier, so it is not just the first few states that get the payoff.[9]

Another way to think about spending is to focus on the goods and services purchased. Media advertisements are among the most expensive line items in running a campaign. A number of scholars have attempted to track candidate media spots. One of the more recent studies tracked media purchases of three nomination races (Democratic races in 2000 and 2004 and the 2000 Republican race). Based on this study, the authors concluded that the later a state held a contest in a nomination cycle, the fewer advertisements were run in the state (Ridout and Rottinghaus, 2008).

Whether a state wants candidates to visit, media coverage, or a boost in the local economy, states get more of each of these by moving up their contests. And, those at the very front of the line get the lion's share of each.

---

9. For Democrats, the total amount spent per state and the date of the primary is correlated at a correlation coefficient of .27. On a per-delegate basis, the correlation rises to .37. The Republican race had even more dramatic numbers with correlations for total dollars with a correlation coefficient of .57 and per delegate slightly higher of .58.

2.1.3.3 Experiences of a State's Electorate

As shown in Table 1, in reviewing the public record, state decision makers cited the desire to increase voter turnout 8% of the time and to give voters more choice of candidates 3% of the time. It seems reasonable to stipulate that the voters would find many of the factors discussed in this Part as relevant to their experience: whether a contest is timed before or after a candidate has psychologically or numerically sewn up the nomination; whether they felt candidates were working for their votes by visiting their state, speaking to issues of state concern, and expending campaign resources to win them over; and whether the contest received press coverage beyond the local news.

Still, we might look at factors directly related to the voting experience. The first of these is the choice of candidates. Of course, candidates drop out of the race over time, and once out, they stay out. This means that states at the beginning of a nomination cycle have a larger field to choose from than those states at the end of the nomination cycle.[10]

Another way to think about the voting experience is to think about how close the vote outcome is. It seems safe to assume that as the likelihood of casting the deciding ballot increases, the degree voters would find it interesting to participate in a nomination contest would also increase. Looking at the data for the past ten nomination

---

10. Of course, in some instances, a candidate's name may appear on a ballot after he or she has sailed his or her campaign into the sunset. But, from a voter's perspective, this is not such an exciting option.

cycles, not only do candidates drop out over time, but also as Table 3 suggests, the races get less competitive as the nomination season wears on.[11]

Table 7. Spread Between First and Second TopVote-Getters in Primaries
(1972-2008 Nomination Cycles)

Sequence	All Races	Nonincumbent Races
First	13.85%	9.56%
Second	25.61%	18.41%
Third	14.91%	16.28%
Fourth	28.26%	21.28%
Fifth	26.30%	27.01%
Sixth	26.07%	24.49%
Seventh	34.75%	34.40%
Eight	37.58%	41.28%
Ninth	27.40%	31.58%
Tenth	32.15%	34.20%
Eleventh	37.36%	42.34%
Twelfth	27.03%	34.77%
Thirteenth	33.53%	36.22%
Fourteenth	35.63%	42.59%
Fifteenth	45.15%	45.15%
Sixteenth	47.19%	47.19%

Just as it is for states attempting to attract candidates, the media, or campaign dollars, the sequence of contests seems to matter. If a state is interested in providing its citizens with a larger slate of candidates or a more competitive contest, a state would be wise to hold its contest as early as possible in the nomination cycle.

11. The relationship between competitiveness and sequence of contests has a correlation coefficient of .32. For races without an incumbent, the correlation coefficient is .46.

2.1.3.4. Political Interests

The political interests of states are hard to quantify, and yet they play a substantial role in the minds of leaders who set contest dates. It is thought that candidates will be more apt to reach out to voters of a state with influence and support programs of local importance (Butler, 2004). Some have argued that due to its privileged role in the presidential nomination system, Iowa farm subsidies are well provided for and protected (Mayer and Busch, 2004, 27-30). In my review of the public record, 9% of decision makers purported to move a primary to advance state political interests, and an additional 6% moved up due to regional interests. Sometimes, state leaders were surprisingly up front in detailing the political commitments and favors they hoped to secure from candidates including policy considerations, the ability to extract campaign promises, and even gaining cabinet posts for state leaders.

Some might find counting the benefits of political pandering wrongheaded. It seems an even more substantial criticism of the nomination process grows out of the observation that because a few states have a privileged place in the sequence of contests, the same states walk away with political favors and thereby lock in benefits from this part of the political system.

State leaders might also move a contest date not to help their state but instead to give a boost to a particular candidate or type of candidate (Mayer and Busch, 2004, 23-24). In creating Super Tuesday, for example, many of the leaders of the southern states

who moved up their contest dates cited the desire to help moderate and conservative candidates (Norrander, 1992). It has also been suggested, for example, that Illinois moved up its primary due to the desire of many state leaders to help Barack Obama and that Massachusetts moved its date to help Hillary Clinton. Generally, helping a particular candidate entails moving nomination contests earlier in the election cycle.[12]

The thought that the sequence of when contests are held actually has a bearing on the result may seem troubling. Troubling as it may be, there is little doubt that the sequence of voting can alter political outcomes (Arrow, 1963; Farber and Frickey, 1991, 38-39). While this might just be part of the landscape of a staged nomination, what seems particularly troubling here is not that sequence matters but that again, those at the front of the line tend to keep the privileged position with little thought to how this impacts who finally emerges as nominees.

Each of the parochial interests that states seek through the nomination commons provides higher payoffs when states move up their contests. And, those states at the very front of the line absorb much larger portions of the commons than do the other states. This Part has identified the motivations driving states. The next Part looks at how these motivations play out in the system as a whole.

---

12. However, this does not need to be the case. There is evidence that a state moved back its primary because state leaders disapproved of a candidate its voters chose. Yet, if this is a problem, it is undoubtedly a rarity because states only rarely move back their contests.

2.2 Tragedy of the Presidential Nomination Commons

Having identified the presidential nomination system as a commons resource, the Chapter now explores the extent to which the presidential nomination system suffers from the commons' most vexing problem—the tragedy of the commons. This Part discusses the tragedy of the commons and a slight variation of that problem, resource races. After I discuss each of these, I then apply them to the presidential nomination system and discuss how many of the nomination system's problems are just symptoms of underlying commons problems.

2.2.1 Tragedy of the Commons and Resource Races

When we see a commons resource under pressure from the demands of appropriators, there is a good chance that the resource may suffer from what is known as the tragedy of the commons. Reduced to its simplest form, the tragedy of the commons is simply the traits of a commons resource working against each other. On one hand, the commons resource is consumed when used and, on the other, its traits make it difficult to exclude those who want to consume it. Particularly when appropriators perceive the commons resource as worth their while, appropriators consume the commons resource to its limits (Hardin, 1968).

Like commons resources, examples of the tragedy of the commons are found in many situations ranging from crashing fish (Gordon, 1954) and wildlife populations (Hardin, 1968) and excesses of climate changing greenhouse gases in the Earth's

atmosphere (Thompson, 2000) to the telemarketers who unrelentingly call us (Ayres and Funk, 2003) and the number of appeals pending in the American judicial system (Pritchard, 1997). In each of these cases, individuals do what makes sense for them and at the same time undermine society's broader interests—the pursuit of individual interests creates collective calamities.

Closely aligned to the problem of the tragedy of the commons is the problem of resource races. In a resource race, potential commons appropriators are held at bay for a season but then allowed to participate in a free-for-all that is cabined off by time. Consider a few examples. In fisheries and hunting grounds, we often see appropriation limitations take the form of seasons. While a season of appropriation can limit appropriation, it can also lead hunters and fishers to make investments to compete (that is, better gear or a faster boat or all-terrain vehicle); it might create gluts of the resource on the market during the season; and it rewards fishers and hunters who take imprudent risks in pursuit of the resource during the season (Rasband, 2004; Rieser, 1999; Walsh, 2008).

In extreme versions of resource races, we have seen fishing seasons, for example, start as a "fishing derby" and stop almost as soon as they have begun. In the United States, the Alaskan Halibut annual fishing season has been reduced to two twenty-four hour periods, each separated by six months (Rieser, 1999, 412-413). Looking internationally, the most startling example of a fishing derby is that of British

Columbia's 1995 roe herring fishing season, in which fishing vessels hauled in the annual quota of 847 tons of herring in eight minutes before the season was called to a stop (Rasband, 2004, 450).

We see similar resource races in other contexts, from nations attempting to claim a stake to oil fields below the melting Arctic to lawyers attempting to get an advantage by participating in the "race to the courthouse."

2.2.2 The Presidential Nomination Commons Resource Race

Seeing the benefits extracted from the presidential primary system as a system prone to the tragedy of the commons and resource races makes it easy to see why frontloading occurs. The benefits states seek are up for grabs during periodic episodes prior to primary elections and are, in significant part, overwhelmingly delivered on a first-come, first-served basis. Given this, it is not surprising that states attempt to elbow their way to the front of the line or at least avoid standing in the back of the line. This argues that as states scramble for influence, we see a resource race, and that through this resource race, the nomination system is compromised.[13] However, this rush to vote has

---

13. One might argue that casting the problems of the nomination system as a tragedy of the commons deviates somewhat from the archetypal tragedy of the commons. The argument would go that even if we could find a system that made the states happy in the allocation of the various benefits of the nomination commons, this would not necessarily mean that we have adequately taken into account the national desire to create a nomination system that will serve as a platform to choose nominees of the two major parties. My first response to this sort of objection is a pragmatic one: I think that states maximizing their influence in the aggregate—for example, candidate visits and press attention—would probably translate into a much improved system. It may not be perfect, but it would be much better than the game of primary leapfrog states currently play. Second, while it might be that the problems facing the nomination system are not perfectly encapsulated by Hardin's (1968) fable, in reality very few problems fit perfectly. Take grazing as an example. Managing forage is almost never going to be enough for any real world grazing problem. More often, we would expect that we might not only care about forage but also other concerns ranging from erosion control and wildlife habitat. This means that in the real world, when we talk

been building over time. To understand fully how the resource race has played out in this context and why it is the way it is today, it is important to place the system we see into its historical context.

2.2.2.1 History of the Presidential Nomination Resource Race

From 1830 to 1972, delegates to national party conventions had a lot of autonomy in deciding which candidates to support for the nomination (Crotty and Jackson, 1985). This autonomy explains why we saw a number of candidates emerge from brokered conventions during this period, including some prominent candidates like Abraham Lincoln and Franklin Roosevelt. This is not to say that the nomination system did not experience any changes from the 1830s to the 1960s. The convention system became more formalized and, particularly on the Democratic side of the ledger, increasingly controlled by political parties (Crotty and Jackson, 1985). Yet, the changes to the system were incremental and minor in comparison to the changes that would come.

The 1968 Democratic Convention has a place in history mainly due to the turmoil surrounding it. It came in the backdrop of active civil and women's rights movements and visceral protests of the Vietnam War.[14] President Lyndon B. Johnson had dropped out of the race for the nomination that cycle after an embarrassing loss in New

---

about the commons, the lens of the tragedy of the commons is often only helpful, not perfect. In my view, there is no reason to believe that the objection is a major problem here.

14. Crotty and Jackson (1985) provide a well done historical discussion of this period that focuses on changes made to the presidential nomination system.

Hampshire. Add to all of this the assassinations of Martin Luther King Jr. and Robert F. Kennedy in April and June of 1968, and it is easy to see why the atmosphere surrounding the convention was electrified.

In this context, President Johnson's Vice President, Hubert Humphrey, delayed his decision to become a candidate for the nomination until just prior to the convention. He did not participate in any of the primaries, and many in the Democratic Party who wanted real change saw Humphrey as a relic of Johnson's administration. As it became clear that those seated in the convention would nominate Humphrey, protests occurring outside the convention became increasingly heated. This episode ended with the Chicago Police Department and protesters engaging in violent skirmishes. Inside the convention hall, perhaps in response to the turmoil going on outside in the streets, delegates provided the Democratic Party with a vague mandate: rethink the system, put more power in the hands of the electorate, and by implication, put less power in the hands of political elites (Mayer and Busch, 2004, 8).

One of the committees looking into reform found, "State systems for selecting delegates to the National Convention display considerably less fidelity to basic democratic principles than a nation which claims to govern itself can safely tolerate" (McGovern-Fraser Commission, 1970, 14). One of the most significant reforms that came about due to the committee work that followed the 1968 Democratic Convention was that the Democratic Party created a mandate wherein state parties were to certify a slate

of delegates that accurately represented the results of each state's nomination contest (Butler, 2004; Crotty and Jackson, 1985). By committing a slate of delegates to the stakes of the nomination contests, the state contests took on much more importance. In substantial part, this reform pushed states towards primaries and caucuses and away from conventions and thereby opened up the modern era of the nomination system.

While the Republican Party has also had a number of commissions that considered reforms, in significant part the Republican Party has taken the approach of encouraging states to reform rather than mandating them to do so (Crotty and Jackson, 1985; Davis, 1997). Still, many state decision makers with control over the form of the Republican Party nomination contest have opted to have the Republican Party follow the Democratic Party's approach. In 1968, only about a third of the states used primaries to select candidates. By 1976, almost 60% of the states had opted to use primaries (Mayer and Busch, 2004, 8). Today, all but a few states use presidential primaries or caucuses.

As soon as states began to opt for primaries and to a lesser extent caucuses, the states began to move up the date that they held their respective primaries and caucuses. A more detailed look at the data over time, like the data illustrating Democratic primaries over the past four decades in Table 8, has some important lessons. First, the most recent cycle is the most front-loaded nomination season over the past four decades. For example, in 2008, more than 80% of the delegates had been selected by the ninth

week of the nomination season. No season matches that even though the 2008 cycle dragged on for twenty-two weeks and some other seasons were completed in fifteen weeks. This brings us to the second lesson: even as states have tried to push to the front of the pack, some of those that lag behind have not budged much. This means that the primary season has grown over time. Third, the number of primaries held each year has grown. In 1968, there were seventeen total primary contests; in 2008, this is the same number of primaries as held during the week of Tsunami Tuesday alone.

Table 8. Number of Primaries and Cumulatibve Percentage of Delegates Weekly by Primaries for the Democratic Party

(1972-2008 Nomination Seasons)

	1968	1972	1976	1980	1984	1988	1992	1996	2000	2004	2008
Number of Primaries Held During Each Week of the Nomination Season											
1	1	1	1	1	1	1	1	2	1	1	1
2	0	1	1	1	0	1	1	0	0	6	1
3	0	1	1	3	5	0	4	9	0	2	1
4	1	0	1	1	1	16	8	7	0	1	1
5	0	1	1	2	1	1	2	3	0	1	17
6	0	0	0	3	1	0	1	1	14	9	2
7	1	0	2	0	1	1	0	0	6	4	2
8	1	2	0	0	0	1	3	0	1	1	0
9	4	6	0	1	0	0	0	0	0	0	4
10	2	2	2	0	3	1	0	1	2	0	1
11	0	2	4	4	4	1	1	0	0	0	0
12	2	2	2	2	2	3	3	3	0	0	0
13	3	0	2	1	0	2	2	2	0	0	0
14	1	4	6	3	0	1	1	1	3	1	0
15	1	0	3	8	5	0	2	1	2	2	0
16		1	3			0	6	4	1	2	1
17						4			2	3	0
18									0	1	2
19									5	3	2
20										2	2
21											1
22											2
Cumulative Percentage of Primary Delegates Selected Each Week											
1	2	1	1	1	1	1	1	1	1	1	1
2	2	5	5	6	1	1	1	1	1	13	5
3	2	14	9	14	18	1	9	26	1	18	7
4	8	14	17	22	27	42	31	46	1	20	12
5	8	17	19	36	29	49	41	60	1	21	61
6	8	17	19	43	41	49	43	74	47	56	66
7	15	17	35	43	49	51	43	74	65	71	70
8	22	30	35	43	49	54	56	74	71	76	70
9	43	50	35	51	49	54	56	74	71	76	82
10	49	53	47	51	56	63	56	81	79	76	83
11	49	62	55	61	74	70	62	81	79	76	83
12	58	65	57	64	77	79	68	87	79	76	83
13	84	65	66	66	77	81	70	89	79	76	83
14	89	86	73	70	77	83	72	91	86	80	83
15	100	86	76	100	100	83	75	92	88	85	83
16		100	100			83	100	100	89	87	88
17						100			92	92	88
18									92	92	93
19									100	96	95
20										100	98
21											99
22											100

Table is based on a similar table found in Mayer and Busch (2004). Data from 2004 and 2008 is from www.greenpapers.com.

Over the past few decades, states have increasingly joined the race to appropriate benefits from the nomination commons. We see states voting earlier and increasingly opting to hold contests that involve the electorate—particularly primaries. The reasons for this, as discussed in Part 2.1, are summed up in the states' desire to gain more parochial benefits from the commons. The question surrounding all of this is whether or not states seeking these benefits have come at a cost. Below I discuss how the costs of this resource race manifest themselves.

2.2.2.2 Costs of the Nomination Influence Resource Race

Resource races often come at a price. In the case of fisheries, for example, the price is overcapitalization in equipment, glutting the market with the catch, and an increased incentive for fishers to take imprudent risks (Rasband, 2004; Rieser, 1999; Walsh, 2008). Certainly, there are some advantages of the current presidential primary system over that of the closed door dealing that occurred prior to the party reforms implemented during the 1970s. Yet, the move from conventions to primaries and caucuses, in some ways, has come at a cost. That cost is most clearly manifested in the trend of front-loading.

The United States has a long history of both the disenfranchisement of voters and the enactment of reforms to address such disenfranchisement. The obvious examples of this are the constitutional amendments prohibiting voting discrimination against women and people of color. It is also the theme of the one-person, one-vote

jurisprudence, limitations on gerrymandering, and a major concern addressed in the Voting Rights Act of 1965.[15]

Front-loading introduces three risks that might water down the impact of a particular primary voter, caucus participant, or convention delegate. First, the candidate selection contest in states that do not hold election contests early in the season could be held after a particular candidate mathematically secures his or her party's nomination (Butler, 2004). As shown in Table 2, from 1992 to 2008, eighty-one state contests fit this description. Of course, a nomination battle might feel like it is over well before a race is actually mathematically secured, and under measures I employed above, this could double or triple the number of states mathematically disenfranchised by the effect on the minds of voters. As front-loading becomes more entrenched, candidates have the opportunity to sew up the nomination earlier in the cycle.

Second, even if a state has not been reduced to mathematical insignificance, because candidates drop out as time goes on, voters from later states often have a narrower range of choices than those of the states at the head of the line.

Third, some voters are disenfranchised by the actions of their state leaders. In this past cycle, in a rush for the presidential primary limelight, Michigan and Florida bucked the parties and set primary dates prior to when they were allowed to do so under party rules. After a long drawn out drama—particularly in the Democratic Party

---

15. 42 U.S.C. § 1973 (2006).

where it seemed Hillary Clinton's candidacy hung in the balance—the Democratic Party opted to only count half of those state's delegates as a penalty for noncompliance of the political leaders of those states. Because it is always tempting for those scheduling contests to break into the ranks of the elite states that vote first, political leaders have to weigh the benefits of jumping in the fray or showing restraint. In fact, reports suggest that major players in Florida undertook this sort of analysis. One of the party leaders is on the public record, saying of the threatened loss of delegates, "I guess we will have to assess the loss of delegates versus the attention it will focus on the state" (Kitchen, 2007). Additionally, given that the desires of voters and those setting contest dates will not always mirror each other, there are reasons to be skeptical that voters' desires will be given proper weight; this is particularly the case when those setting the contest date align themselves with different political parties than the party attempting to reign in the state (such was the case with the Democratic Party and its attempts to control the Republican-dominated legislatures of Florida and Michigan).

Additionally, Critics have charged that the current nomination system leads to uninformed voting (Mayer and Busch, 2004; Ridout and Rottinghaus, 2008; Brady and Johnston, 1987). Under the current system, this might result for two reasons. First, front-loading requires some voters to go to the polls or caucuses before they form an opinion of the candidates (Mayer and Busch, 2004) and the campaign schedule often forces those in early states to come to a conclusion about candidates with little,

superficial, or otherwise inadequate information (Brady and Johnston, 1987). As one critic charged, "The principal problem with front-loading is that it greatly accelerates the voters' decision process and thus makes the whole system less deliberative, less rational, less flexible, and more chaotic" (Mayer and Busch, 2004, 56). While the campaigns in the public mind may drag on and on, voters—and often a majority of voters—have not obtained an opinion of many major candidates even as their state contests are upon them, despite the vigorous campaigning that occurs before states begin to hold contests (Mayer and Busch, 2004). Once states do begin to vote, much of the coverage of candidates focuses on the horserace among the candidates instead of the issues (Haskell, 1996; Bartels, 1987). And once a contest has passed, of course, the system does not allow a voter or caucus participant to reconsider. Additionally, in most nomination races, serious candidates exit the race long before many voters even have an impression of them (Mayer and Busch, 2004). Given the rush of states voting during this last election cycle and the lack of information about the candidates on the ballot, it should not be surprising that some resorted to calling the first big primary date "Stupor Tuesday."

Second, on the other end of the nomination calendar, some voters tune out before they have the opportunity to vote. Because not all states move up their contests, each time the calendar creeps forward, the nomination season grows. As mentioned above, the calendar of 2008 was almost 50% longer (seven weeks) than that of the 1968 calendar. Longer nomination seasons (particularly in an era of twenty-four-hour television

coverage) can lead to voter fatigue (Crotty and Jackson, 1985). While certainly his typical sarcastic tone rang through, consider the following assessment by television commentator and comedian Jon Stewart after the primary season came to an end:

> Ladies and gentlemen, we've often heard the phrase "all good things must come to an end." But very rarely do you hear the phrase that "f***ing tedious things must also end." And last night, after the fifty-third and fifty-fourth episodes of the long-running *Bataan Death March to the White House*, we finally reached our conclusion.

While certainly this sentiment was exaggerated and crass, many spectators of the process would have to agree with the sentiment expressed. Many voters grow tired of the race long before the nomination season ends.

Additionally, a typical defense of the current nomination system is that the staged contests allow for more of what is known as retail politics—candidates shop their wares at state fairs, at community centers, and by reaching out to voters face-to-face. It is charming and makes for good media. These are some of the reasons that campaigning in Iowa and New Hampshire is covered so closely; however, others would argue that it is critical to the process as well because it provides a window into the candidates that is different from the images candidates project when the message is funneled through campaign consultants and advertising firms (Mayer and Busch, 2004; Haskell, 1996). In organization structure, retail politics requires mobilizing volunteers, whereas wholesale politics requires solid campaign organization. It is thought that this feature of the presidential nomination system gives relatively unknown candidates a prayer of

competing with better known or better funded opponents—some time to work up a head of steam.

To the extent that it adds value to stage contests, front-loading is eating into it. Candidates in a front-loaded system are prone to rely more on sound bites on the tarmac and less on grassroots politics (Mayer and Busch, 2004; Haskell, 1996). Many have argued that the wholesale politics television and marketing that goes along with front-loading makes candidate communication and campaigning more staged and superficial (Crotty and Jackson, 1985). Others have noted that a front-loaded cycle deemphasizes the role of volunteers and grassroots organizing (Mayer and Busch, 2004).

Staging contests allows momentum rather than reflective choice to carry the campaigns of those candidates who score early wins or exceed early expectations (Norrander, 1993; Bartels, 1988). While momentum is a sword that cuts in many directions, both to candidates' peril and to their benefit, front-loading compounds its role. This is because as candidates win or lose contests, this creates a feedback loop into the nomination race. It impacts the ability of a candidate to get media coverage, mobilize his or her base of supporters and volunteers, and haul in donations (Mayer and Busch, 2004; Orren and Polsby, 1987). Succeeding in a front-loaded process requires more media, more organizational support, and more donations, and at the same time, front-loading gives candidates a much smaller time horizon to deliver all of these

(Davis, 1997). Candidates often have little choice but to drop out if they do not meet expectations.

Some have noted that a front-loaded system tends to favor the front-runner. This is because even when a long-shot makes a surprise splash, a front-loaded process does not allow a candidate who makes a surprise showing to prevail, because television buys and grassroots organizing need to occur before a long shot even has a chance to stage an upset (Mayer and Busch, 2004).

The reason to worry about any of the concerns cited above is that in the aggregate, they add up to an increased probability that the process will allow candidates to emerge as nominees without adequate scrutiny from the electorate. This opens the possibility that a deficiency in the system—not the voters—will enable less qualified candidates to beat out more qualified candidates.

The process itself deserves our attention and warrants precaution because it is the vehicle used to weed out the many down to two nominees each representing one of the major political parties. The current process is far from optimal and while we may never have a perfect system, it is easy to imagine creating a much better one than we have. Our current system fosters competition among states to get what they can out of the nomination process; what we need is a system that allows the United States to secure the best candidates possible to fill its most important office.

2.3 A Commons Solution for the Nomination Commons

Influence works as a commons resource within the presidential nomination system. The system also displays problems endemic in the commons. Understanding how the commons relates to the presidential nomination system can also help in shaping reforms to the system. This Part emphasizes the practical lessons the commons offers in how we might improve governance of the presidential nomination system.

2.3.1 End the Resource Race

In the race to appropriate benefits, states maximize local benefits received from the nomination system while ignoring the larger interests of the country. We need to refocus the system to its proper aims: creating the best platform possible for winnowing down the candidates for the country's highest political office. As a hard-hitting ad ran by Hillary Clinton's campaign reminds us, the person occupying the White House is the person who can receive that 3:00 a.m. phone call—and might make quick judgments with potentially dire consequences. The nomination system cries out for reform: we should not allow local concerns about which state gets media attention or campaign revenue to trump the nation's vital interest in creating a sensible system to select presidential candidates.

The resource race among states reflects inadequate governance of the nomination commons. We have seen in various contexts that the race to commons resources presents problems. In the beginning of the twentieth century, a race to produce oil

compromised and depleted oil fields. Races continue to crash fisheries around the world. In wildlife, races have led some species to the brink of extinction and others to be hunted out of existence.

Nevertheless, troubled commons resources have often been restored with changed institutions. For example, at one time in Yellowstone Park, the bison, grizzly bear, and wolf were nearly gone or actually gone. Yet today, all of these species call Yellowstone home and are doing well despite competing interests that the park management takes into account. Similarly, the Fish and Wildlife Service has employed the Endangered Species Act to pull species such as the bald eagle back from the brink. Outside the world of natural resources, the radio spectrum, once cluttered with so many users that "nobody could be heard," is now able to serve society's demands for radio stations, cell phones, and a growing multitude of other devices.[16]

The challenge is substantial and complex. There are formidable political and institutional barriers standing in the way, ranging from the power of states like Iowa and New Hampshire to rally politicians aspiring to be president to the reality that some desirable changes may not pass legal muster: the states, parties, and other political actors may exercise legal rights to block potential changes.[17] If change is to come, it will undoubtedly take work and probably some luck.

---

16. Nat'l Broad. Co. v. United States, 319 U.S. 190, 212 (1943).

17. *See, e.g.*, Democratic Party v. La Follette, 450 U.S. 107, 123-24 (1981) ("A political party's choice among the various ways of determining the makeup of a State's delegation to the party's national convention is protected by the Constitution. And

However, assuming that change is an option, what sorts of lessons might we glean from the commons? The best place to look for progress in the nomination commons is by recharting the well-marked paths blazed to improve governance of other commons resources.

2.3.2 Unitize

The current system of fifty states competing to benefit from the nomination commons is predictably dysfunctional. We do not need fifty state institutions; what we need is one national institution.

The idea of creating institutions that govern commons resources holistically is a typical prescription in the commons. For example, over the past few decades, we have seen wildlife management evolve from focusing on individual animals to taking into account entire ecosystems (Leopold, 1949). Unitization might come in many forms, including legally required cooperation (as it is sometimes for groundwater) or voluntary cooperation. Examples of needs for unitization run throughout literature on commons resources. These range from confronting urban sprawl by treating the region as a single landscape to managing oil producers by focusing on oil fields.

---

as is true of all expressions of First Amendment freedoms, the courts may not interfere on the ground that they view a particular expression as unwise or irrational." (citation omitted)); Cousins v. Wigoda, 419 U.S. 477, 487 (1975) ("The National Democratic Party and its adherents enjoy a . . . right of political association. . . . 'And of course this freedom protected against federal encroachment by the First Amendment is entitled under the Fourteenth Amendment to the same protection from infringement by the States.'" (quoting Williams v. Rhodes, 393 U.S. 23, 30-31 (1968))).

The simplest way to get to unitization in the presidential primary context is to have a national primary day—meaning all states vote at once rather than in staggered contests. Some potential advantages of this system include cutting off the ability of states to game the system with contest dates, giving an edge to candidates that are more representative of the country, and putting an end to the trend of front-loading.

Yet, looking at the end goal—creating the best process to select nominees for the two major parties—one has to wonder whether this cure would come at too great of a sacrifice. Critics of front-loading, in fact, often argue that the problem with the current system is that we get too many contests too quickly. The barrage of contests is what often prematurely ends campaigns, favors frontrunners, and increases the costs of campaigns. While a national primary day would establish a unitized system, the presidential nomination commons exhibits another trait similar to many commons resources: resource extraction works best when it is done over time in a deliberate manner. Because of this principle, it seems that a truly reformed system would require a deliberate and sustainable method to ward off attempts by the states to appropriate influence from the nomination commons. So, while unitization is a starting point, more is required.

2.3.3 Rethink Regulating the Nomination Commons

Currently, the main (seemingly only) constraints states face as they set their contest dates is the regulatory directives of the national political parties. Particularly in

the developed world, regulation is often used to distribute or restrict access to commons resources; regulating the commons is the heart of, for example, the Clean Air Act,[18] the Clean Water Act,[19] the Endangered Species Act,[20] and the National Telecommunications and Information Administration Act.[21] In thinking about regulation of the nomination commons, we should think carefully about who does the regulating, and given this, what sorts of regulations are feasible.

2.3.3.1 Assessing Potential Regulators

If the states appropriate the nomination commons, then who regulates it? There are really three possible answers to this. We could say that in setting primary dates, the states largely regulate (or fail to regulate) themselves. Currently, the entities that act most like regulators are the national parties. Additionally, the federal government has played a limited role in regulating the nomination system more generally and has at least considered legislation that would regulate the sequence of contests (Mayer and Busch, 2004). As mentioned above, each of these entities probably has a constitutional right, or at least sufficient political clout, to have a degree of influence over the process.

Yet, if we are to continue to rely on regulation as the major way we govern the nomination commons (as we do now), there are reasons to be seriously concerned with each of these entities in the role of regulator. First, we might be skeptical of states

---

18. 42 U.S.C. §§ 7401-7671 (2006).
19. 33 U.S.C. §§ 1251-1375 (2006).
20. 16 U.S.C. §§ 1531-1544 (2006).
21. 47 U.S.C. §§ 901-942 (2006).

because they have proven unable and unwilling to take national interests as seriously as they do issues of local concern, like visits from candidates. In many ways, this seems to be asking the fox to guard the henhouse.

A second alternative would be to rely on the parties. Because nominations decide who represents the parties, they would seem to be the natural regulators for the nomination system. Yet, this raises concerns too. We might worry that parties will prove unable to regulate effectively because they are too conflicted. For example, in 2008 when Michigan and Florida flaunted the parties, it became clear that the parties were not only expected to be line monitors but also faced a reality that regulating required the parties to walk a political tightrope. We might also worry about instituting a regulatory structure that gives the parties more discretion, increasing the potential that parties will reestablish their roots to backroom dealings and king making. Additionally, the national parties themselves have sometimes encouraged front-loading by allowing the nomination season to begin at an earlier time than that of the opposition party.[22] This makes sense generally: the party that first sews up the nomination contest goes on to win the general election in November (Baudinet, 2008).

Third, though some have argued that the nomination process should be controlled by the federal government (Sabato, 2007), it may also give some of us pause to trust the federal government as the regulator over a system that churns out

---

22. For example, in 2000, the Democratic Party tried to stick with an open season for primaries that began after the second Tuesday in March. The Republican Party allowed the open primary season to begin on the first Monday in February.

Presidents. One could foresee that some in Congress would try to get their states favorable deals and others might try to manipulate the process for their own benefit or the benefit of their political allies.[23] Even if these were not issues, political reality suggests that it is unrealistic for the federal government to completely take over the system traditionally and jealously guarded by states.[24] Many members of Congress have proposed bills attempting to force reforms with the timing of contests in the past, and they have uniformly failed.[25]

Regulation would be quite different under each of these regulators. Below I focus on the entities currently doing most of the regulating—the parties. It is worth noting that parties have proven quite ineffective as regulators. It is not unusual to have ineffective regulators in the commons, but generally, when a commons is governed by regulation and the regulator is weak, problems in the commons abound. Examples range from the well-earned reputation of many local governments of being too lenient with developers and fueling sprawl as a result to the lax regulation that has decimated many of the United States coastal fisheries and forest ecosystems.

It might be, however, that even if the parties took their role as regulators more seriously, we still would have abuses by states because there is only so much the parties

---

23. In the context of gerrymandering of congressional districts, we have ample evidence that many politicians are willing to manipulate the political system for their own benefit.

24. For example, note the difficulty facing the federal government any time it enters policy areas traditionally handled by states, such as land use planning and education policy.

25. But the congressional record on regional primaries is dismal (Nesbitt, 1986). Since 1911, at least 278 bills have been proposed to consolidate the nation's primaries and caucuses. All have failed.

can do. Given the great influence very small states like New Hampshire and Iowa have come to occupy, state leaders may choose to give up a large chunk of its delegates in order to move up in the queue. This is suggested by the fact that Florida and Michigan risked losing all of the delegates to vote earlier.

2.3.3.2 Assessing Our Regulatory Alternatives

The current system relies on a simple rule to demark regulatory boundaries. States may only vote before a certain date if they get permission; otherwise, states must vote sometime after that date. Because it is hard to keep appropriators from consuming the commons, we often see simple regulations that regulate with bright lines. A great example of this is the main rule for allocating surface water in most of the western United States: first in time, first in right. In that context, the regulator just has to play line monitor. The rule used in the nomination system is even simpler than that though. It is more like hunting or fishing seasons where a set period is open for appropriating and another period is regulated closely or even closed for appropriation. In the nomination system, all the parties have to do is set dates and make sure that states comply with the dates. Whether or not front-loading occurs is not relevant under the current scheme unless it leads to states crossing the line and voting out of the prescribed nomination season.

As we consider what sorts of regulatory changes might improve the system, one concern might be whether we want to trust the parties with a new nuanced scheme.

Stepping away from clear-cut rules to more nuanced regulations almost always means more power for the regulator: the more discretion, the more of an opportunity for the regulator to skew the process. Thinking along these lines, it is a bad omen that one of the reasons we have the modern nomination system is a result of public outcry that parties should not be entrusted with much power (that is, discretion) over who becomes a nominee. We might also worry that parties would not stand up well to a stronger regulatory role and attempts of the various vested interests to create a system that works to their benefit. So, it seems logical to assume that we are somewhat limited by the degree we want to trust parties as regulators in creating a more nuanced system.

Other simple regulatory systems exist in the commons. Sometimes appropriators of the commons are selected by lottery, as is sometimes the case in the United States with fisheries and hunting permits. Some, in fact, have suggested that states rotate from cycle to cycle (Mayer and Busch, 2004). Others have advocated that we rely on something akin to a lottery to determine the order in which states would vote (Manatt, 1985). However, although a lottery is simple to regulate, one wonders whether it really fits the needs of the nomination system. Whereas in hunting and fishing, it makes sense not to care much who gets the kill or fries up the fish, here it seems too important to leave just to chance. Additionally, it seems that a lottery that provides equal footing to all states would cause a revolt among small states paranoid that larger states in the front of the pack would create instant nominees. So while a lottery would

help with spacing, it seems that we need a more developed system. Additionally, the challenge of making states vote on an assigned date seems almost insurmountable given that the parties have a hard enough time corralling state contests into a very broad time window.

There are a number of ways to realign the nomination calendar that, in principle, are fairly simple fixes. Some have advocated that we need to decrease the autonomy of states in setting contest dates. For example, state contests might be constrained temporally (that is, no contests before March or no contests on any other day but every other Tuesday), by quantity (that is, only ten states can hold contests in any given month), by type (that is, only caucuses and conventions but not primaries before March 15th), by size (small states vote first, then big states), or spatially (that is, rotating regional contest dates). Like the lottery, it is hard to see parties forcing this on the states. The idea of governing with a credible threat of regulation does not work so well when the regulator is not willing to pull the trigger, when the regulator can be politically manipulated, or when regulatory targets believe that any punishment they would receive is worth it. While regulation will certainly play a role in whatever institution is formed to handle the nomination commons, it seems that we need to create a system that coaxes states into compliance, not forces them. Given the size of the problem and the size of the regulatory sticks we trust parties or the federal government to carry in this area, there might not be much choice.

2.3.4 Getting States To Bind Themselves

There are two ways to control states in the nomination commons or, for that matter, any appropriator in any commons. Both ways are often used in tandem. The first is posing a credible threat that outstrips the benefit states might otherwise gain (Schelling, 1960). This is the tool parties use to try to keep states in line.

Another pathway, and one that is much more emphasized in the commons literature, is that of credible commitments (Ostrom, 1990). The key here is to provide appropriators believable guarantees that if they cut back then they will somehow reap the benefit of their own sacrifice (Ostrom, 1990; Kreps, 1990; North and Weingast, 1989; Williamson, 1983). While many have expressed skepticism of the ability of the states to bind themselves, this has not been the case in many commons resources.

Through credible commitments, appropriators have often found ways to bind themselves, agreeing to show restraint and develop an enforcement scheme in order to rid themselves of the tragedy of the commons. This may include various enforcement mechanisms that the states themselves could control (for example, barring candidates on their ballots if the candidate participates in a contest that was set in violation of the rules). It may also include enforcement devices such as agreeing to be subject to lawsuits and injunctions and giving some independent parties authority to enforce whatever the bargain struck. This might function similarly to the private enforcement

rights provided under various citizen suits of major environmental laws in the United States, such as those protecting endangered species,[26] water quality,[27] and air sheds.[28]

A move in this direction could be initiated from several quarters. The states might come to it themselves. Or, the federal government or the parties could nudge or shove the states down this road by various means ranging from a threat of dictating a solution in the event the states fail to come to an agreement to just providing the forum for the conversation. Assuming that a substantial majority of states agree to improve the primary system but a few states decide to hold out, perhaps the states willing to act could agree to punish states unwilling to do so until they come around.

Interestingly, punishing a state unwilling to back off its primary date is one of the ways New Hampshire has protected its first-in-the-nation primary. At first, New Hampshire just moved its date to protect its contest. So, in the 1972 cycle, Florida tried to hold its primary on the same day as New Hampshire, and New Hampshire just moved up its primary by a week (Mayer and Busch, 2004). Similarly, when New Hampshire's Northeastern neighbors tried to match up their contest date with that of New Hampshire during the 1976 contest, New Hampshire passed a law requiring the state to hold its contest a week before any other primary (Mayer and Busch, 2004). However, in 1996, Delaware scheduled its primary a few days after New Hampshire,

---

26. Endangered Species Act, 16 U.S.C. § 1540(g) (2006).
27. Federal Water Pollution Control Act, 33 U.S.C. § 1365 (2006).
28. Clean Air Act, 42 U.S.C. § 7604 (2006).

despite the threat that was carried out by the Democratic Party to strip the state of some of its delegates, Delaware did not back off.[29] So, when Delaware appeared to try the same strategy in the 2000 cycle, New Hampshire took action and successfully pressured nearly all the candidates to boycott the Delaware primary unless Delaware backed off—ultimately forcing Delaware to convert its primary into a caucus. Perhaps the position New Hampshire forced Delaware into was best explained by the chairman of the Delaware Republican Party: "To continue with a primary that almost every major candidate in both parties is boycotting accomplishes very little . . . . Under current law, it is very possible the current front-runner won't even be on our ballot" (Zuckman, 1999). And in fact in the 2008 cycle, when it became clear that Michigan and Florida would not conform to the primary schedule set by the parties, Iowa and New Hampshire pressured the candidates not to campaign in either of those states. Many of the candidates did back off, pulling their names off of the ballot in Michigan and not campaigning in Florida. This also opened the door to one of the most surreal moments of the 2008 cycle, when in touting his allegiance to Iowa's role as the first state in line, candidate Bill Richardson unbelievably said, "Iowa, for good reason, for constitutional reasons, for reasons related to the Lord, should be the first caucus and primary . . . . And I want you to know who was the first candidate to sign a pledge not to campaign anywhere if they got ahead of Iowa" (Reyes, 2007).

---

29. It threatened to do the same when Arizona considered the same strategy.

Assuming that a large number of states are willing to bind themselves, the states could employ the same methods used by Iowa and New Hampshire. This would provide those states currently with little influence to turn the tables.

2.3.5 Using Market Regulation To Induce State Commitments

A number of states have called for reform or have put their weight behind some sort of solution to the resource race we see now in the nomination commons. States have multiple interests and are likely to see the benefits of the nomination commons differently. Because of this, it might pay to think about whether market regulation would provide more of an inducement for states to agree to cut back than a traditional command-and-control regulation.

Increasingly, particularly where complexity abounds, market mechanisms are used in the commons. For example, the current debate on climate change often centers on using a market mechanism—like the cap-and-trade system—as the primary strategy for limiting greenhouse gases. Additionally, in what is often considered the greatest achievement of domestic environmental law in the 1990s, Congress revised the Clean Air Act to employ a cap-and-trade system to limit the pollutants primarily responsible for causing acid rain.[30] Tradeable permits are used to manage many fisheries. Recently, when the Federal Communications Commission has had additional bandwidth of the

30. *See* 42 U.S.C. § 7651b (2006).

radio spectrum available, it has increasingly turned to auctions rather than regulations to allocate licenses. These are only a few examples.

There are some criticisms of using market mechanisms to allocate resources in the commons. These include the failure of taking into account nonmarket values and the creation of unintended externalities through the use of the market mechanism. However, these do not seem extremely relevant in the nomination context. The larger concern is that caution would need to be taken in creating the rules of the game for the market (i.e., regulation) to assure that our national interest in creating a high quality platform to select presidential candidates is not compromised—or, put into the jargon of cap-and-trade: that we get the cap right.

One might imagine, for example, a system where states participate in trading similar to the National Football League Draft. The system could rely on a number of criteria to assign states a place in the queue (such as some of the regulatory options described above ranging from lottery to some sort of equitable allocation). Once political units were assigned places, however, the system could allow trading (e.g., trading a placement in line this cycle for an option to swap places two of the next three cycles). The trading system might also incorporate provisions to allow for a more equal playing field in any given cycle. One way this could occur is by providing "bonus delegates" to states holding their contests later in the year. In 2000, the Republican Party, in fact, experimented with this; although, it did so limitedly and with limited

success (Butler, 2004). Another possible way to increase the value to the states voting last is to allow states at the back of the pack to use winner-take-all contests while forbidding states voting earlier to do so.[31] We might also see the parties promising debates as a reward for exercising restraint or perhaps even the ability to host the convention for the state at the back of the line.[32] To the extent possible, the system would decouple the benefits of the nomination commons and the sequence of voting and redistribute the bounty in order to reduce the allure of voting first and soften the blow of voting last.

2.4 The Pathway Forward

The nomination system suffers from a resource race rooted in the tragedy of the commons. The system currently encourages states to maximize local interests and neglect the national interests at stake. We may call it selfish, small-minded, or even un-American. But, until we treat the problem as a tragedy of the commons, we can call it a permanent fixture on the political landscape.

Commons problems require commons solutions. This Chapter draws on lessons learned from the commons to create principles for reforming the nomination commons.

---

31. The Democratic Party currently forbids states to use winner-take-all contests, and the Republican Party leaves it to the states to decide to use them or not. In fact, the Republican Party originally instituted winner-take-all contests to offset the clout of the states that voted first. Unfortunately, nothing prevented a state from voting early and reverting to a winner-take-all format (Keeter and Zuckin, 1983).

32. Interest groups have increasingly acted as free-riders in trying to suck up benefits from the nomination system. A major way this has occurred is through interest group sponsored debates. The last cycle included twenty-six Democratic debates, most of them hosted by interest groups like labor unions, the NAACP, AARP, and the LGBT Network. The Republican Party candidates had twenty-one debates, many of these hosted by interest groups as well, including by the NAACP, Values Voters (a coalition of Christian and religious groups), the Republican Jewish Coalition, and AARP.

Four of the most important lessons include, first, stopping the practice of giving states a time window for voting that spans several months. Instead, we should rely on a much more constrained, nuanced, and balanced primary calendar. Second, to get states to sign on to such a system, we should rely more on inducing states to bind themselves and less on the parties to act as the enforcer. Inducement could come in the form of attempting to level the nomination calendar by decoupling the benefits provided by the nomination system from the sequence of contests by providing incentives to vote later in the cycle like bonus delegates, the ability to hold contests with all-or-nothing delegate stakes, and the opportunity to host party-sponsored debates. Third, the parties need to get out of the role of enforcers. Instead, once states have agreed to be bound, parties should provide states the legal right to enforce the calendar and the deals struck. Lastly, because the nomination commons is complex and provides multiple benefits, we should employ market-based regulations that allow the states to swap the benefits of the nomination system.

Decades ago, the United States Supreme Court noted that the nomination process "serves the pervasive national interest in the selection of candidates for national office, and this national interest is greater than any interest of an individual State."[33] While the nomination system's importance may seem obvious, it is equally obvious that the system currently does not come close to achieving this ideal.

---

33. Cousins v. Wigoda, 419 U.S. 477, 490 (1975).

More than fifty years ago, when Garrett Hardin penned his now famous article on the tragedy of the commons, he said, "Ruin is the destination toward which all men rush" (Hardin, 1968, 1244). In the nomination commons, we cannot afford the resource race to push us in that direction. Fifty states clambering for scraps is no way for the *United* States to select candidates for our highest office. We need to rechart our course.

3. When Agencies Go Nuclear

"Every man, woman and child lives under a nuclear sword of Damocles hanging by the slenderest of threads, capable of being cut at any moment by accident or miscalculation or by madness. The weapons of war must be abolished before they abolish us."

John F. Kennedy

"A world without nuclear weapons would be less stable and more dangerous for all of us."

Margaret Thatcher

In 2007, the military gave Yale Law School an ultimatum: give the military the same recruiting opportunities the law school provided other employers or Yale University (not just the law school) would lose all federal funding. At the time, Yale University received about $350 million from the federal government, and losing federal funding would have crippled Yale's science, engineering, and medical programs.

The seeds of this conflict were sown in the 1970s when the law school began requiring all employers participating in the law school's on-campus recruiting program to sign a pledge not to discriminate against students based on a number of factors, including the students' race, gender, and sexual orientation. Due to the Defense Department's "don't ask, don't tell" policy, the military wanted to reserve the right discriminate against students based on sexual orientation and thus refused to sign the pledge not to discriminate. From the 1970s up until a few years ago, the law school barred military recruiters from its on-campus recruiting process because the military continually refused to signed its pledge. However, after fighting off the threat of losing funding as long as it possibly could in court, ultimately, the law school backed down

and allowed military recruiters on campus rather than risking the military making good on its threat to revoke Yale University's federal funding.

This story of the military resorting to a particularly strong regulatory tool illustrates an example of a government agency employing what I refer to as a *regulatory nuke*. Regulatory nukes are in no way isolated to this situation with Yale and unlike real nuclear weapons, the military does not have a monopoly on them within the federal bureaucracy. In fact, many agencies have regulatory nukes, most of which go unmarked because they are rarely (and sometimes never) used.

Consider a few examples of regulatory nukes that might have escaped your notice. You might be surprised, for example, that the Federal Communication Commission has the power to pull the plug on major media outlets like NBC by revoking its license to broadcast on the public airwaves; that the Department of Education could theoretically shut down public schools all over the country under the No-Child-Left-Behind Act; and that the Internal Revenue Service has the power to revoke the tax-exempt status of some of the nation's most revered institutions, such as universities, museums, hospitals, and places of worship.

On the other hand, sometimes an agency actually launches a regulatory nuke. With regulatory mushroom clouds on the horizon, the situation quickly generates news stories, lawsuits, congressional hearings, and scholarly work. In the recent past, we certainly noticed when the Federal Housing Finance Agency swooped in to take over Fannie Mae and Freddie Mac, when the Justice Department put an end to Arthur Andersen by prosecuting it criminally, and when the Environmental Protection Agency

began down the road of regulating greenhouse gases despite Congress's unwillingness to agree to do the same.

While regulatory nukes are rarely launched, they have other uses. Similar to how countries rely on nuclear weapons to influence diplomacy around the world, it is often the case that agencies use regulatory nukes to make threats designed to bend the will of regulated entities. Just as the case of the military forcing Yale Law School's hand, leveraging a potential target's fear of a regulatory nuke is often enough for an agency to secure regulatory compliance. Even if an agency does not launch its regulatory nuke, it often is enough to cause us to say something along the lines of, "I can't believe that the agency pulled out the big guns."

"The big guns…" It is striking how much of the vernacular surrounding regulation alludes to warfare. We talk about an agency's "arsenal" and "weapons." Further, at times, we label the conditions sufficient to activate regulatory enforcement "triggers" and the behaviors of regulated entities that are clearly permissible "safe havens." When an agency resorts to extraordinary means in pursuit of regulatory compliance, we might say the agency "dropped the bomb" or that it "went nuclear." At least on an intuitive level, regulation reminds us of warfare, but is there more to the analogy?

This Chapter explores the extent to which our understanding of actual nuclear weapons can help us understand regulatory nukes. It turns out that regulatory nukes and actual nukes are used similarly enough that the analogy provides fertile ground to help us understand regulatory nukes. Whereas very little has been written about

regulatory nukes (particularly as a class of regulatory tools), society has paid much attention to how nuclear weapons contribute to warfare and diplomacy. This Chapter takes advantage of that literature to analyze the largest sticks in an agency's arsenal. Specifically, this Chapter applies game theory often used to explain how countries use nuclear weapons to regulatory nukes. In doing so, the Chapter particularly draws on the Nobel Prize winning work of Thomas Schelling.

Part 3.1 defines *regulatory nuke* and provides ten examples of regulatory nukes that touch a wide range of regulatory agencies and policy areas.

Part 3.2 addresses the question, why would Congress ever give agencies regulatory nukes in the first place? In answering that question, this Part discusses common rationales used to explain why Congress delegates powers and provides four specific reasons why Congress delegates regulatory nukes. Among these reasons for delegating regulatory nukes, we find a theme that grows directly out of Schelling's work and that provides a novel explanation for congressional delegation that has applications well beyond the confines of this paper: Congress delegates to bind its hands in order to make its threats more credible.

Part 3.3 addresses the question: how do agencies use regulatory nukes? To answer this question, this Part turns to the lessons provided by games of military deterrence, which provide a useful framework for classifying and distinguishing among different regulatory agencies that have regulatory nukes. This Part shows that agencies often *use* regulatory nukes by brandishing the gun instead of shooting it and that this use makes these weapons much more powerful than their launch rate would suggest.

This Part also illustrates how in some instances giving an agency a regulatory nuke might actually work to *weaken* rather than strengthen a regulatory agency's authority.

One of the important insights of Part 3.3 is that a lot is riding on the degree of credibility a regulatory target associates with an agency's threat to go nuclear. Part 3.4 builds on Part 3.3 by detailing various steps agencies can take to increase the credibility of their threats to use regulatory nukes. These suggestions not only add a layer of complexity as to how agencies can leverage regulatory nukes, they also provide agencies some likely avenues to increase the efficacy of administering regulatory nukes.

Part 3.5 introduces a wrinkle to the game introduced in Part 3.3 by allowing for the prospect that regulatory targets and other political actors might retaliate against an agency willing to launch its regulatory nukes.

Part 3.6 explores how agencies that use regulatory nukes (or even threaten to use them) often have them stripped away or downsized by Congress and the courts. In other instances, agencies themselves find ways to avoid using these weapons, cabin them off, or weaken their regulatory punch. Additionally, this Part explains that when Congress gives a regulatory nuke to an agency, it also increases the value of a potential regulatory target to get on the agency's good side. This incentive may have the unintended consequence of increasing the desire of regulated entities to capture the agency.

Part 3.7 concludes the Chapter by highlighting some of the lessons that come out of framing the biggest sticks in an agency's arsenal as regulatory nukes.

3.1 Regulatory Nukes

"Political power grows out of the barrel of a gun."

Mao Tse-Tung

This Chapter treats what I call *regulatory nukes* as a class of regulatory tools. In the past, to the extent that regulatory nukes received attention at all, they were often treated as regulatory oddities: sometimes seen as sleeping dragons, sometimes as the explosive that facilitated the high water mark of an agency's power, or sometimes apparent duds. This Part explains what I mean by *regulatory nukes* and in so doing provides a justification for treating regulatory nukes as a class of regulatory weapons. The Part then provides ten examples of regulatory nukes in a wide variety of policy areas and administrative agencies. The diversity of examples provided underlies the importance of understanding regulatory nukes: they play an important role in many areas of regulation.

3.1.1 Regulatory Nuke Defined

Of course, the term *regulatory nuke* is rooted in a comparison of the regulatory tool to a nuclear weapon. Before drawing the analogy between nuclear weapons and regulatory tools, it makes sense to discuss why nuclear weapons are treated as a particular class of weapons. What makes nuclear bombs "nuclear"? The simple way to answer this question is to draw a technical distinction between nuclear explosives and other explosives: nuclear bombs rely on nuclear reactions—fission or fusion—to create explosions and other bombs do not. While this technical distinction is correct, it leaves out a lot of what makes nuclear bombs special. Nuclear weapons are not just different

because they set of a nuclear reaction; they are different because more than other bombs, they terrify people. Understanding the fear these weapons evoke is essential to understanding how countries have used them since the close of World War II.

Four decades ago, President Lyndon B. Johnson observed that "[t]here is no such thing as a conventional nuclear weapon" (Schelling, 2008/1966, vii). This still rings true today. Since World War II, no country has ever dropped a nuclear bomb in war, even though they had them to use. In fact, despite the fact that nuclear bombs have been in existence for more than sixty years, when a country detonates a small nuclear bomb on a test range or in the middle of the ocean or even test fires a rocket designed to deliver a nuclear arsenal, it makes headlines across the world.

As Thomas Schelling has explained,

> There is no physical or military reason to treat a nuclear explosive differently from an explosion of TNT, but there is a symbolic difference that nobody can deny…. Symbolically … there is a gap between them, a difference of kind and not degree…. These are discrete, qualitative boundaries, natural lines of demarcation, not necessarily pertinent in a tactical or a logistic sense, but nevertheless "obvious" places to draw the line, for reasons more related to psychology and custom than to the mathematics of warfare (Schelling, 2008/1966, 134-135).

The difference between nuclear bombs and other bombs, as Schelling frames it, is more of a function of culture than variations within technologies. He argues that the move from TNT warfare to nuclear warfare crosses a line—something that he later labeled *the nuclear taboo* (Schelling, 2007). The symbolic value of the weapon makes it powerful and useful *even when not launched*. Because nuclear bomb evokes fear, holding the weapon in reserve has its own power. Exploiting fear of nuclear bombs the way nuclear weapons have been used since the close of World War II. It would be silly to say

the United States is the only country to benefit from use of the nuclear bomb because it is the only country to use the bomb in war. The bomb is not required to explode for a country to extract a use out of the nuclear bomb.

Since World War II, the nuclear bomb's major use has been symbolic. It is leveraged in the realm of diplomacy even if it has not been used on the battlefield. A threat or anything else that leads people to believe it is more likely a nuclear weapon will be launched may be enough to change the posture of those at the negotiating table. Even possession of a nuclear arsenal—with no hint of a threat—is often enough to make a difference.

The symbolic differences between nuclear bombs and other bombs (rather than technical differences) are the sorts of distinctions from which I draw the analogy in this Chapter. In fact, at least at an intuitive level, Schelling has analogized the difference between nuclear bombs and other bombs to many areas of life where we find conflict and competition. For him, the important part of all of this is the existence of symbolically important thresholds similar to those we find with nuclear arms:

> These characteristics [of thresholds] are not unique to warfare or diplomatic relations. They show up in business competition, racial negotiations, gang warfare, child discipline, and all kinds of negotiated competition. Apparently any kind of restrained conflict needs a distinctive restraint that can be recognized by both sides, conspicuous stopping places, conventions and precedents to indicate what is within bounds and what is out of bounds, ways of distinguishing new initiatives from just more of the same activity (Schelling, 2008/1966, 135).

So, how do we know if we are dealing with a regulatory nuke and not just an impressive, yet conventional regulatory weapon? There is more to a regulatory nuke than the power of the regulatory option. The size of the stick is a factor, but it is not

determinative. As Schelling put it, there is such thing as massive retaliation "on a diminutive scale, with local effects not unlike those of Hiroshima" (Schelling, 2008/1966, 15). Rather, staying true to Schelling's logic, a regulatory nuke is a regulatory power that is considered generally "out of bounds" and is symbolically different from typical regulatory efforts. It is the stick that goes unused or the punishment that is presumptively off the table. Whether due to precedents of agency dealings, perceptions of inequity, unacceptable impacts on larger society, congressional design, or political pressure—a regulatory nuke carries symbolic importance. And like actual nuclear weapons, agencies *use* the regulatory nuke by brandishing the weapon rather than firing it.

The fact that regulatory nukes are used differently than other regulatory weapons often leads commentators to mistakenly believe that regulatory nukes are rarely or never used simply because they are rarely or never *launched*. However, equating launches of regulatory nukes to use of the regulatory tool overlooks a major dimension of symbolically important stopping points: threats, bluffs, and escalations. The uses of regulatory nukes fall on a spectrum. Launching the weapon is at one extreme. There are more subtle uses that deserve our attention as well: leveraging the weapon at the bargaining table, relying on the weapon as a backdrop of pursuing compliance, and even scaring potential targets from straying from compliance lest they show up on the agency's radar screen at all.

Just to make the point clear, consider how the narrower definition of *use* would play out in the realm of actual nuclear weapons. Defining *use* as launches picks up

Hiroshima and Nagasaki but ignores decades of tensions during the Cold War between the United States and the former-Soviet Union. Likewise, it would also gloss over recent worries regarding a nuclear North Korea under Kim Jong-Il, the prospect of a nuclear Iraq under Saddam Hussein, and Iran's nuclear ambitions under the watch of Mahmoud Ahmadinejad. It would likewise overlook controversies surrounding the arsenals (and potential arsenals) of China, Pakistan, Israel, India, and Cuba.

With these explanations in mind, I now provide ten examples of regulatory nukes to put the regulatory tool into context.

3.1.2 Examples of Regulatory Nukes

We are accustomed to think about congressional delegations in a way that would lead us to systematically overlook many uses of regulatory nukes. When we ask, "Did the agency use the regulatory tool?" too often we expect a yes-no answer that focuses on launches that leaves out the importance of degrees of use: coercion, threats, and bluffs. Regulatory nukes play significant roles in various agencies' arsenals. Below I provide ten examples of regulatory nukes that come from a wide array of regulatory schemes and policy areas.

3.1.2.1 Discrimination Law and Federal Funding

When a nonprofit organization, state government, corporation or other entity takes federal funding (such as a grant), in addition to money, it often takes on obligations that it would not have otherwise. One such requirement that goes along with an organization receiving federal funding is found in Title VI of the 1964 Civil Rights Act, which provides: "No person in the United States shall, on the ground of race,

color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."[1] Title IX provides similar protections for sex-based discrimination within the educational context.[2]

In passing this civil rights legislation, Congress gave agencies disseminating federal dollars the ability to revoke federal funds in the event that racial or sex-based discrimination occurs.[3] Since most universities accept federal funds, both of these provisions apply to most universities. However, while discrimination certainly exists within universities (as it does in all industries), no agency has pulled federal funds from a university for violation of discrimination laws. Unlike the military threatening to revoke Yale University's federal funds for Yale Law School's failure to give military recruiters the same recruiting opportunities provided to other employers, agencies rarely even raise the specter of pulling federal funds due to discrimination. Still, a

---

[1] 42 U.S.C. 2000d.

[2] 20 U.S.C. 1681.

[3] See 20 U.S.C. 1682 ("Each Federal department and agency which is empowered to extend Federal financial assistance to any education program or activity, by way of grant, loan, or contract other than a contract of insurance or guaranty, is authorized and directed to effectuate the provisions of section 1681 of this title with respect to such program or activity by issuing rules, regulations, or orders of general applicability which shall be consistent with achievement of the objectives of the statute authorizing the financial assistance in connection with which the action is taken."); 42 U.S.C. 2000d-1 (Each Federal department and agency which is empowered to extend Federal financial assistance to any program or activity, by way of grant, loan, or contract other than a contract of insurance or guaranty, is authorized and directed to effectuate the provisions of section 601 [2000d] with respect to such program or activity by issuing rules, regulations, or orders of general applicability which shall be consistent with assistance in connection with which the action is taken.).

number of agencies have passed rules describing how federal funds may be revoked.[4] It is clear that in addressing issues of discrimination, those receiving funds may weigh the risk that the federal government will exercise this option or at least include this threat on a longer list of reasons to require non-discrimination. Furthermore, agencies regularly require grantees to agree to policies that protect against discrimination as a condition of receiving a grant.

In this context, even though, pulling federal funds is a tool with serious regulatory punch that agencies hold in reserve, the regulatory nuke has left an important mark on the policies of many organizations.

3.1.2.2 Nonprofit Tax-Exemption Revocation

Similarly, we can see elements of regulatory nukes other aspects of the IRS' handling of its power to revoke charitable organizations' tax-exempt status. These are lines the IRS is pretty casual in policing. This is not so surprising given that tax-exempt organizations are among our society's most revered and important institutions: churches, universities, hospitals, advocacy groups, foundations, museums, organizations built to serve the needs of the poor, advance the arts, and educate society.

We could tell a similar story regarding provisions of the tax code that allow the Internal Revenue Service to revoke benefits provided to charitable organizations in the event that organizations discriminates illegally on the basis of race. While this provision

---

[4] Guardians Ass'n v. Civil Serv. Comm'n, 463 U.S. 582, 619 n.7 (1983) (Marshall, J., dissenting) (listing examples of such regulations); see also, e.g., 7 C.F.R. §§ 15.1-15.12; 15 C.F.R. §§ 8.1-8.15; 32 C.F.R. §§ 195.1-195.14; 34 C.F.R. §§ 100.1-100.13; 28 C.F.R. §§ 42.101-42.112; 40 C.F.R. §§ 7.10-7.135.

has been used in the memorable example of the IRS revoking Bob Jones University's tax-exempt status, this provision's power has been used mainly for its threat value rather than its launch value.

Very rarely does the IRS pull the plug on a charitable organization. However, when it does or even threatens to do so, it is often a matter of significant interest and controversy.

3.1.2.3 Laws Governing National Emergencies

The Insurrection Act allows the President to call in the National Guard in the event of political insurrection, domestic violence, or an attempt to overthrow the government.[5] The Act has only been used rarely. Most famously, the Act by the federal government in its efforts to desegregate public schools in the South.[6] More recently, the State of California asked the first President Bush to employ the Act to help put an end to the Los Angeles race riots, which he did; he also called in the Guard to put an end to the looting that followed in the wake of Hurricane Hugo hitting of the Virgin Islands.[7] The second President Bush considered (but ultimately declined) using the Act to help keep looting and violence in check after Hurricane Katrina.

---

[5] In 2006, Congress expanded the Act to include natural disasters, epidemics, other serious public health emergencies, terrorist attacks, or other conditions that make the government incapable of maintaining public order. In 2008, Congress restored the Act to its previous form.

[6] See Exec. Order No. 11,053; Exec. Order No. 11,111; Exec. Order 11,118; Alabama v. United States, 373 U.S. 545 (1963) (indicating that President Kennedy had authority to send troops to the South under section 333 of the Insurrection Act).

[7] See Exec. Order No. 12,804 (May 1, 1992), reprinted at 57 Fed. Reg. 19,359; Exec. Order No. 12,690 (Sept. 20, 1989), *reprinted at* 54 Fed. Reg. 39,153. (May 1, 1992), reprinted at 57 Fed. Reg. 19381.

This Act provides the government an extraordinary tool to address extraordinary challenges. While the tool is rarely employed, it is a regulatory sleeping giant. Moreover, as the vivid pictures of the National Guard facing down angry white mobs opposed to school integration suggest, when it is launched (particularly in politically controversial ways), this tool represents a regulatory nuke.

3.1.2.4 Federal Communication Commission And License Revocation

The Federal Communication Commission (FCC) has a number of regulatory tools it can use to control the public airwaves. Up to this point, the FCC has never revoked a license of a commercial broadcaster. However, the FCC often uses its power to revoke licenses as a threat to try to get a broadcaster in line. For example, Pacifica Radio has earned the rare distinction of receiving two such threats. The more interesting of the two occurred in the 1950s. During the Red Scare, the House Committee on Un-American Activities took an interest in Pacifica Radio because the radio network often provided a forum for communists. In the aftermath of the congressional hearings, the FCC applied pressure on the station and threatened to revoke its license. Ultimately, it penned an agreement with Pacifica Radio that provided that the radio network would not provide a platform for communists and, in return, the FCC would not revoke Pacifica's broadcast license. Several decades later, Pacifica Radio received another threat of license revocation when the network broadcast George Carlin's "Seven Dirty Words" routine. The FCC did not revoke the license here either but rather fined Pacifica Radio for airing the show.

Pacifica Radio is not alone in the distinction of having received a threat of license revocation, but the crowd is a small one. Given the growth of commercial media outlets since the 1930s, it is not surprising that it is such a powerful threat. To think that the agency has the power to pull the plug on NBC, NCC, or Fox is pretty amazing.

3.1.2.5 REAL ID

In 2005, Congress passed the REAL ID Act. The Act imposes standards on state driver's licenses to the extent that states want their licenses to be accepted by the federal government for "official purposes," which include passing by security check points in airports and gaining entry into federal buildings. At the time of passage, no state met the federal standard contained in the Act.

The initial Act included a three-year lag time for states to meet the Act's driver's license requirements. As the first deadline loomed on the horizon, no state had fully complied with the Act. This forced the federal government to reassess the Act and to change the date by which the states had to comply. The federal government has continued to push the deadline back. Still, no state has actually met the Act's requirements. In the event that the Department of Transportation pulled the trigger, only those with other forms of identification (like passports) would be spared the inconvenience of the Act, which might mean state citizens without passports being barred from airports and federal buildings all together. This Act is meant to cajole the states into action and impressive regulatory nukes stand in the wings for citizens living in stat that fail to comply with the Act.

3.1.2.6 Laws Linked To Federal Highway Funds

Every so often Congress conditions federal highway funds on states taking certain actions. When Congress does this, it is more than a prod: federal highway funding is often the largest source of funding the federal government provides to states and can make up large portions of state budgets.

Here are some examples of how Congress has used this tool to force action by state policy makers. In the 1960s and the 1970s, Congress made federal highway dollars contingent on states passing laws requiring motorcyclists to wear safety helmets.[8] The Clean Air Act allows the EPA to pull federal highway funds if a state fails to comply with the Act's national ambient air quality standards.[9] Additionally, Congress made highway funds contingent on states setting the drinking age to twenty-one. Further, states were required to enact zero-tolerance underage drinking and driving laws. It seems quite clear that the purpose of these enactments is to push states to take actions rather than finding ways to economize on highway funds. Congress has enacted a threat that it hopes it does not have to act upon.

3.1.2.7 Institutional Backstops

Sometimes a decision to delegate government power is more complicated than others. This is particularly the case when Congress wants to delegate a regulatory program to more than one agency or when it wants to delegate powers to both federal and state entities. When delegation relies on organizations cooperating with each other,

---

[8] Highway Safety Act of 1966, Pub. L. No. 89-564, 80 Stat. 731 (1966); 23 C.F.R. § 204.4 (1969).
[9] 23 U.S.C. 158.

it makes sense that Congress often empowers one entity to take the helm and leaves the other in reserve in the event problems occur.[10] For example, statutes based on cooperative federalism often entrust states with particular goals but in the event that a state fails to deliver, the federal government is instructed to step in.

Similarly, a number of environmental laws are charged to more than one entity. The Clean Air Act gives states power to determine how they will meet ambient air quality standards. Specifically, states are asked to present a plan that shows how they conform to federal law (called a state implementation plan). State implementation plans provide details about how a state is going to comply and has significant economic and political importance as a state determines winners and losers among polluters. If a state does not prepare an adequate state implementation plan, the EPA is instructed to prepare its own plan, called a federal implementation plan. A similar approach is taken by the Clean Water Act. When a water body is over polluted, states are asked to create a plan to control water pollution. In the event that the state fails to prepare an adequate plan, the EPA is authorized to put in place more stringent pollution abatement regulations to compensate for a state's inability to create an adequate plan. We could also draw on other examples from the Resource Conservation and Recovery Act and the Magnuson–Stevens Fishery Conservation and Management Act.

Sometimes, it is not cooperation between the federal government and local government but rather cooperation between agencies that give rise to such backstop

---

[10] Note that this is not always the case. Apparently, the federal government has delegated the responsibility to oversee the nation's antitrust laws to both the Department of Justice and the Federal Trade Commission and has done so without explicitly making one agency the lead agency.

provisions. Taking another example from environmental law, the Clean Water Act entrusts the Army Corps of Engineers primarily to oversee regulation of dredging and filling of water bodies. For instance, if someone wants to fill a wetlands that falls within the jurisdiction of the Clean Water Act, the Army Corps of Engineers is the entity that would need to issue the permit before this would be allowed for under the Act. Congress, however, also provided a role for the EPA. EPA's main directive is to work collaboratively with the Corps in providing standards for dredging and filling. However, the EPA is also given power to veto permits provided by the Corps in the event that the EPA finds that a Corps permit fails to not meet the statutory standards.

Whenever an enactment creates a backstop, it is likely the provision will become a regulatory nuke. The reason for this is simple. If it is used regularly, the institutional structure provided for by Congress would be set on its head.

3.1.2.8 Sanctions Provided For Under The No-Child-Left-Behind Act

When Congressed passed the No-Child-Left-Behind Act (NCLBA), some in Congress complained that a "culture of nonenforcement" pervaded the Department of Education. With the NCLBA, Congress gave regulatory tools to both the Department of Education and local school administrators to deliver the promises of NCLBA. Under the Act, schools that do not make "adequate yearly progress" may face penalties. The federal government may opt to withhold some federal education funding. Local administrators may choose to use additional accountability provisions known as

corrective actions.[11] The most extreme corrective actions would force a school or a district to undergo "major restructuring of the school's governance arrangement that makes fundamental reforms."[12] As part of these reforms, districts may shut down local schools and states may opt to abolish school districts.[13]

This tool is potentially a powerful one in the hands of educational administrators. While many have complained about the possible use of this regulatory nuke, it is rarely launched. The prospect of punishments, however, may be part of the reason that educators who complain about NCLBA also attempt to comply with it.

3.1.2.9 Criminal Prosecution of Arthur Andersen LLP

Up to this point, I have provided examples of federal civil law, but regulatory nukes may also have a criminal component to them. Up until several years ago, Arthur Andersen was one of the world's largest accounting firms. During its century-long existence, Arthur Andersen LLP spent a great deal of time building a brand that signified accuracy and integrity. In the 1990s and the early 2000s, that reputation came crashing down as it was tangled up in a number of public fiascos, including a controversial audit of Enron that gave a false sense of the stability to those considering investing in that company.

As the firm increasingly became embroiled in the collapse of Enron, two Andersen employees (one in the legal department and one who served as the lead

---

[11] 20 U.S.C. §6316
[12] 20 U.S.C. §6316 (a)(8)(B)(v).
[13] 20 U.S.C. §6316(c)(10)(C)(vi).

partner for the Enron account) ordered others at Andersen to shred various Enron-related documents. The Department of Justice not only went after the responsible Andersen employees but also brought an obstruction of justice claim against Arthur Andersen LLP. The corporate sanctions against Andersen were particularly painful not only because the company had made its business in leveraging a reputation for accuracy and integrity but also because the Securities and Exchange Commission (SEC) does not permit felons to audit public companies. Once convicted, in fact, Arthur Andersen LLP surrendered its CPA licenses and its right to appear before the SEC. Despite the fact that the convictions were subsequently overturned,[14] this chain of events and this regulatory nuke put an end to Arthur Andersen LLP's accounting business at the cost of the jobs of more than 28,000 employees United States alone (Ainslie, 2006, 107). While the story of the demise of Arthur Andersen is one of the history books as a rare prosecution, the strategy of threatening the indictment of a corporation is a much more common place way for prosecutors to secure cooperation (Meeks, 2006, 99; Davies and Scannell, 2006).

3.1.2.10 NCAA Sanctions Against Southern Methodist University Football

To be sure, regulatory nukes are not just a tool available to the federal government. One example well outside the federal bureaucracy is a power held by the the National Collegiate Athletic Association (NCAA) in its oversight of athletic programs within higher education institutions.

---

[14] Arthur Andersen LLP v. United States, 125 S. Ct. 2129, 2137 (2005).

The NCAA is charged with promulgating and enforcing rules governing college athletics. In the event that NCAA staff finds that a school has shown a "lack of institutional control," among other things, the NCAA may employ a number or regulatory sanctions. The most powerful arrow in its quiver is to ban a school from participating in a particular sport for up to two years. This penalty is known as the "Death Penalty."

In 1987, Southern Methodist University (SMU) had its season cancelled to egregious violations of the rules. Further, SMU had to cancel its 1988 season, and it has never really fully recovered. Since the SMU case, NCAA has not employed the tool again against any Division I program. This regulatory nuke, however, still remains in its arsenal and certainly casts a shadow over any school contemplating or dealing with a rules violation.

3.2 Building Regulatory Nukes

"Now I am become Death, the destroyer of worlds."

Robert J. Oppenheimer, quoting the Bhagavad Gita.

Regulatory nukes are found in many regulatory settings. This Part discusses how regulatory nukes come to be, and particularly explains why Congress would ever build regulatory nukes in the first place. While the issue of delegation is in no way a new one, none of this literature addresses regulatory nukes specifically. Before looking at delegation of regulatory nukes, I briefly discuss theories used to explain congressional delegation more generally.

Looking at delegation of regulatory nukes provides an opportunity to examine delegation from a new vantage point. While much has been written about delegation of vague statutes, for example, little has been said about delegation of enormous administrative powers generally, like the power of regulatory nukes. Looking at delegation in this light provides a new way to explain delegation. At times, this discussion mainly applies to regulatory nukes but in some instances, it provides new insights into delegation more generally.

3.2.1 Conventional Rationales for Why Congress Delegates Power

There are a number of traditional rationales for why Congress might delegate power. Legal scholarship provides a number of rationales for why Congress delegates power to agencies. The most familiar rationale found in the legal literature for delegation is often attributed to the holding of the seminal case of *Chevron v. NRDC*: delegation makes sense because agencies have developed areas of expertise.[15] Apart from expertise, Congress might believe that an agency has institutional advantages in dealing with the problem at hand (Baker and Krawiec, 2004). Where quick decision making is required, it might not be surprising that Congress judges that an agency can act much better on the fly than Congress can (Aranson, et. al, 1982, 22). Additionally,

---

[15] 467 US 837, 865 ("Perhaps that body consciously desired the Administrator to strike the balance at this level, thinking that those with great expertise and charged with responsibility for administering the provision would be in a better position to do so."); While many cases have cited *Chevron* for the proposition that it is right to trust agencies due to their expertise, *Chevron* is not the only Supreme Court decision that has provided this rationale. Zuni Pub. Sch. Dist. v. Dep't of Educ., 127 S. Ct. 1534, 1541 (2007) ("The matter at issue — i.e., the calculation method for determining whether a state aid program 'equalizes expenditures'— is the kind of highly technical, specialized interstitial matter that Congress often does not decide itself, but delegates to specialized agencies to decide").

Congress might value the stability that a bureaucracy provides (Aranson, et. al, 1982, 24). Others have argued that Congress is forced to delegate because it does not have adequate time to deal with all the problems under its charge (Aranson, et. al, 1982, 21). Yet another rationale for delegation is that it might want to insulate a particular program from the pressures of Capitol Hill (Aranson, et. al, 1982, 25). This is particularly the case when Congress delegates power to an agency with substantial independence either due to its institutional structure or due to the make up and culture of the agency. Finally, with regards to the legal literature, some might argue that Congress may leave a policy area open for an agency because Congress could not come to an agreement.[16]

Outside the legal literature, there are a number of explanations that paints delegation in a dimmer light. Some argue, for example, that Congress delegates to evade responsibilities and to punt away difficult questions (Davis, 1969; Lowi, 1979; Schoenbrod, 1993; Fiorina, 1982). Others have extended this argument and argued that even though Congress is prone to delegate politically difficult decisions, it often leaves ways for it to intervene when politically convenient (Weingast and Moran, 1983; Weingast, 1984; McCubbins and Schwartz, 1984). This literature suggests that when facing a decision that is likely to alienate important interests no matter how it turns out, Congress would be likely to delegate that power and let the agency take the heat (Baker and Krawiec, 2004). Lastly, many have argued that we should expect dysfunctional politics when the costs of a decision are dispersed and the benefits concentrated because

---

[16] *Chevron*, 467 US at 865 (stating "perhaps Congress was unable to forge a coalition on either side of the question, and those on each side decided to take their chances with the scheme devised by the agency").

it is politically inexpensive to leverage this situation to try to win over a particular constituency (Epstein and O'Halloran, 1999; Wilson, 1980).

While this discussion of delegation leaves out a lot of the nuances in the literature, it does provide an inductory overview of the literature. I now turn to the issue of delegation of regulatory nukes specifically.

3.2.2 Explanations for Congressional Proliferation of Regulatory Nukes

Does thinking about delegation of regulatory nukes add anything to the conventional wisdom surrounding delegation? And, when are we likely to see Congressional proliferation of regulatory nukes? To answer these questions I draw heavily on the game theoretical literature on nuclear weapons—particularly Schellings work—into the field of delegation of regulatory nukes.

Below, I discuss four explanations for the proliferation of regulatory nukes. The first of these is novel to the delegation literature: Congress delegates to bind itself going forward. In other words, delegation is seen as a way for Congress to increase the credibility of its threats. Related to this is the second explanation: Congress delegates to signal that it means business. In other words, Congress leverages delegation to communicate commitment to regulatory targets or perhaps other interests that Congress wants to appease. Third, Congress delegates regulatory nukes as a backstop. Backstops are likely to prove regulatory nukes because reverting to them lightly would turn Congress's intent on its head. Congress might create backstops for emergency contingencies, such as the financial system melting down. Congress may also create

backstops in the event that Congress' preferred method of tackling a problem proves inadequate, such as the federal government steping into a role assigned to a state in an enactment based in cooperative federalism. Lastly, sometimes time and circumstances can create regulatory nukes even where Congress did not intend to create them. The actions of an agency and those regulated may turn an ordinary punishment into an extraordinary one. Additionally, circumstances might change or it may turn out that an enactment applies to situations that Congress did not foresee when drafting the legislation.

I now discuss each of these explanations in turn.

3.2.2.1 Congress Delegates to Bind Itself

While Congress can accomplish a great deal through making threats (Halfeck, 2008), sometimes Congress may find it difficult to get others believe its threats are not just bluffs. Particularly, when Congress is pressing an extreme punishment or a politically difficult course of action, Congress may find its credibility in short supply. In fact, this is one of the themes of the literature that focuses on threats of using nuclear arms, and of Schelling's work in particular: as the magnitude of the threatened harm grows, so does the difficulty of making threats credibly. There is a reason that launching nuclear arms is sometimes called the unthinkable.

Consider a recent incident where Congress had some difficulty in making its threats believable. At the end of 2008 and beginning of 2009, much debate in Congress surrounded the then-proposed bailout of the American auto industry. Remember that in November, 2008, executives from Ford, GM, and Chrysler came to Congress to ask for

assistance. Members of Congress grilled the executives, humiliated them for traveling to the meetings on corporate jets, and raised serious questions about whether Congress should provide an emergency bailout for automakers. Congress sent the executives away empty handed but not without hope. Congress asked them to come back a month later and in the meantime to submit plans to Congress that explained how each of the companies would retain its long-term viability. When the leaders came before Congress again, the executives were told, that Congress would have sufficient information to consider assisting the auto industry.

In the intervening month, pundits raised doubt as to whether Congress could hold the automakers' feet to the fire. Congress was seen as too tied to various interests implicated in the auto crisis. Some members had a regional interest to protect, some were tied to labor, and some had a stake in protecting these large American businesses, among others. As the deadline neared, it seemed unthinkable that Congress would take actions that were perceived at the time sufficient to sink the U.S. auto industry. The conventional wisdom that the automakers were "too big to fail" seemed to rule the day. And, in fact, when the automakers returned in December after a series of tough questions, Congress got out the checkbook and gave the auto industry what it termed a short-term loan.

Sometimes, such as the case with the auto bailout, it is hard for Congress to make threats that are taken very seriously. Whether it is due to the fact that a decision would prove unpopular, upset powerful interests, or otherwise, sometimes it is clear that Congress's best interest runs contrary to threats that it makes. According to Schelling,

this is the nature of making threats: "Some threats are inherently persuasive, some have to be made persuasive, and some are bound to look like bluffs" (Schelling, 2008/1966, 36). Anyone that follows Congress knows that there is often reason to be skeptical of Congress taking action, particularly if what is required is passing legislation (as opposed to, for example, conducting hearings or constituent services taken on by staff). There is an obvious reason that congressional leaders hold sessions over holiday weekends and are sometimes willing to hold a vote at two in the morning—when it looks like the leadership has assembled a majority, putting things off means more time for would-be political losers to rearrange the chess pieces. Of course, passing legislation does not resolve an issue for all time, but passing legislation increases the probability that a threat is credible because it is often hard (even though it is not impossible) to go back. When a bill becomes law, it certainly starts to seem a lot more substantial than cheap talk.

To see how Congress might use delegation to make threats, consider another example that deals with automakers. In 1970, Congress passed the Clean Air Act. One of the most controversial aspects of that Act was that Congress required the EPA to fine automakers $10,000 per car if by 1975[17] if the automakers failed reduce their carbon monoxide and hydrocarbons (two major pollutants) by ninety percent.[18] Given that the average car at the time cost less than $5,000, this fine had the potential to cripple the auto

---

[17] Clean Air Act Amendments of 1970, Pub. L. No. 91-604, §6(a); James A. Henderson & Richard N. Pearson, *Implementing Federal Environmental Policies: The Limits of Aspirational Commands*, 78 COLUM. L. REV. 1429, 1445 (1978).

[18] 42 U.S.C. § 1857f-1(b)(A)(1) 1970 (stating "engines manufactured during or after model year 1975 shall contain standards which require a reduction of at least 90 per centum from emissions of carbon monoxide and hydrocarbons allowable under the standards ... applicable to light duty vehicles and engines manufactured in model year 1970").

industry. At the time of passage, some in Congress suspected that automobile manufacturers had the ability to address vehicle emissions through a technical fix—creating something like the catalytic converter. However, at the time the Act was passed, it was not certain how such technology could be developed on Congress's timeline. Even if it could, there were many who questioned whether the technology would ever prove affordable enough to be made commercially available.[19] Furthermore, through the Clean Air Act, Congress instructed the EPA to ignore costs and technical feasibility (Elliott, et. at, 1985, 333). In fact, Congress largely stripped EPA of its political discretion. The only wiggle room Congress allowed EPA was the possibility of EPA granting a one-year extension for automakers to meet Congress's deadline. Congress left very little room for the EPA to diffuse the bomb. Other than the potential of the one-year extension, the Act required compliance or the EPA would have no choice but to launch the regulatory nuke.[20]

There were reasons, however, to believe that to the extent it could, Congress would back off. In fact, these very set of reasons were the reasons that made Congress' more recent dealing with the auto bailout difficult to believe. Consider the conclusion of a team of MIT researchers who were thinking about the issue at the time:

> [T]he administrative and legislative changing of the standards in response to the unavailability of the technology provides a certain

---

[19] International Harvester v. Ruckelshaus, 478 F. 2d 615, 623 (D.C. Cir. 1973); Environmental Law Institute, Law of Environmental Protection 11-163(1987) ("The controls or design changes needed to meet these standards were not then in use anywhere in the industry, and there was testimony that they might not be achievable at all.").

[20] Clean Air Act Amendments of 1970, Pub. L. No. 91-604, §6(a).

> amount of security to the manufacturers in case the [internal combustion engine] cannot meet the goals and these alternatives are not yet available. These changes point up to a difficulty in the Clean Air Act, i.e. that the threat of shutting the industry's production lines if the standards are not met is simply not credible. We need not provide here any details of the impact such a move would have on the national economy; it is a politically unacceptable enforcement mechanism. While it is clear that any overt stifling of pollution control technology by the manufacturers could bring a strong political reaction, it is also clear that the standards and deadlines will always have to be responsive to the technology that is available in sufficient quantity to meet demand. Therefore the Act has not succeeded in internalizing the costs of pollution to the extent intended, and the overall incentives to the manufacturer for development of low-pollution power plants are actually much less than one might infer from the fixed schedule of standards in the Act (Heywood, et. al, 1974).

While one may quibble with the extent that Congress' threats are credible in this instance, one thing that seems clear is that Congress' threat is much more credible as part of the Clean Air Act than it would have been had Congress made the threat without passing legislation. Congress increased the risk that its threats would prove more than cheap talk because it is much more difficult to revisit legislation than to get in the way of Congress coming back to an issue at some point in the future.

What Congress seems to be doing here is precisely what Schelling advises us to do when trying to make a threat that seems patently incredible:

> But it is hard to make it believed…. What we have to do is to get ourselves into a position where we cannot fail to react as we said we would—where we just cannot help it—or where we would be obliged by some overwhelming cost of not reacting in a manner we had declared…. Often we must maneuver into a position where we no longer have much choice left. This is the old business of burning bridges. If you are faced with an enemy who thinks you would turn and run if he kept advancing, and if the bridge is there to run across, he may keep advancing…. But if you burn the bridge so that you cannot retreat, and in sheer desperation there is nothing you can do but defend yourself, he has a new calculation to make (Schelling, 2008/1966, 43).

Careful institutional design can bind the government in two ways. First, it can make it costly (or even illegal) for an agency to escape a congressional command. Second, by providing an agency a nuclear option, one Congress may make it politically difficult for a future Congress to revisit its decision. Inertia and the difficulty of changing the status quo is part of Congress binding its hands. Additionally, if an enactment proves politically popular, it might be very difficult for a future Congress to change the enactment and to water it down. Depending on how difficult it is for a future Congress to back off, it may come close for a Congress to possess a power that is constitutionally is off limits: "one Congress, or one legislature, cannot bind a future Congress or legislature."[21] While no Congress can bind another Congress with a Gordian knot, one Congress can still make it difficult for another Congress to get free.

Binding ones hands is a reference to how Circe the Enchantress told Odysseus deal with the lure of the singing Sirens:

> "To the Sirens first you shall come," said she, "to the Sirens, who sit in their field of flowers and bewitch all men who come near them…. All round where the Sirens sit are great heaps of the bones of men. But I will tell thee, Odysseus, how thou mayst pass them."
>
> "When thou comest near put wax over the ears of thy company lest any of them hear the Sirens' song. But if thou thyself art minded to hear, let thy company bind thee hand and foot to the mast. And if thou shalt beseech them to loose thee, then must they bind thee with tighter bonds. When thy companions have driven the ship past where the Sirens sing then thou canst be unbound."

---

[21] Village of Rosemont v. Jaffee, 482 F.3d 926, 934 (7th Cir. 2006) quoting Reichelderfer v. Quinn, 287 U.S. 315, 318, 53 S. Ct. 177, 77 L. Ed. 331 (1932) ("[T]he will of a particular Congress. . . does not impose itself upon those to follow in succeeding years.").

Congress may seek to delegate regulatory nukes as a way to bind its hands to the mast. When Congress seeks to coerce action through threats that seem against its interest or when otherwise it is on shaky political grounds, Congress may bolster those threats and raise the ante by passing legislation and then wait to see what happens. The more that it takes the decision out of the discretion of the agency, the bolder those threats are. This might be done, as it is in many environmental laws, by providing third parties the right to litigate and enforce the statues Congress passes. It may be done by providing clear language that does not give agencies wiggle room. It may be done by selecting agencies that are perceived tough or beholden to an interest that favors enforcement of the law. It may also be done by exploiting the symbolic power of taking a particular course of action, which leads us to a second but related reason Congress delegates power.

3.2.2.2 Congress Delegates to Signal It Means Business

Regulatory nukes may also grow out Congress' desire to send the message that it is taking a problem particularly seriously. In this light, regulatory nukes are important trappings of symbolic politics: delivering strong regulatory medicine allows Congress to communicate the sincerity of its convictions.

So, it is no accident that many of the regulatory nukes we see end up associated with acts with names like, the *Clean Air Act*, the *No-Child-Left-Behind Act*, or the *Civil Rights Act*. The legislative and contemporary histories of many of these enactments would suggest that Congress saw these as important political landmarks and wanted

their constituents and important interests groups to credit Congress with being aggressive with important issues of the day.

While we could discuss a number of enactments, let's revisit the Clean Air Act's mandate for the auto industry to develop something like the catalytic converter. The history of the Clean Air Act shows that symbolic politics was in play when Congress passed it. At the time the Clean Air Act was passed, Edmund Muskie took on a leadership role in shepherding the Act through the Senate: he was a powerful Senator and situated in the right committees to do this. Muskie had also invested much of political capital in developing a reputation as an environmentalist by writing and passing pollution control statutes during the 1960s and early 1970s (Dwyer, 1990, 242; Elliott, et. al, 1985, 335) and was at the time considered a strong candidate for the Democratic Party's nominee for president in 1972. In the early versions of the Clean Air Act, Muskie had put forward a provision that limited auto emissions but limited the Act's reach to "the bounds of technical knowledge and economic feasibility."[22]

A very short time thereafter President Nixon highlighted the need for environmental legislation in his State of the Union Address (Dwyer, 1990, 242). Nixon followed up on this by putting forward a more aggressive bill proposal for Congress to consider than the one Muskie had written (Nixon, 1970, 160; Elliott, et. al, 1985, 336). Many credit Nixon's interest in environmental legislation to Nixon's desire to shore up vulnerabilities he might face if facing Muskie in the upcoming 1972 presidential elections (Dwyer, 1990, 242).

---

[22] Air Quality Improvement Act, S.3229, 91st Cong., 2d Sess. (1968).

Nixon was not the only one pushing Muskie on. In April 1970, the United States saw the celebration of the first Earth Day (Dwyer, 1990, 242). Public watchdog Ralph Nader in the meantime had convened a task force to examine air pollution. Nader's task force jumped into the fray a few months later by harshly criticizing Muskie. The task force went so far to call on him to step down as chair of the air and water pollution control committee (Esposito, 1970, 290-292; Dwyer, 1990, 243; Elliott, et. al, 1985, 336).

In August 1970, Muskie responded to Nixon and his critics with what he labeled "drastic medicine."[23] He put forward a bill that adopted Nixon's proposed changes but also went on to strengthen the bill substantially (Dwyer, 1990, 244; Elliott, et. al, 1985, 336; Bonine, 1975). Nixon had proposed that automakers reduce emissions of their fleets by 90%; Muskie embraced this suggestion. However, to raise the ante, Muskie removed a requirement in Nixon's proposal that limited the regulatory burden placed on auto makers to the bounds of "existing technology" and moved up the timeline for achieving this goal from 1980 to 1975 (Elliott, et. al, 1985, 337). Given the political backdrop of the day, it seems quite easy to argue that it was Muskie's interests in symbolic politics and how it reflected on him that provided a powerful incubator for this regulatory nuke.

Regulatory nukes can provide politicians a useful way to signal to a constituency because regulatory nukes are seen as symbolically different from typical regulation. It is not just more of the same; it is bringing regulation up to the next level. Just as the difference between actual nuclear bombs and other bombs, they provide a symbolic gap

---

[23] 116 Cong. Rec. 32904 (1970).

(Schelling, 2008/1966, 134-13543) and cross a regulatory taboo.[24] Of course, the more that Congress binds its hands and the further Congress is willing to cross the line, the more the symbolism has meaning.

3.2.2.3 Congress Delegates Nukes As The Result Of Compromise

Perhaps surprisingly at first glance, some of the strongest regulatory tools given to agencies come out of delicate compromises in Congress. The fact that compromise rather than tough talk and outrage ends up creating regulatory nukes should not come as a surprise.

Remember that much of getting things done in the world requires holding some undesirable consequence in reserve. As Schelling put it,

> Among the legal privileges of corporations … are the right to sue and the "right" to be sued. Who wants to be sued! But the right to be sued is the power to make a promise: to borrow money, to enter a contract, to do business with someone who might be damaged. If suit does arise, the "right" seems a liability in retrospect; beforehand it was a prerequisite to doing business (Schelling, 1980/1960, 43).

The same is true in law making. The bad regulatory consequence is often designed to be used in the event that the *bad thing* happens.

For example, in the fall of 2009, there was a period when Congress was actively debating including what was known as "a trigger mechanism" in Congress' overhaul of healthcare. While ultimately the trigger mechanism was scraped, it is a good case study of how compromise can meld into a regulatory nuke.

---

[24] More than fifty years after Schelling made this observation, he continues to tout that same point (Schelling, 2007).

During the summer and fall of 2009, Democrats in Congress pushed for a publicly owned healthcare option to the private healthcare system. This government controlled program was referred to as the "public option." As it became increasingly unlikely that the public option would materialize in legislation, a number of compromises were considered. The proposed compromise to receive the most attention at the time was the suggestion of a "trigger mechanism." The way the trigger would work is that in the event that the private health care system failed to achieve the desired reform, the Secretary of the Health and Human Services would have the option of pulling the trigger that would unleash public health care. While the concept of the public option trigger got much attention, ultimately it did not get enough traction and was left by the wayside.

Imagine though that the public option trigger had become law. What if at the time of passage President Obama had a Rose Garden signing ceremony and then invited the Secretary of Health of Human Services, Kathleen Sebelius, to say a few words? And, what if she took that opportunity to announce the Department of Health and Human Service was ready to exercise the trigger mechanism? It does not take much of an imagination or understanding of politics to see that this would cause outrage. But, why would it? The reason is because by pulling the trigger without giving the plan passed by Congress a chance to succeed would turn Congress' intent on its head. The notion is that legislative backstops should be that, backstops. When an agency is given a program to administer that includes a backstop, we expect agencies to show Congress some deference.

Often, we find regulatory nukes when a great deal of compromise is needed to come up with the institutional arrangements in an enactment. Just like the contract provision that allows parties to sue each other for breach, the regulatory nuke is often put in legislation in the event that things fall apart. For example, regulatory schemes that give certain powers to states and put federal agencies in more of support role often include a regulatory nuke rooted in the contingency that a state fails to deliver. If the state does not live up to its prescribed role, the federal government is often invited to step in. The hope, however, is that this never need occur. The same is true of backstops given to agencies that play a support role to another agency that administers an enactment. An example of this is the EPA's role in helping the Army Corps of Engineers oversee the Clean Water Acts dredge and fill program. While the EPA is given the power to veto permit decisions made by the Corps, if the EPA exercised it often, it would usurp the Corps' role as the lead agency overseeing that part of the Act.

3.2.2.4 Congress Inadvertently Delegates Time Bombs

As strange as it seems today, when Schelling was writing in the 1950s and 1960s, the symbolic difference between nuclear arms and other sorts of missiles was not recognized by many, particularly military experts. Over time, however, use of nuclear weapons has become an international taboo. "Some of our strongest commitments may be quite implicit, though ritual and diplomacy can enhance or erode them" (Schelling, 2008/1966, 52). Further, sometimes, these symbolic differences only become clear through experience and experimentation:

> There is a process of genuine learning with respect to *values*; each side adapts its own system of values to the other's, in forming its own. When the supply of available 'objective' criteria is incapable of yielding a complete set of rules … norms of some sort must be developed, mutually perceived, and accepted; patterns of action and response have to be legitimized. In an almost unconsciously cooperative way, adversaries must reach a mutually recognized definition of what constitutes an innovation, a challenging or assertive move, or a cooperative gesture, and they must develop some common norm regarding the kind of retaliation that fits the crime when a breach of the rules occurs (Schelling, 1980/1960, 168-169).

This conception seems to ring true with some regulatory nukes. It is time and experience of regulators and regulated entities—rather than an intention of Congress—that sometimes makes a regulatory weapon into a regulatory nuke. For example, regulatory nukes like the power of the Federal Communications Commission to revoke a broadcasting license and the power of the IRS to revoke an organization's nonprofit status have become increasing symbolically important as these organizations have refused to exercise these regulatory weapons. As with much of regulatory politics and life generally, "what's past is prologue" (Shakespeare, 1994/1623, II.i).

Time bombs can also come in the form of Congress not knowing the real power of the legislation it passes. For example, some scholars have posited that Congress really did not understand what it had passed when it passed the Endangered Species Act (Thompson, 1998, 373-374). However, after passage of the Act, a citizen brought a lawsuit that nearly stopped the development of the Telico Dam midway through construction to save what many considered an insignificant fish with even a less impressive sounding name—the snail darter. It was then that we began to understand

the beast unleashed by the Endangered Species Act. While not always in such dramatic fashion, this Act has worked to stifle development proposals time and time again.

A second example of an enactment surprising us is apparent power of the EPA to regulate greenhouse gases under the Clean Air Act. When the Clean Air Act was passed, Congress had no way of knowing that the Clean Air Act would one day be used to address carbon dioxide emissions because scientists would later conclude that the emissions were contributing to global climate change. However, because carbon dioxide is a byproduct of the combustion engine and fossil fuels, the power of the Act to regulate greenhouse gases is enormous. The EPA has already made a finding that it believes that it must regulate the carbon dioxide that comes from automobile emissions. It has already found that it must regulate carbon dioxide from larger point sources (like manufacturing and power plants). However, it seems quite likely (absent some very creative reading of the Act) that Act's structure requires or at least permits the EPA to regulate carbon dioxide emissions of everything from point sources and automobiles to gasoline powered tools, airplanes, and railroads. Certainly, this is not something that Congress could have been aware of at the time it passed the Act. One test of whether a regulatory surprise is also a regulatory nuke is when it is easy to speculate that had Congress known what it was delegating, it would have never done so. In fact, sometimes when we see court challenges against regulatory nukes, such as the challenge over whether the Clean Air Act can be used to regulate greenhouse gases, litigants sometimes make the argument that "Congress could not have meant that." This line of

reasoning is not so much a textual argument but rather that the implications of such a reading are so enormous that we should strain to read the text to say something else.

I now turn away from why Congress gives agencies regulatory nukes and turn to how agencies use them.

3.3 Mushroom Clouds, Brinkmanship, and Duds

"Speak softly and carry a big stick."

Theodore Roosevelt

Once agencies have regulatory nukes, how do they use them? There are a number of scenarios that we might anticipate. First, Congress might delegate an enormous power, but if an agency does not use it, the regulatory nuke ends "not with a bang but a whimper" (Elliot, 1936). On the other end of the spectrum, an agency might launch a regulatory nuke and leave a regulatory target in ashes with little hope of rising like the Phoenix. In between these two poles, we find most of the cases—cases driven by threats, risks, and posturing, or even the inkling that any of these are on the horizon.

There a number of ways we might think about examining situations where agencies have regulatory nukes. This Part attempts to unravel when agencies go nuclear by relying on game theory. Particularly, we rely on the non-cooperative game theory that drove Schelling's work and that has been improved and extended by many others as well.

I begin this Part by laying out a simple game that highlights the major decision points facing regulated entities given regulatory nukes and potential regulatory targets. I then discuss each of the major decision points facing the players in the game.

3.3.1 Game-theoretic Approach to Regulatory Nukes

Game theory is well suited to analyze strategic interactions. Game theory rests a number of typical assumptions. First, there are a set of players of the game, each of the players have various strategies from which to choose, and for each strategy available there is a corresponding payoff a player receives for playing it (Kreps, 1990, 10). For extensive form games, we also pay attention to the timing of when players play strategies and the information that players have at the time such strategies are played (Kreps, 1990, 13). Here, I assume that actors are rational, at least to the extent that players would choose a strategy that has higher payoffs associated with them over strategies that have lower payoffs (Schelling, 1980/1960 4).

The simplified game presented in this Part consists of two players: the regulating agency and the potential regulatory target. It introduces three decision points. First, there is a question as to whether or not the agency will threaten to use the regulatory nuke. Second, there is a question as to whether or not the regulatory target complies with the agencies threat. Third, we will look to see if the agency uses the regulatory nuke. Given these parameters, the game tree for this game is as follows in Figure 2.

Figure 2. Game Played by an Agency with a Regulatory Nuke

At each decision node, players make a move. In deciding what move to make, the players look ahead and speculate on how the game will play out, and given those speculations, reason backwards as to how it ought to play the game to maximize its own payoffs (Dixit and Nalebuff, 1991, 34). In other words, if an agency believes that an agency will comply with a threat, it is much more likely to make the threat than if the agency believes that ultimately it will be faced with the choice of either launching the regulatory nuke or backing down. Likewise, if the regulatory target believes the agency is bluffing, it is much more likely to defy the agency. The way the actors decide what to do is to look forward and reason backwards. I now unpack each of the decision nodes in an attempt to better understand the games regulatory entities and regulatory targets play when an agency has a regulatory nuke.

3.3.2 The Threat

The first decision point the game presents is whether the agency should threaten to launch its regulatory nuke. "A *threat* is a response rule that punishes others who fail to cooperate with [the person making the threat]" (Dixit and Nalebuff, 1991, 125). "Successful threats are those that do not have to be carried out" (Schelling, 2008/1966, 10). Carrying out threats imposes a higher cost to everyone involved.[25] In this way "a promise is different from a threat…. [A] promise is costly only when it succeeds, and a threat is costly when it fails" (Schelling, 1980/1960, 177). Because threats are costly to all sides involved, making threats that targets will believe may prove difficult: "the threatener has no incentive to carry it out either before the event or after" (Schelling, 1980/1960, 35-36). Part of communicating threats includes "communicat[ing] *evidence* that the commitment [to carry out the threat] exists" (Schelling, 1980/1960, 147).

To the extent an agency uses a threat to try to secure action, it is relying on what is known as a *strategic move*. A strategic move is designed to alter beliefs of how a player of a game will act so as to make it more likely that the actions of others will benefit the player making a strategic move (Dixit and Nalebuff, 1991, 120). In other words, the agency hopes that target will buckle to its threat, and to get to that result the agency has to convince the target that if target defies the agency, the agency will go nuclear.

Because regulatory nukes carry so much punch, it is not always easy for agencies to threaten to use these regulatory weapons even if the agency wants to do so. As

---

[25] Whether or not it is true when parents say, "This is going to hurt me, more than it is going to hurt you." It is easy to believe that both parties bear a cost when having to make good on a threat.

Schelling has said, "Saying so, unfortunately, does not make it true; and if it is true, saying so does not always make it believed" (Schelling, 2008/1966, 35). This is particularly the case when it comes to resorting to extreme measure like launching a regulatory nuke.

Those trying to make *big* threats, like an agency threatening use of a regulatory nuke, very often come to find that the costs of making threats grows as the size of the threat grows. In the context of an agency's arsenal, a small regulatory action may not receive much scrutiny, receive much push back, or result in much fallout. However, the regulatory nuke may become fodder for news stories, the rallying cry of industries, the basis of lawsuits, and the subject of Congressional hearings. To the extent that this is the case, "[t]he size of the threat can be a problem" because "bigger threats costs more … than small ones" (Schelling, 1980/1960, 177).

Similarly, big threats can prove difficult is because the bigger the threat, the more the threats sounds like a bluff. Because of this, agencies with regulatory nukes might find that the challenge of establishing credibility is part and parcel of making the threat. The very things that make the power of the regulatory nuke difficult to ignore may make it difficult to pull off the threat. As two prominent game theorists have noted that the threat to launch an actual nuclear weapon may prove "too big to be credible, too big to carry out, and too serious to stake a reputation over" (Dixit and Nalebuff, 1991, 137).[26]

---

[26] Note that Schelling's writing is mostly but not entirely in sync with this insight. While Schelling is known for his scholarship surrounding the art of making credible commitments, he has also stated, for example, "[A] threat that is 'too big' is likely to be superfluous rather than costly. If I threaten to blow us both to bits

If a regulatory target does not take the agency seriously and defies the threat, the agency is faced with two unpleasant options. The first is launching the regulatory nuke and all the controversy that comes along with that. The second is showing the world that it does not have the nerve to pull the trigger and having to live with the fact that it showed itself to be a patsy.

I discuss tools available to agencies to make their threats more believable in Part 3.5 below. For now, I turn to decision facing the potential regulatory target: whether to comply with the threat or defy the agency.

3.3.3 Compliance And Resistance

The answer to "why do agencies go nuclear?" in many cases might be found in the characteristics of the potential target rather than in the characteristics of the agency. In other words, in many instances, it may be it is the unusual regulatory target that presses the agency to prove its threat rather than the unusual agency that launches its regulatory nuke.

Consider for example the archetypal story of standing up to what seemed assured destruction: the story of David and Goliath. Remember that in the story for more than a month, the Philistine Goliath had challenged the Israelites to send out their best warrior to fight him. The challenge was not only a high stakes gamble for anyone willing to fight the giant but also for both sides of a battle: according to the invitation to

---

when it would have been sufficient to threaten our discomfort, you'll likely still comply; since I have neither to discomfort us nor to kill us, the error costs nothing" (Schelling, 1980/1960, 177).

battle, the results of that fight would determine the results of the battle between the Israelites and the Philistines. Given that Goliath is described as a giant, it is not hard to see why nobody was interested in taking up Goliath's challenge. Then one day, David came to the Israelite's camp to bring food for his older brothers, he heard about the challenge, and he took on Goliath. The fact that David fought the well armored giant Goliath and did so without wearing armor and only using a sling for a weapon seemingly says a lot more about David than it does Goliath.

For most receiving threats, whether the agency goes nuclear or not is most likely going to be viewed as a matter of probability. The more credible the threat, the greater amount of certainty accompanies it. In weighing the threat, a potential target will judge the risk of harm as follows:

Damage of Regulatory Nuke × Probability of the Launch of Nuke

As short hand, let's call this potential outcome "Probability Nuke." Probability Nuke, of course, will have to offset by the probability that the threat amounts to nothing more than a bluff, or in other words:

Reward of Calling Bluff × Probability of Nuke Not Launched

Again as a short hand reference, let's call that outcome "Probability Bluff." In determining whether or not to comply with a threat, we would expect a rational potential target to comply when the following is met:

Cost of Compliance < Probability Nuke – Probability Bluff[27]

---

[27] Others have used similar equations in discussing whether or not to comply with a nuclear threat (Morrow, 1994, 41).

Below I discuss the decision faced by a potential target. I focus on four aspects of the equation presented above. Specifically, I discuss the cost of compliance, the perception of risk, the costs associated with regulatory nukes, and then turn the costs associated with bluffs.

3.3.3.1 Factors Targets Consider

One factor a target might consider is the cost of complying. We might think about the costs of complying with an agency's demands in two categories: effort costs and political costs. I will discuss each of these in turn.

The amount of effort required to comply with an agency's threat can vary widely. For example, take the mandate found in the Clean Air Act for auto manufactures to create something akin to the catalytic converter. When that obligation was imposed on industry, whether or not the auto industry could create such a device in a way that would prove commercially viable was a bit of guess work. Such an invention seemed to loom in the horizon, but its success was not assured. Compare that to the cost of Yale Law School backing down and allowing military recruiters on campus. This is virtually an effortless endeavor, perhaps entailing scheduling a room or setting up a table. Compliance with other threats does not even take changing the status quo. The prohibition of nonprofit organizations not to endorse political candidates takes no effort. In fact, endorsing a candidate takes more effort than not endorsing.

The current debate over Iran's nuclear program serves as a nice illustration of a second sort of costs: the political costs of compliance. Ahmadinejad's political reputation in Iran, the Middle East, and the World in large part is staked to not backing

down against the pressure to forgo a nuclear program. Even though Iran will certainly spend more money pursuing a nuclear program than not, from Ahmadinejad's perspective the costs of not moving ahead appear high as well.

In the context of regulatory nukes, political costs often are important considerations. The reason Yale Law School had such a difficult time allowing military recruiters on campus is because it had a long-standing opposition to the military's policy of "don't ask, don't tell" and had symbolically taken a stand. Complying with the military demand forced Yale Law School to compromise its position.

We also often see political costs come into play when a regulatory nuke requires action by a state or local government. Before the federal government stepped into force desegregation of schools in the South, pressure to do so would have required southern states to back off a long history of state sanctioned institutional enforcement of racial separation. The No-Child-Left-Behind Act, similarly, encroaches on traditional state control of the educational system. We have seen tensions flare up when the federal government steps into the role traditional left to states, including decisions to try to control land use patterns under the Clean Air Act, federal control of laws relating to speed limits on highways, motorcycle helmet laws, and in federal efforts to control the drinking age and the format and make up of drivers licenses.

When a potential regulatory target is a repeat player with an agency, when faced with a regulatory threat, the target has to worry about whether its actions would set a problematic precedent and would somehow weaken the target in other strategic

interactions. I will discuss this theme in more detail when addressing rewards for calling an agency's bluff.

A second factor a target may consider is the perceived risks in play. In a potential target's analysis of whether to bend to an agency's threat, the actual risk posed by the regulatory nuke is not nearly as important as the perceived risk. Sometimes a target has a warped view of reality. In discussing a colleague's former client, his explanation for his client's willingness to press forward against an agency despite the fact that doing so would destroy his client's business was that his client was "delusional." However, it is not just the unstable that may have a hard time getting the perception of risk right.

As difficult as it is for an agency to make commitments sufficient to make its threats believable, ultimately the decision of whether a credible commitment is credible enough is a matter for the regulatory target. Making credible commitments then, is not enough, "in order to be useful, other players have to understand the commitments that have been made. Delivering the precise message to others often proves difficult to orchestrate. And, once delivered, it is often difficult to predict how others will react—whether the threat will be heeded" (Schelling, 1980/1960, 28). Particularly, when threatening to use a regulatory option that has never been launched or only launched in the most extreme circumstances, it is not surprising that making threats like this believable is difficult. This might be particularly the case for those well versed that the agency is relying on a tool it never or hardly ever uses. The mindset of "I was told not

worry about this in law school" might get in the way of perceiving one's situation accurately.

Moreover, people are generally very poor at considering high-stakes risks with low probabilities. The field of cognitive psychology has well established that people have bimodal response catastrophic risk. The gist of the research in this area is that people give particular risks much more attention than they rationally deserve and also fail to take some sorts of catastrophic risks serious enough (Jolls, et. at, 1998). It is as if when we are presented with a catastrophic risk, we examine it carelessly through a pair of binoculars—look through one end and things appear much bigger than reality or look through the other end and things appear much smaller. So, it may be that many regulatory targets fail to adequately consider risks a regulatory nuke pose because people just bad at sizing up that sort of risk.

A third factor a target might consider is the harm associated with an agency going nuclear. At the end of World War II, as the United States dropped nuclear bombs on Hiroshima and Nagasaki, we can imagine the turmoil that the leaders of Japan felt as cities were laid to rubble with the promise of more to fall if surrender was not forthcoming. Still, the leaders in Tokyo certainly felt the impact much less than the citizens of either Hiroshima or Nagasaki. One can imagine a callus leader not caring at all unless his life was on the line and perhaps losing all concern at all if the leader felt that his life was beyond the point of saving. The point of this thought experiment is to highlight that while we tend to think about getting nuked as complete annihilation, the harm felt is somewhat contextual.

When a potential target does not care (or care so much) about getting hit by a regulatory nuke, the threat to nuke is not nearly as dire as we might believe. Take the example of Yale Law School and the decision it had to make of back off its bar of military recruiters or to risk the larger university losing all sources of federal funding. Again, while Yale Law School did not receive much in the way of federal funding, Yale University's science, engineering, and medical programs greatly depended on it. In that case, Yale Law School had to determine the extent it cared about the well being of the larger campus.

In contrast, Vermont Law School and William Mitchell College of Law have likewise barred military recruiters from campus and the Department of Defense threatened to revoke funds. However, unlike Yale Law School, these two schools are not associated with larger universities that rely heavily on federal funding. While there is no doubt that the decision to keep out recruiters has come at somewhat of a cost, the cost is nowhere close to the devastating blow that would be dealt to schools like Yale. Both of these schools have held fast, have had their funds revoked and still held firm.

Similarly, in the past due to violations of the Clean Air Act, the EPA has threatened to revoke federal highway funds only to receive word back that for the foreseeable future the region at issue did not have plans to request funds. So long as that remained the case, the loss of highway funds is a mere paper tiger. Additionally, while the threat to revoke an organization's nonprofit status can be an extreme remedy, it hurts entities much more that currently or plan to seek contributions on the promise of

a tax write off. If a nonprofit does not care about that as much, the threat is not nearly as dire.

One way regulatory nukes can differ from actual nukes is that in some cases, through litigation or appealing to help from Congress, a regulatory target can essentially rollback the clock and reverse the harm of the nuke. While I will discuss this further when discussing retaliation, it is sufficient to say that if a target believes that it can undo the launching of a regulatory nuke, reasons to fear it diminish quite a bit.

A target may also consider the potential rewards associated with calling an agency's bluff—in the event that the agency is bluffing. When a potential regulatory target refuses to back down when threatened by a regulatory nuke, there are some obvious rewards if the agency was bluffing. Of course, the potential target saved on all the costs of compliance. It did not have put in the effort necessary to comply or take the political hit. Additionally, the target showed that it would not back down, and assumedly, the regulator would have to think hard before trying to coerce the target into action the next time around because the target might humiliate the agency again or force the agency to go nuclear. And, like the kid on the playground who is unwilling to stick up for himself, backing down may only work to coax the agency into using coercion again on the target because it proved it can be coerced.

The rewards of calling a bluff are most greatly appreciated by a target that sees itself as repeat player with the agency holding the regulatory nuke. This might be the case because the target has similar conflicts looming in the future due to an ongoing business matter. Or, it might be, that the agency took on one aspect of a target's

business, knowing that similar situations are also under the agency's purview. Of course, the higher the potential reward for calling a bluff, it may be that the higher the risk is too for being nuked.

In other instances, the reward of not backing down hinges on the political splash of refusing to be bullied. We see this sort of payoff when a state takes a stand against the federal government. "We did not let the federal government push us into doing something against our best interest" can be a convincing argument to make to voters in some instances.

3.3.3.2 Untold Story of Compliance

Because the threat of regulatory nukes is so great, it is easy to gloss over that very often when faced with a regulatory nuke, in the majority of circumstances, the end result it compliance. Furthermore, often compliance is won the easy way: without the agency having to make a threat to the individual target.

Consider a regulatory nuke that is more familiar to the average American than most—the prospect of prison time for tax evasion. In 2009, the IRS received nearly 140 million tax returns and only *recommended* that the Justice Department prosecute 1269 for criminal enforcement due to tax or tax related reasons (Internal Revenue Service, 2010). This represents less than one for every 100,000 returns submitted. Additionally, it seems unlikely that the IRS would pursue each of the recommended cases. Interestingly, the IRS only examined about one percent of the returns filed in detail (Internal Revenue Service, 2010). The vast majority of returns do not get audited. Most Americans do not need to be threatened directly in order to be convinced that paying federal taxes is

necessary. The IRS gets compliance because Americans probably for a variety of reasons including, among others, commitment to honesty, a feeling of obligation, and fear of the consequences of not paying taxes. While the story of the citizen who is unwilling to pay taxes and who has cheated the system may get the attention of the media and public, the much more common story is less exciting: it is the story of compliance. In this case, and many like it, we overlook the story that defines the vast majority of potential regulatory targets and focus—if at all—on the story of the exception. With mushroom clouds on the horizon, it is easy to focus on it and neglect the rest of the world of possibilities.

When commentators remark at how infrequently an agency uses a regulatory nuke, what is not expressed in those assessments is the rate of compliance. In instances of extreme noncompliance, lack of use of a regulatory nuke does make the nuke like dead letter law. If, however, compliance is high, as it seems to be in the context of the federal tax system, it may just be a reflection that an agency is good at leveraging the regulatory nuke. As Schelling has made clear, we do not need to launch nuclear war heads to use them. Rather, nuclear missiles have uses beyond warfare, they also hold potential in exploiting the "diplomatic use of potential violence" (Schelling, 2008/1966, ix). "The power to hurt is bargaining power. To exploit it is diplomacy—vicious diplomacy, but diplomacy" (Schelling, 2008/1966, 2).

Sometimes it does take the threat to get potential targets to comply. The example of the Department of Defense coercing Yale Law School to allow military recruiters to recruit on campus did not end in the revocation of federal funds but rather with Yale Law School's capitulation.

Another example of this is the power of the Department of Labor's Office of Federal Contract Compliance Programs has a range of regulatory tools available to it when it finds that federal contractors have violated the Equal Employment Opportunity Act of 1972. One of these includes debarment of the contractor from federal contacts, in other words, prohibiting the contractor from receiving federal contracts. "[S]ince 1972, only forty-one contractors have been debarred from the list of approved federal contractors, out of the thousands whose performance was judged unsatisfactory. In addition, only four of those who have been debarred were large corporations, and in these four cases, the debarment lasted less than three months" (Sterba, 2004, 664). Certainly, there is some evidence that the Department of Labor has proven unwilling to push debarment and ferret out violations of the Equal Employment Opportunity Act (Sterba, 2004, 664). However, most often the Department of Labor does not need to consider debarment because once a government receives a notice to show cause (i.e., the regulatory threat) compliance with the law (and perhaps over compliance) is forthcoming.

The same is true of those the Internal Revenue Service catches in its snare when it audits taxes. The vast majority of people called to the table find a way to work with the IRS rather than risk potential criminal sanctions.

When a regulated target complies, the model rationally assumes that an agency will not launch a regulatory nuke.[28] I now turn to those circumstances of when a regulatory target does not comply and how an agency grapples with the decision of whether or not to go nuclear.

3.3.4 Of Detonation and Humiliation

When it comes to countries, it is thought that war can occur for a number of reasons. Two of these are relevant here. First, "war can occur because both sides become committed to irreconcilable positions from which neither is willing to back down…." (Schelling, 1980/1960, 201). Second, it may be that in an attempt to make credible commitments, we have "relinquish[ed] the power to retreat" (Schelling, 1980/1960, 37). Getting ourselves into a position to where we cannot back down is precisely what Schelling recommended to leaders during the Cold War:

> But it is hard to make it believed. It would be hard to keep the Soviets from expecting that we would think it over once more and find a way to give them what my children call 'one more chance.' Just saying so won't do it…. What we have to do is get ourselves into a position where we cannot fail to react as we said we would—where we just cannot help it—or where we would be obliged by some overwhelming cost of not reacting in the manner we had declared (Schelling, 2008/1966, 43).

Schelling advocates for what he calls the *commitment process*: "a process of surrendering and destroying options that we might have been expected to find too attractive in an emergency" (Schelling, 2008/1966, 44). Assuming that an agency has

---

[28] In game theory, this is known as a dominant strategy: a "course of action that outperforms all others no matter what the other players do" (Avinash and Barry, 1991, 59). Typically, dominant strategies end options from consideration from game trees. This is why we do not consider further how agencies respond when a regulated entity complies.

tied its hands (meaning its commitment is actually credible as it was made to appear), the agency might have already surrendered its choice in whether or not it will go nuclear.

Very often, however, an agency's threat does not automatically execute itself if the threat is not headed. It might, but that is not usually the case. Schelling has remarked that "if the commitment is ill defined and ambiguous—if we leave ourselves loopholes through which to exit—our opponent will expect us to be under strong temptation to make a graceful exit (or even a somewhat graceless one) and he may be right" (Schelling, 2008/1966, 48).

While the temptation to let a target slide by is present, that does not mean that the agency will fall for the temptation. The agency will have to weigh the costs of benefits of the options before it. As long as the agency is faced with the choice, some uncertainty will always be present: "One never quite knows in the course of diplomatic confrontation how opinion will converge on signs of weakness. One never quite knows what exits will begin to look cowardly to oneself or to the bystanders or to one's adversary" (Schelling, 2008/1966, 93).

We would expect, however, for the agency to go nuclear in one of two circumstances. First, if an agency has no choice, it will launch its regulatory nukes if its threats go unheeded. Second, to the extent the agency has a choice, we would expect the agency to go nuclear when the costs of back off outweigh the costs of it launching its regulatory nukes.

In order to put this into context, however, consider several examples of each of these.

3.3.4.1 Going Nuclear

Of all the stories of regulatory nukes, the stories that have the most color to them are instances of when an agency actually launches a regulatory nuke. Below, I provide examples of instances of where launch of nuke follows an agency's threat and where an agency launched without first issuing a threat.

There are a number of instances when see an agency follow through with its threats to go nuclear. An example of these was the instance where the EPA put forward a regulation that would have resulted in extreme gas rationing in order to force Los Angeles to comply with the Clean Air Act.

When Congress passed the Clean Air Act, it called for all areas to comply with national ambient air quality standards for a number of pollutants. Some places had a more difficult time complying with the act than others. No area faced a greater challenge, however, than Los Angeles, which at that time (and still does) boasts the dirtiest air in the country.

In 1972, California submitted to the EPA an implementation plan that was by statute required to bring the state (including southern California) into compliance with the Act's ambient air quality standards for carbon monoxide and ozone (both pollutants that come from internal combustion engines). At the time, the common perception among the line-level bureaucrats at EPA and the perception of those involved in the creation of the plan in California was that EPA would have but no political choice but to

approve the plan because getting southern California to comply with the Act seemed virtually impossible (Dreyfuss, 1972). However, the Administrator of the EPA, William Ruckelshaus, refused to approve the plan because it did not bring Los Angeles into conformity with the Act's standards by the statutory deadline of 1975.[29] With this, EPA's threat was made.

The Act gave California six months to come up with an implementation plan that would conform to the Act or else the EPA would have to come up with its own plan. Six months passed and when the EPA did not come up with a plan, the EPA was sued by a number of entities in southern California because the EPA failed to comply with the Clean Air Act's requirements. In City of Riverside v. Ruckelshaus, a federal district court order the EPA to create a federal plan.[30]

The EPA complied with the court's order and launched its regulatory nuke. The federal implementation plan included, among other things, a gas rationing provision that would have reduced Los Angeles gas consumption by 82 percent by 1977.[31]

Other examples of an agency going nuclear after notice that I have already mentioned include the military taking away federal funding from the University of Vermont and William Mitchell School of Law, the Fish and Wildlife Service shutting down construction on the Tellico Dam, the EPA pulling the trigger on catalytic converter, and the Department of Transportation taking away federal highway funding

---

[29] 37 Fed. Reg. 10842 (1972).
[30] 4 Env't Rep. Cas. (BNA) 1728, 1729 (C.D. Cal. 1972).
[31] 38 Fed. Reg. 2194 (1973).

for states that have bucked the federal government and refused to adjust the legal age to drink alcohol.

Now take the instance of an agency resorting to regulatory nuke without giving the target a chance to comply with a threat. While this sort of launch is also uncommon, there are still examples of agencies unwilling to test the regulatory threat before resorting to the weapon. In many ways, these instances represent both a missed opportunity to secure compliance and, more often than not, the inability to give notice due to the practical considerations of the circumstances.

The surprise attack most often comes when an agency does not have time to give notice. Sometimes this is the result of an agency having failed to regulate properly ahead of time and other times it is the result of the unexpected happening too quickly. Prime examples of this sort of situation are found in the federal government taking over major financial institutions during the economic meltdown of 2008. The government could not give the failing banks and Fannie Mae and Freddie Mac notice or make threats because the federal government worried about creating further instability in the markets and signaling to shareholders to dump the stocks.

Another example of a surprise attack using a regulatory nuke includes surprise raids of employers suspected of employing illegal aliens. While the federal government generally does not use this regulatory tool, advance warning of use of this tool would make it virtually impossible for the federal government to find violators. It would be similar to U.N. weapons inspectors giving advance notice of inspection.

3.3.4.2 Keeping Quiet and Backing Down

To the extent that an agency refuses to launch its regulatory nuke in the face of noncompliance, it is much better for the agency to have never threatened using it. In the absence of a threat, the regulatory nuke is an underutilized tool—maybe a sleeping dragon and perhaps a dud. In the face of a threat, it is not the tool that warrants our attention but the agency—it is weakened agency that has proved itself unable to pull the trigger.

There are a number of regulatory nukes that never been tested and never been threatened. Many of the institutional backstops that go along with federal enactments are of this kilt. There is not much written about these tools because, having gone unused, they are more like regulatory trivia than noteworthy regulatory tools. This is not to say that the nonuse and neglect of a regulatory nuke does not have some bearing on the perception of the agency's resolve. Particularly if the agency is being challenged with noncompliance, the agency's unwillingness to resort to the regulatory nuke is notable.[32]

Agencies that are willing to make threats but unwilling to pull the trigger are in fact weakened by a regulatory nuke once a target calls the agency's bluff. In this case, the regulatory nuke only served to illustrate that the agency is unable to pull the trigger.

---

[32] As discussed below, one could view the use of regulatory nukes as a game of chicken. "[W]ith chicken it takes two not to play. If you are publicly invited to play chicken and say you would rather not, you have just played." (Schelling, 2008/1966, 118-19). When a potential target challenges an agency to use its regulatory nuke, the agency cannot avoid playing chicken. The loss is just more pronounced with the agency draws attention to itself by making threats only to back down later.

The harm associated with the regulatory nuke falls on the shoulders of the agency rather than the potential targets.

Two agencies have suffered in recent years due to their inability to use regulatory nukes. The first is the Internal Revenue Service. One of the regulatory nukes the IRS possesses is the ability to strip charitable organization of their nonprofit status in the event that the organization endorses a political candidate. The IRS has a history of not following through on its threats to take away tax exemptions of churches that endorse candidates. In recent years, an increasing number of churches have tried to test the IRS in this respect. In the 2008 election, more than thirty churches endorsed candidates in what was known as "Pulpit Freedom Sunday." The churches went so far to provoke the IRS into action; they even bothered to send copies of their sermons endorsing candidates to the IRS (Goodstein, 2008). As of yet, the IRS has not responded to these provocations.

The Federal Communication Commission is the second agency worth mentioning. The FCC has the power to revoke licenses of commercial broadcasters. While it has threatened revocation, it has never actually pulled the trigger. Perhaps because of this, many television and radio shows have used making fun and challenging the FCC a fairly common comedy ploy. For example, South Park made an episode that included the word "shit" 162 times in the context of an episode about the FCC's decency standards. Rather than receiving respect due to its regulatory nuke, it has become the part of the punch line in many instances.

Because so much rides on whether an agency can get compliance and because an agency can take actions to maximize its chances that compliance will result, I now turn to how agencies can increase the chances that targets will take its threats seriously.

3.4 Increasing The Credibility of Threats

"Today the expenditure of billions of dollars every year on weapons acquired for the purpose of making sure we need to use them is essential to keeping the peace."

John F. Kennedy.

One of the major contributions of Schelling's work was to help us understand why it is that some threats are more believable than others and how we might finesse those threats that do not seem credible to make them more believable. In summarizing his thoughts on this subject, Schelling said,

> We have learned that a threat has to be credible to be efficacious, and that its credibility may depend on the costs and risks associated with fulfillment for the party making the threat. We have developed the idea of making a threat credible by getting ourselves committed to its fulfillment, through the stretching of a 'trip wire' across the enemy's path of advance, or by making fulfillment a matter of national honor and prestige…. We have considered the possibility that a retaliatory threat may be more credible if the means of carrying it out and the responsibility for retaliation are placed in the hands of those whose resolution is strongest…. (Schelling, 1980/1960, 6).

Below I lay different strategies Schelling put forwards as ways to make cheap talk into credible commitments and discuss their relevance to regulatory nukes.

3.4.1 Surrendering Control

The problem of making credible threats can be a substantial one. In the days of the Cold War, Schelling noted a disadvantage facing the United States in trying to make

its threats believable. On one hand, he noted that the leaders of the then-Soviet Union could act unstable: he pointed to Nikita Khrushchev's erratic behavior and hot temperament. He argued that this instability worked to his threats all the more believable (Schelling, 2008/1966, 39). One could believe shoe-thumping Khrushchev would use his weapons; his behavior made his threat of "We will bury you" all the more compelling. On the other hand, the electorate of the United States demanded leaders that were more stable. Schelling noted, that when it came to making threats, "it [did] not always help to be, or to believed to be, fully rational, cool-headed, and in control of oneself or one's country" (Schelling, 2008/1966, 37). Stated in another way, it is believable that a hot head or an unstable person might do the *unthinkable* because what is unthinkable for cooler more rationale heads is not unthinkable for them. Put into today's terms, there is little doubt that the behavior of Kim Jong Il has made the North Korea's nuclear program much more troubling and that the specter of Mahmoud Ahmadinejad controlling weapons in Iran is far more threatening due to his extreme behavior. A driver of Schelling's work is to find ways that leaders could pose credible threats in other ways.

3.4.1.1 Surrendering Control by Deterrent Threats

Making the credible threats is often difficult because "[t]he distinctive character of a threat is that one asserts that he will do, in a contingency, what he would manifestly prefer not to do if the contingency occurred, the contingency being governed by the second party's behavior" (Schelling, 1980/1960, 123). One way to make the threat credible is to allow the potential target control its own destiny. Schelling compares this

sort of strategy to an automatic trigger. To the extent that one controlling a weapon can allow the target to control when the weapon is used based on his actions, it takes the guess work of whether the threat to use the weapon is credible out of the equation. An automatic trigger often works "because it makes aggression tantamount to suicide" (Dixit and Nalebuff, 1991, 156).

Of course, one cannot create such an automatic trigger and be sure that just because the risk is left in the hands of the potential target that the weapons will never be used. As illustrated in the cult classic *Dr. Strangelove*, one can never really be sure that an automatic trigger will not be accidentally launched. Additionally, there is always the potential that the target will fail to act in predictable ways—or in other words, in ways that the person making the threat would see as rational. But, to the extent possible, when we take on a commitment, we will want to minimize the chances of an accidental launch by laying a trip-wire "that is plainly visible, that cannot be stumbled on, and that is manifestly connected to the machinery of war" (Schelling, 2008/1966, 99).

This sort of strategy relies on deterrence. According to Schelling,

> Deterrence involves setting the stage—by announcement, by rigging the trip-wire, by incurring the obligation—and *waiting*…. The stage-setting can often be nonintrusive, nonhostile, nonprovocative. The act that is intrusive, hostile, or provocative is usually the one to be deterred; the deterrent threat only change the consequences *if* the act in question—the one to be deterred—is then taken…. To deter, one digs in, or lays a minefield, and waits—in the interest in inaction…. Deterrence tends to be indefinite in its timing. "If you cross the line we shoot in self-defense, or the mines explode." Whenever you cross the line—preferably never, but the timing is up to you. If *you* cross it, *then* is when the threat is fulfilled, either automatically, if we've rigged it so, or by obligation that immediately becomes due. But we can wait—preferably forever; that's our purpose" (Schelling, 2008/1966, 71-72).

It is not unusual to see regulatory nukes packaged as deterrent trip-wires; this requires drawing a clear line in the sand. In the context of regulatory nukes, this relates directly to the clarity of the commands found in statutes and rules. Of course, a clear statute provides a more defined line in the sand because the agency cannot renegotiate its position. Rather, a clear statute takes an enactment of Congress or a Hail-Mary Pass that relies on an agency or a court reading a statute in a way that seems to contradict the words found in the congressional enactment.

For example, when the IRS gives an entity tax exempt status, it also obligates it to a set of congressional enactments. Congress' rules are much clearer in some instances than others. The absolute prohibition against endorsing candidates for public office is a clear line and a nice trip-wire. On the other hand, the prohibition against a nonprofit devoting a "substantial part of the activities" to influence legislation is less effective as a trip-wire. It is interesting, but perhaps not surprising given Schelling's scholarship, that Congress received many complaints about what it meant by a "substantial part of the activities" and that it later passed what called a "safe harbor" that provides nonprofit organizations a more defined standard that relies on precise dollar values and defined percentages of an organization's operating funds. When a trip-wire is set, it is not surprising that potential targets want to know exactly where it is set.

Just as the aptly named Peacekeeper Missiles suggests, the whole idea of deterrence is that it will not be necessary to launch the weapons. Sometimes, however, threats of deterrence are not heeded. When situations escalate and deterrent threats are tested, we might find a bluff or may find a mushroom cloud. In the context of actual

conflict, this is the tripwire, the minefield, and the roadside bomb; this is the costs of coming into the opponent's sphere, crossing the 38th parallel, and rising to occasion after a "you wouldn't dare." Sometimes, when it comes to regulatory nukes, just as in actual warfare, deterrent threats are not enough to assure deterrence. I discuss this point more below.

3.4.1.2 Surrendering Control By Compellent Threats

Sometimes threats just do not require a potential target to not cross a line in the sand but rather require the target to get out of the way in order to avoid harm. Schelling calls this use of threats and force *compellence*. According to Schelling,

> Compellence … usually involves *initiating* an action (or an irrevocable commitment to action) that can cease, or become harmless, only if the opponent responds. The overt act, the first step, is up to the side that makes the compellent threat.… To compel, one gets up enough momentum (figuratively, but sometimes literally) to make the other *act* to avoid collision…. Compellence has to be definite: We move, and you must get out of the way…. The compellent threat has to be put in motion to be credible, and *then* the victim must yield (Schelling, 2008/1966, 72).

A few examples of compellent threats might be helpful. The story of Moses and Pharaoh is a story of compellent threats: Moses says time and again in so many words, "Let my people go, or else." So, before water turned to blood, before the frogs, the lice, and the locusts, before livestock died, before the hail and the boils, before the period of darkness, and before the death of the first born children, Moses gave Pharaoh time to release the Israelites from slavery and thus avoid the threatened harm. Compellent threats can also take the form of something short of all-out war—holding some pain in reserve. For example, Schelling argues that when the United States dropped nuclear

bombs on Hiroshima and Nagasaki, the bomb not only destroyed those cities but also provided the rest of Japan a threat: provide us unconditional surrender or else more bombs will come. Fights among children that can end with the word "uncle" or "mercy" are also a form of compellent threats. The same is true of prisoners of war who are tortured until they are broken. Under a compellent threat, the pain occurs and persists as long as a condition is not met, but once it is met, compellent threats provide an end.

In game theory literature, compellent threats are often represented by the game of chicken. Chicken is often represented as a game where two parties speed toward each other in cars. The name of the game comes from the label that accompanies swerving out of the way. Of course, as tough as it is to live with the shame of backing down, this is nothing to the harm of a collision. The payoffs of chicken are as follows:

Table 9. Game of Chicken

	Swerve	Straight
Swerve	Tie, Tie	Lose, Win
Straight	Win, Lose	Crash, Crash

While this sort of contest has been popular by Hollywood depictions of hot-headed teenagers playing a high-stakes game in pricy cars, it has many applications. Schelling noted, "[I]t is a universal form of adversary engagement. It is played not only in the Berlin air corridor but by Negroes who want to get their children into schools and by whites who want to keep them out; by rivals at a meeting who both raise their voices,

each hoping the other will yield the floor to avoid embarrassment…." (Dixit and Nalebuff, 1991, 116).

While the winner of a game of chicken is often determined by nerves and the extent to which a party is risk averse, a party can get a tactical advantage by relying on a credible commitment. The key to using credible commitments in the context of chicken is to credibly surrender control. "In strategy when both parties abhor collision the advantage goes often to the one who arranges the status quo in his favor and leaves to the other the 'last clear chance' to stop or turn aside" (Dixit and Nalebuff, 1991, 44-45).

Sometimes regulatory nukes come packaged by Congress as compellent threats. For example, regulatory nukes where the punishment will occur on a particular date unless a regulatory target has complied with the law fit this mold. We see this in several instances where Congress has instructed the Department of Transportation to hold back highway funds in the event that a state does not change its drinking law, require motor cycle helmets, or change its speed limit. The same is true of the REAL ID law that provides states a particular time period to meet a national identification standard if the state wants its citizens to enjoy the benefit of Transportation Security Administration workers to recognize the state's drivers license as an adequate form of identification. In all of these, there is little ambiguity about what a regulatory target must do in order to avoid the regulatory nuke. The only question that remains is if the federal government or the state will flinch or whether we will see a collision.

3.4.2 Leveraging Uncertainty And The Role Of Brinksmanship

Credible commitments might also work to introduce uncertainty. For example, take the example of automatic triggers discussed above. A trigger could result in the launching of a weapon or it may just set off a process that could end up in a launch. Schelling gave the following example: "The acknowledged purpose of stationing American troops in Europe as a 'trip wire' was to convince the Russians that war in Europe would involve the United States whether the Russians thought the United States wanted to be involved or not—that escape from the commitment was physically impossible" (Schelling, 1980/1960, 187). From the Russian perspective then the trip-wire was the unavoidability of involving the United States in a war if it attacked Berlin. Of course, involving the United States in a war creates risks and elevates the risk of nuclear war substantially, but attacking Berlin does not mean that the United States will go nuclear. "Although the threat of *certainty* of war is not credible, one of a *risk* or *probability* of war can be credible" (Dixit and Nalebuff, 1991, 209). Uncertainty has the potential to make the unthinkable believable (Dixit and Nalebuff, 1991, 208-210).

Leveraging uncertainty in the context of military context often goes by the name *brinksmanship*. According to Schelling,

> Brinkmanship is … the deliberate creation of a recognizable risk, a risk that one does not completely control. It is the tactic of deliberately letting the situation get somewhat out of hand, just because its being out of hand may be intolerable to the other party and force his accommodation. It means harassing and intimidating an adversary by exposing him to a shared risk, or deterring him by showing that if he makes a contrary move he may disturb us so that we slip over the brink whether we want to or not, carrying him with us (Schelling, 1980/1960, 200).

Brinkmanship is the process of "deliberately creating and manipulating the risk of a mutually bad outcome in order to induce … compromise" (Dixit and Nalebuff, 1991, 206). The source of its power comes from its ability to alter a potential target's expectations" (Dixit and Nalebuff, 1991, 207). Brinksmanship focuses on creating "recognizable risk of war"—a risk that may provide a way out but may not (Schelling, 1980/1960, 200). The risk of brinksmanship is different from the trip wire or the speeding car playing chicken in that the risk is uncertain:

> The brink is not … a sharp edge of a cliff where one can stand firmly, look down, and decide whether or not to plunge. The brink is a curved slope that one can stand on with some risk of slipping, the slope gets steeper and the risk of slipping greater as one moves toward the chasm. But the slope and the risk of slipping are rather irregular; neither the person standing there nor onlookers can be quite sure just how great the risk is, or how much it increases when one take a few more steps downward…. (Schelling, 1980/1960, 199-200).

The risks created by regulatory nukes in large part are uncertain ones. Even where an enactment or a rule provides definite time lines, there is the possibility that Congress or an agency will revisit the issue before the regulatory nuke is launched. For example, Congress has already moved the deadline associated with the REAL ID Act twice. Additionally, vague rules and enactments allow agencies to play with risks. The No-Child-Left-Behind Act, which in theory contains the punch to shut down public schools struggling to succeed across the nation may also be much more talk than walk. It all depends how those empowered to pull the trigger treat the weapon the Act provides. While the Federal Communication Commission has the power to shut down television and radio stations across the dial, it largely will come down to how it carries out its very vague mandate to serve the "public interest." When an agency is given

broad standards rather than clear rules, it requires our best guess work to know if an agency is bluffing or not or whether it will escalate the conflict to the next level. It leaves open a number of risks, as brinkmanship does. These relate to many of the same kinds of concerns Schelling raises: "random or haphazard processes, … faulty information, faulty communication, misunderstanding, misuse of authority, panic, or human … failure" (Schelling, 1980/1960, 201).

Uncertainty plays an important role in an agency's threat to launch regulatory nukes. While many game theorists begin with the assumption that both sides have perfect information of the payoffs of how their opponents will respond, uncertainty plays a much more important role when it comes to the reality of regulatory nukes. Absent uncertainty, we would expect agencies never to have to launch their regulatory nukes unless the regulatory target was not rational or had an unusual set of preferences. We would also expect to see targets play right up to the line. Most of the time, what we see is much more nuanced. Consider, for example, many of the backstop provisions in legislation that call for cooperative federalism but give the federal government the ability to step in the states shoes of the state fails in its role. In most of these provisions, we have not ever seen the federal government resort to the nuclear option and perhaps not even really threaten it. While this regulatory nuke appears to be a dud, it may be a sleeping dragon. Like the mine field that one believes is free of mines, knowing that the threat exists may cause us to avoid the field or at least step gingerly on the beaten path.

3.4.3 Giving Control To A Committed Third Party

Third parties can play a valuable role in making commitments credible. In today's world, delegation of some decision is a necessary part of overseeing most important programs. Delegation raises its own set of uncertainties and randomness into the equation. "Some parts of a decision may be taken on delegated authority, and the person to who the decision is delegated cannot necessarily reproduce the decision that would have been reached by a president or premier or cabinet in consultation with congressional or parliamentary leaders" (Schelling, 1980/1960, 202). And, it is not just that people will deal with decisions differently. Often, the person charged with a decision has "an incentive structure of his own that differs from his principal's" (Schelling, 1980/1960, 29). Schelling provides a number of examples of how delegation plays an important role in making credible commitments including the use of thugs to collect debts and to providing nuclear weapons to countries that are "thought less irresolute than the United States" (Schelling, 1980/1960, 142).

As discussed above, one way to think about Congress' decision to delegate regulatory nukes is to see it as attempting to make a credible commitment. In making that decision, Congress can attempt to increase its credibility by providing binding instructions of when the weapon must be used (Schelling, 1980/1960, 29). It can also increase the credibility of its threats by delegating the program to an agency that is viewed as committed to stringent enforcement (Moe, 1989). Congress might take it a step further and allow additional third parties to enforce the regulatory scheme. This is, for example, a large part of how environmental statutes are enforced today: Congress

has given citizens and interest groups the right to sue for violations of the law and to force agencies to follow through with the role Congress assigned to them.

Agencies can also delegate some of its decision making power. First, remember that an agency in actuality is a *they* and not an *it*. So, an agency might vest the power to launching a regulatory nuke with lower-level bureaucrats. An agency may rely on particular experts in making some of its decisions, and the agency gets to decide which experts it relies upon. Additionally, when it comes to regulatory nukes that are launched by those at the helm, who those people are (often a matter of political appointees) is a key question. Furthermore, even if a decision is made by those in the trenches, there is the question of how much political cover those at the top are willing to provide.

Agencies may rely on some outside interest groups more than others in sifting through problems. Those outside the agency that have power within the agency may play an important role in the calculus of whether threats are made and whether those threats should be believed. Additionally, the Administrative Procedure Act provides citizens a hook that may help trigger regulatory nukes to the extent that an agency has promulgated rules about when it will and won't. In this way, rulemakings and regulatory proceedings have the potential of an agency binding itself. For example, recently, the EPA recently made a regulatory finding that greenhouse gases endanger human health and welfare. Given the prevalence of greenhouse gases across the economy, now that EPA has made this finding, it seems that the EPA is required to take a range of actions under the Act to regulate greenhouse gases including automobiles and

point sources and potentially much more. Given that the endangerment finding triggers several provisions of the Act, it is hard to see how EPA can put the genie back into the bottle. It seems clear that many of the actions the Clean Air Act would call for may be politically unpopular, particularly given that these same provisions do not allow the EPA to consider the relative costs and benefits of regulation.

EPA's regulatory finding certainly changes the calculus of whether the EPA will follow through on its threats to regulate greenhouse gases. This is particularly the case because the Clean Air Act includes a citizen suit provision. This move by the EPA has the same effect as many credible commitments. Schelling suggests, for example, that

> [i]f you are faced with an enemy who thinks you would turn and run if he kept advancing, and if the bridge is there to run across, he may keep advancing…. But if you burn the bridge so that you cannot retreat, and in sheer desperation there is nothing you can do but defend yourself, he has a new calculation to make. He cannot count on what you would *prefer* to do if he were advancing irresistibly; he must decide instead what he ought to do if you were incapable of anything but resisting him (Schelling, 2008/1968, 43).

As the EPA now looks behind and sees the bridge burning, regulated entities are right to rethink EPA's commitment to do what seems politically difficult: the reason for this is that EPA may not have left itself much choice in the matter.

3.4.4 Staking Honor And Reputation

Most often, the art of "maneuvering into a position where one clearly cannot yield" (Schelling, 2008/1968, 44) requires more than words. However, sometimes words are all that all we have. In such cases, one option that Schelling explored in the context of nuclear weapons is "is to incur a political involvement, to get a nation's honor,

obligation, and diplomatic reputation committed to a response" (Schelling, 2008/1968, 49). To do this, we might see leaders attempting to "create a bargaining position by public statements [with] statements calculated to arouse a public opinion that permits no concession to be made" (Schelling, 1980/1960, 28). President Kennedy, who Thomas Schelling advised, provided several examples of such statements that help illustrate the point.

For example, in the Cuba missile crisis, Kennedy established a firm line on Russian attacks in the Western Hemisphere: "[I]t shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western hemisphere as an attack by the Soviet Union on the United States, requiring a full retaliatory response upon the Soviet Union." But, he went further than this. In response to Russia's attempt to place nuclear weapons in Cuba, Kennedy said, among other things, "But this secret, swift, and extraordinary buildup of Communist missiles … is a deliberatively provocative and unjustified change in the status quo which cannot be accepted by this country, if our courage and our commitments are ever to be trusted again by either friend or foe." It is not just that Kennedy tried to communicate that he took the matter seriously, but rather staking his reputation and that of the country on him remaining true to his promise.

Schelling puts great stock in the ability of a country to change the calculus of commitment through reputation. He wrote,

> It is often argued that "face" is a frivolous asset to preserve, and that it is a sign of immaturity that a government can't swallow its pride and lose face. It is undoubtedly true that false pride often tempts a government's officials to take irrational risks or do undignified things…. But there is

> also the more serious kind of "face," the kind that in modern jargon is known as a country's "image," consisting of other country's "worth" or "status" or even "honor," but to its reputation for action. If the question is raised whether this kind of "face" is worth fighting over, the answer is that this kind of face is one of the few things worth fighting over…. "Face" is merely the interdependence of a country's commitments; it is a country's reputation for action, the expectations other countries have about its behavior.

Likewise, when an agency makes a threat, it may choose to do so in a way that is private or in a way that is public. A threat in a news release means that the agency has more skin in the game when it comes to making good on that threat. When an agency adds to this a rationale that justifies its actions, it may be hard for an agency to back track.

Again, the EPA's recent endangerment finding is a good example of this. The U.S. Chamber of Commerce has petitioned the EPA to reconsider its endangerment finding. Given that the EPA's decision to move forward with it has been national news and has been defended by the EPA and President Obama as a matter of sound science, it is hard to see what wiggle room the EPA left for itself. Politically, it is hard to see how the agency can turn back the time on this one without losing face. The EPA may even be legally tied to the decision given that the arbitrary and capricious standard courts apply when an agency does an about-face. Just as Kennedy committed the country's honor to uphold his nuclear warfare policy, now that the EPA has made it such that it will be "charged with appeasement for every small concession, [it has] place[d] concession visibly beyond [its] own reach" (Schelling, 1980/1967, 29).

3.4.5 Interdependence

When staking reputation, a major reason it has power is because we require reputation going forward and not just in this particular instance. As Schelling explained, "The main reason why we are committed in many of these places is that our threats are interdependent. Essentially we tell the Soviets that we have to react here because, if we did not, they would not believe us when we say that we will react there" (Schelling, 2008/1966, 55).

However, there is more than reputation on the line when it comes to interdependence. When it comes to repeat players, it adds credibility to a threat if one "can persuasively point to an array of other negotiations in which its own position would be prejudiced if it made a concession in this one" (Schelling, 1980/1960, 30). Through this lens, "what is in dispute is usually not the issue of the moment, but everyone's expectations about how a participant will behave in the future" (Schelling, 2008/1966, 118-119).

Similarly, a threat to use a regulatory nuke is more likely to be seen as credible if it can be tied to programmatic concerns or concerns over setting an unpleasant precedent more broadly. For example, a reasons it is difficult for the National Oceanic and Atmospheric Administration (NOAA) to make credible threats that it will take over a region's fishery management is because it has shown over time that it is unwilling to do so. With each successive turning of the blind-eye, the agency has made the threat to launch its regulatory nuke that much harder to make. On the other hand, because the military has pushed ahead with any exclusion of military recruiters and has not been

willing to back down, those that cross the military and deny its recruiters access have come to expect losing federal funding.

3.4.6 Willingness To Take Intermediate Steps

Often it is difficult to make words alone believable. However, there often is a broad range of options between going nuclear and doing nothing at all. As Schelling points out, "Between the threats of massive retaliation and of limited war there is the possibility of less-than-massive retaliation, of graduated reprisal" (Schelling, 1980/1960, 1994). It may be possible to break down a threat "into a series of smaller threats," and if so, "there is an opportunity to demonstrate on the first few transgressions that the threat will be carried out on the rest" (Schelling, 1980/1960, 41). Of course, in order to do this, "[b]oth the act to be deterred and the punishment must be divisible" (Schelling, 1980/1960, 41).

Ayres and Braithwaite (1992) have highlighted how the willingness to take intermediate steps can obviate the need to use more serious regulatory weapons. They argue that willingness to take small steps up what they referred to as the "enforcement pyramid" would generally show credibility to take the next step and thereby make it unnecessary to rely on what they refer to as "the benign big gun."

Because of this, Congress puts an agency at a real disadvantage in securing regulatory compliance when it provides a nuclear option but very little else in its arsenal. By taking steps along the path of enforcement, an agency is able to show that it means business.

This Part has discussed ways to make threats credible. Making threats credible, even when an agency wants to, is not always possible. And, even when an agency attempts to make its threat credible, there is no guarantee that potential target will the message and respond as the agency hopes to the threat. I now turn to the decision facing the potential target: whether or not to comply.

3.5 Mutually Assured Destruction

"*I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones.*"

Albert Einstein

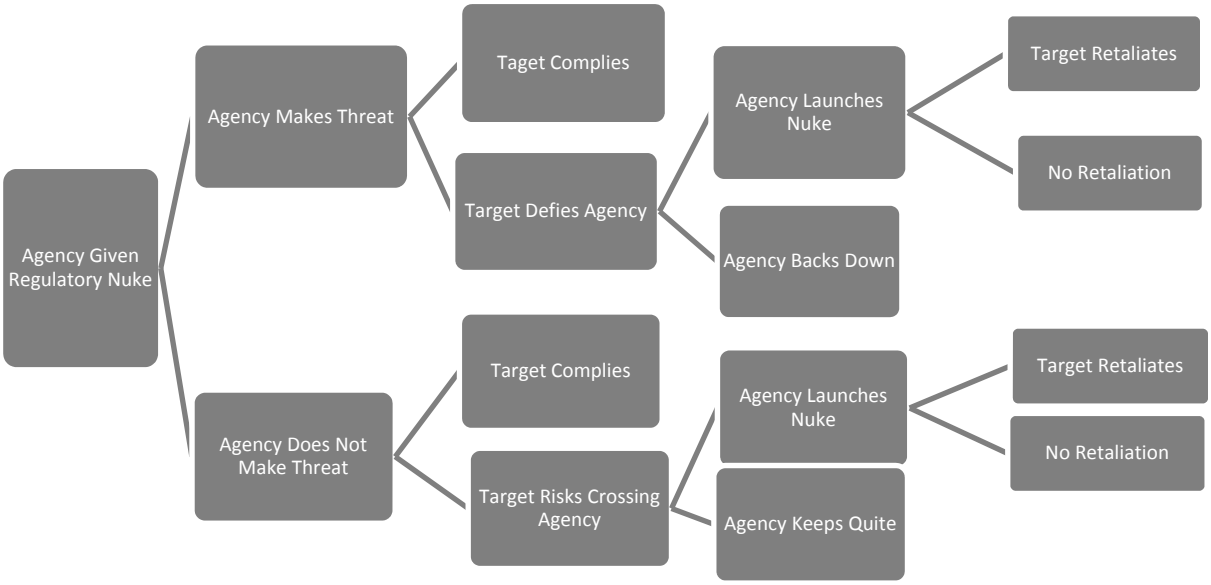
Within the realm of actual nuclear arms, the threat of retaliation is often credited with the reason that the weapons have not been used. The power the weapons could unleash is just too terrible. "We have come to realize that a threat of all-out retaliation gives the enemy every incentive, in the event he should choose not to heed the threat, to initiate his transgression with an all-out strike at us…." (Schelling, 1980/1960, 6). Because of this, military strategy emphasizes both the power to hurt and the commitment not to launch the weapons unless an opponent launches one first. As Schelling put it, "It is the power to hurt, not military strength in the traditional sense, that inheres in our most impressive military capabilities at the present time. We have a Department of Defense but emphasize *retaliation*" (Schelling 2008/1966, 7).

Does retaliation have a role within the context of the world of regulatory nukes? Regulatory targets do not have the ability to respond in kind. So, unlike the context of

actual regulatory weapons, there is not the pure relationship of mutual and identical threats as there is when nuclear powers deal with each other.

However, in some instances a regulated entity has its own sort of nuclear option. It may be that the target does not have the ability to strike back but that it has politically powerful friends with this sort of power. I discuss each of these options in a bit more detail below. Of course, introducing retaliation introduces an entirely new wrinkle in the game. In addition to discussing different types of retaliation, I also discuss how this changes the nature of the game. While I go into detail what this sort of change may mean below, at this point I provide Figure 3 below how the existence retaliation impacts the game agencies play when given a regulatory nuke.

Figure 3. Game With Retaliation Added



3.5.1 Too Big To Nuke

The first sort of retaliation worth noting is the punishments targets themselves can inflict on agencies willing to use regulatory nukes. If they find it necessary, big industries like the pharmaceutical and auto industries have the ability to dump millions of dollars into ad campaigns designed to punish an agency that crosses them.

As an illustration of where this sort of retaliation might be relevant, consider the Medicine Equity and Drug Safety (MEDS) Act of 2000. The bill purported to give pharmacists and drug wholesalers the ability to import less costly prescription drugs from outside the United States. Before this could happen, however, the Act required the Secretary of Health and Human Services (HHS) to make a finding that drug imports would not pose additional risks to the public health and would lead to significant savings for consumers. None of those who have served as Secretary of HHS have been willing to make such a finding. There are those who have argued that this should not be surprising because the structure of the Act purposely made it difficult for the Secretary to pull the trigger (Sirota, 2009).

While making cheaper foreign drugs might seem politically popular to the average consumer, to the average U.S. drug company, the prospect is terrifying. The bill allowed Congress to get on record supporting cheaper medications, but put the political onus of pulling the trigger, on the Secretary of HHS. If a future Secretary of HHS does use this regulatory nuke against the pharmaceutical, we might see what retaliation of the pharmaceutical industry looks like.

However, not every regulatory nuke has a gigantic industry as a target. Politically, some of the tools that regulators mainly exploit for their threat value, have impacts that are concentrated on a particular business (rather than industry) or a particular project (rather than policy). In such cases, there is the possibility that the regulatory target does not have much power to retaliate politically.

For example, the government contractors under the thumb of the Department of Labor's Office of Federal Contract Compliance Programs are generally not national players with vast resources. So, when the office conducts a review of the contractor's compliance with the Equal Employment Opportunity Act, the regulatory target might not have much political recourse at all. The same may be true of projects killed by the Fish and Wildlife Agency issuing a negative jeopardy opinion, which can essentially kill a proposed federal project. In these cases, a regulatory nuke has devastating impacts, but the impacts are highly localized. It would be akin to bombing Hiroshima and Nagasaki but where the rest of Japan felt basically untouched and unthreatened.

3.5.2 Third-party Retaliation

Additionally, agencies might worry about retaliation from those other than the regulatory target. Even in the context of actual nuclear armaments, this is not unusual. Remember again Kennedy's threat to Russia during the Cuban Missile Crisis: "[I]t shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western hemisphere as an attack by the Soviet Union on the United States, requiring a full retaliatory response upon the Soviet Union." So, if Russia were to

decide drop nuclear bombs on Guyana, for example, it had to wonder whether that would mean the United States will annihilate Russia.

Within the context of regulatory nukes, the agency may worry about the responses of few third parties if the agency went nuclear. The entities that most agencies would seemingly worry most about are the three branches of government: Congress, courts, and executive branch.

So take Congress as an example. Congress can do a lot of things to might life difficult for an agency. The extent of retaliation might be seen as a spectrum. Starting with things like attempted intervention as a matter of congressional constituent services and holding congressional hearings, to intermediate sanctions like disfavoring the agency in budgetary matters, and to Congressional nukes in the form of yanking an agency's power and initiating impeachment proceedings of agency leaders.

Ultimately Congress might roll back the agency's decision to launch a regulatory nuke, as it did in the instance of the Fish and Wildlife Service's forced use of the Endangered Species Act to protect the snail darter at the expense of the mostly completed Tellico Dam. As discussed in greater detail below, going forward, Congress can also reduce the power of the regulatory nuke or even take it away from the agency.

Agency's might also fear retaliation from the courts. Courts, for example, could find that the agency violated the law when using its regulatory nuke. Very often, when an agency uses a regulatory nuke, a law suit will follow, so this might be a real concern. For example, when the EPA did what many considered the unthinkable and attempted to hold the auto industry to statutory deadlines imposed by the Clean Air Act in the

advent of something like the catalytic converter, the agency's action was set aside by a federal district court judge.[33]

Regardless of how a court views a particular instance, an agency also runs the risk that a court may take some or all of the power out of a regulatory nuke. On one end, a court may find that a regulatory nuke is not warranted but rather some much less powerful remedy is. In other words, a court may find an escape hatch even when an agency or the Congress did not provide one. This of course makes it much more difficult for the agency to make credible threats: an agency cannot claim its hands are tied when a court unbinds them.

This is what has happened, for example, when it came to Title VI of the Civil Rights Act. The Act calls for one remedy—revocation of federal funding for any entity found guilty of discrimination. The courts have found an implied remedy for those faced with discrimination in the form of money damages. Because everybody directly discriminated against has a private remedy, the drastic remedy called for in the Act all the drastic and difficult to wield.

As for the Executive, if an agency crosses the President, it might mean restructuring, personnel changes, or other consequences of losing the love of the person ultimately charged with reigning in the agency. However, more common than employing tools to punish an agency that goes nuclear, we see the President or those heading agencies take precautions to exercise a degree of control over regulatory nukes. A nice example of this is the history of the EPA's ability to veto dredge and fill permits

---

[33] International Harvester Co. v. Ruckelshaus, 478 F2d 615 (D.C. Cir. 1973).

issued by the Corps of Engineers. At the end of the 1980s, the EPA began to require the decision to use the veto to be made much further up the chain. In the event that a line-level bureaucrat wants to veto one of the Corp's decisions, the decision is elevated up the chain of command both with the Corps and the EPA. If negotiations fail on the way up the chain of command, the final decision of whether the EPA will veto a permit rests with the Administrator of the EPA.

3.5.3 Political Fallout

Depending on geography, nuclear fallout may limit the ability of a country to use nuclear weapons. Consider the unlikely scenario of the United States bombing Vancouver, Canada or Juarez, Mexico. Doing so would almost certainly mean extensive fallout for Seattle, Washington or El Paso, Texas. Perhaps more realistically, this is part of what keeps Israel from bombing the Palestinians regardless of how heated the fighting gets between them.

While regulatory nukes do not have fallout in the same way actual nuclear weapons do, they do present risk of political fallout. In using a regulatory nuke, an agency might have to worry about interest groups, hostile state legislators, media coverage, grassroots movements, just to name a few. In fact, one of the reasons that a regulatory tool can become a regulatory nuke is because of the political consequences of using it.

For example, in the 1970s when the EPA attempted to enforce the Clean Air Act in Los Angeles by mandating gas rationing, the EPA faced wide spread opposition. The then-Administrator of the EPA explained that he did not like the idea of the extreme

measures; however, because the EPA was acting under a court order to comply with the Clean Air Act and because failing to do might lead the court to hold him in contempt of the court's order, he faced down the political opposition explaining that if forced to choose between Los Angeles mobility and his freedom, he would choose his freedom.

Political pressure often follows even the threat of a regulatory nuke. For example, the READ ID Act, with its promised sanction of denying a state's ability to use state-issued driver's licenses as valid identification at domestic airports has faced widespread resistance and scorn. Had Congress not altered the deadline, resistance would have grown.

3.6 Strategic Limitations

"Yesterday a shaft of light cut into the darkness. Negotiations were concluded in Moscow on a treaty to ban all nuclear tests in the atmosphere, in outer space, and under water."

John F. Kennedy.

As momentous as the advent of nuclear weapons was and as an important of role as they these weapons have played, much effort has been devoted to trying to make nuclear arsenals less dangerous or to reduce the world's stockpiles. While these sorts of efforts have been going on for decades, they are also ongoing. In fact, as recently as March 2010, President Obama had penned an agreement with the Russians that would have cut the countries' arsenals by a third.

Regulatory nukes also have their corollary to strategic limitation and disarmament.[34] We have seen that very often a regulatory nuke that seems light anything more than a paper dragon faces two fates: we either find a way to tame the beast or we kill it. Limitations in this context can come from a number of sources. This Part discusses three of them: Congress, agencies themselves, and regulated entities.

3.6.1 Strategic Limitation By Congress

A potential consequence of the political fallout surrounding the launching or threat of launching a regulatory nuke is that Congress might opt to try to make a regulatory nuke less threatening or take away the agency's big stick.

There are a number of examples of Congress watering down a regulatory nuke or demarking territory that safe from an agency strike. When the EPA began buckling down on Los Angeles and announced its plan to implement gas rationing, Congress ended up revising the Clean Air Act to give Los Angeles more wiggle room and also took away some of the power of the EPA to implement gas rationing and to control land use planning through the Clean Air Act. The controversy that featured the Fish and Wildlife Service putting a halt to the Tellico Dam resulted first in Congress creating the Endangered Species Committee (more wildly known as "the God Squad"), which empowered various government officials to make the decision that a particular species

[34] A strategic limitation calls for a reduction of growth of a country's arsenal or puts a cap on such growth. Disarmament actually reduces the overall arsenal.

was not worth saving, and later when the Endangered Species Committee refused to give the Tellico Dam a pass Congress exempted that project from the Endangered Species all together. The Internal Revenue Service's bar against a charitable organization aiming a "substantial part" of its activities to influencing legislation was later replaced with legislative precisely defined "safe harbor" that allows organizations precise warning of where the line is and what to do in order to avoid stepping over it.

In other instances, Congress has stripped an agency of its regulatory nuke all together. For example, when the EPA attempted to hold the auto industry to Congress's timeline to develop the catalytic converter, Congress subsequently cut the agency out of the picture and monitored the industry itself. Similarly, the Fish and Wildlife Service controversial use of the Endangered Species Act nearly lead to the repeal of the Act when Newt Gingrich became Speaker of the House in the early 1990s.

3.6.2 Strategic Limitation by Agencies

Having a regulatory nuke in its arsenal may cause discomfort for an agency. With such a powerful regulatory weapon, it may find that the agency has also become a target of the regulated industry and faces additional scrutiny. Agencies can deal with this pressure in different ways. One way, of course, is to let the regulatory tool remain dormant. This pressure might be a reason that so many potential regulatory nukes seem more a threat on paper than in reality.

Another way an agency can deal with this pressure is to attempt to limit its own powers. For example, in the 1990s, the Fish and Wildlife Service faced mounting

congressional pressure relating to the agency's handling of the Endangered Species Act (including the threat of congressional revocation of the Act). In order to avoid congressional action, the Fish and Wildlife Service worked diligently to reform the Endangered Species Act from within the agency. It created a number of reforms aimed at reducing uncertainty faced by private entities governed by the Act and in providing those regulated more flexibility as well. The agency did this by finding inventive ways to read the Act's provisions and (to the extent that it could) leveraging congressional silence to meet the agency's aims. In this regard, one of the major reforms the agency took on was the creation of large-scale habitat conservation plans that the agency allowed to substitute for what had typically been parcel-by-parcel planning. This gave regulated entities much more flexibility in how they might meet the dictates of the Act and reduced some of the bite of the enactment.

In rare instances, agencies might attempt to convince Congress to limit an agency's regulatory nuke. There are two examples in this context worth mentioning, both dealing with the EPA. In the 1970s when the EPA began to attempt to force Los Angeles to comply with the Clean Air Act, then-Administrator William Ruckelshaus, public begged Congress to reform the Act so that he would not be in the position where he felt forced to go nuclear on Los Angeles. He went so far, as to holding more public hearings as possible in order to draw attention to his plight and to put pressure on Congress to change.

More recently, the EPA has also pushed on the Clean Air Act with hopes of spurring Congress into action to address climate change. Many commentators have

speculated that the reason that the EPA made its endangerment finding and has attempted to promulgate the regulations it has was that the agency wanted to force Congress to preempt the agency's power by passing legislation.

3.6.3 Strategic Limitation By Potential Regulatory Entities

Regulated entities have a bigger incentive than anyone to try to defuse and moderate regulatory nukes. Even if a regulated entity believes that it is safe, there is no guarantee: "While it is hard for a government, particularly a responsible government, to appear irrational whenever such an appearance is expedient, it is equally hard for a government, even a responsible one, to *guarantee* its own moderation in every circumstance" (Schelling 2008/1966, 41). Giving an agency a big stick to wield increases the value of potential targets securing control over the agency. Taming a potentially vicious dog provides obvious benefits that are absent from securing control over even the most rabid of gerbils.

How would a target get an assurance from an agency with a regulatory nuke? This can happen in overt ways, such as helping to vet political appointments or perhaps even suggesting appointment candidates. It might lobby to get legislation to limit or eliminate the regulatory nuke. It might actively seek to litigate questions concerning the agency's power.

Strategic limitation can happen in much more subtle ways as well that involve building a relationship with or at least interfacing with the regulated entity. This sort of limitation falls on a spectrum. On one end of the spectrum, we might find simple participation in an agency rulemaking or some other agency action that invites public

participation. On the other end of the spectrum, we have something often referred to as agency capture. Agency capture is great example of the cliché of keeping your friends close but your enemies closer playing out.

A number of agencies that have regulatory nukes are often painted as weak, captured agencies. For example, the Federal Communication Commission is often held out as a textbook example of what agency capture looks like. It is telling that a former chair of the FCC, Reed Hundt, suggested that the acronym "FCC" actually stood for "Firmly Captured by Corporations" (Hundt, 1996). It makes sense that the fact that by Congress giving the Food and Drug Administration power to issue and revoke permission to sale medicines, for example, that it pays dividends for drug companies to get the agency in their back pocket. Similarly, it should not surprise us that since the Department of Transportation has power to force car companies to recall vehicles that car companies spend a good deal of money attempting to influence the agency's decisions.

Taking this line of thinking to its conclusion, giving an agency a nuclear option may result in perverse consequences. Though Congress might want to give agencies regulatory nukes as potential ammo for regulatory targets, the regulatory nuke also increases the value of capturing the agency. In some instances, a regulatory nuke might actually work weaken rather than strengthen the agency.

3.7 Proliferation or Disarmament?

In some ways, proliferation of regulatory nukes is an unavoidable consequence of the regulatory state. Even when Congress does not intend to give an agency a

regulatory nuke, time and circumstances can change what seems to be an ordinary regulatory tool into an extraordinary one. With precedent as a back drop, Congress intent only goes so far. So, in some ways, proliferation of time bombs is unavoidable.

Yet, in some instances, a regulatory tool is nuclear by design. It nuclear-ness is what made such great fodder for symbolic politics; it was meant to be only a backstop to a regulatory regime Congress assumed adequate; or, launching it unreflectively would turn Congress's intent on its head. To the extent that Congress can anticipate that it is building a regulatory nuke, is it a good thing or bad thing to do so? Unfortunately, the answer to this is not entirely clear.

Giving an agency a regulatory nuke is a risk. If an agency threatens and then later backs down, or if the specter of the tool causes a regulatory target to take actions sufficient to put the agency on a leash, Congress's endowment of a regulatory nuke actually weakened the agency. On the other end of the spectrum, the agency may end up too willing of a trigger finger. The agency might leverage the tool to secure compliance and concessions; the tool may end up as a paper dragon. It is hard to say from the outset what will happen or how the agency will use the regulatory nuke.

Agencies with regulatory nukes should take care. They should understand that brandishing a regulatory nuke might lead to retaliation and launching it is certainly capable of substantial political fallout. Agencies should also understand that it is often difficult to get regulatory targets to think that an agency will launch a regulatory nuke—this is the unthinkable. Agencies serious about using a regulatory nuke for threat value would be wise to understanding the art of credible commitment. An agency should also

understand that when tempted to bluff that backing down exacts a cost in that one encounter but also makes the regulatory nuke that much more difficult to credible to brandish.

It would do all parties involved to see regulatory nukes for what they are. The have great power not only when launched but are more likely to be used for threat value or as a deterrent. In evaluating whether an agency uses its regulatory nukes, we need to look further than the number of times launched because the uses of these regulatory weapons is much greater than this. And, whereas a regulatory nuke may present a bimodal choice of launching or not launching, the negotiation and posturing surrounding whether or not to launch a regulatory nuke is much more flexible. Agencies might be able to get concessions from regulatory targets that are beyond the scope an agency's authority. This bargaining is similar to that which Schelling noted about warfare: "War is always a bargaining process, one in which threats and proposals, counterproposals and counterthreats, offers and assurances, concessions and demonstrations," and just as war, in the context regulatory nukes, this bargaining "take[s] the form of actions rather than words, or actions accompanied by words" (Schelling, 2008/1966, 142).

Lastly, it is important to note that whether a regulatory tool is a nuke is something that is liable to change. In explaining the symbolic difference among weapons in his time, Schelling noted that gangs fought with knives and not guns. A gang member with a gun elevated the violence past the social norm then accepted by gang members. Today, unfortunately, that line has been blurred. A gun is not so

uncommon among gangs, as the number of drive-by shootings might attest. Schelling recognized this. He noted that "Had [nuclear weapons] been sued as a matter of course in Korea… there might have been a much greater expectation of nuclear weapons in subsequent engagements, less of a cumulative tradition that nuclear weapons were weapons of last resort" (Schelling, 2008/1966, 156).

A large part of a regulatory nuke being unique is that it is perceived as unique (Schelling, 2008/1966). In the context of actual nuclear weapons, Schelling has argued that this perception "is an asset to be treasured" (Schelling, 2008/1966, 288). He challenges us to take very seriously any action that would erode the sense that nuclear weapons represents violence that we dare not touch—to maintain the launch as the unthinkable (Schelling, 2008/1966). The key to regulatory nukes, like actual nuclear weapons, is "psychic, perceptual, legalistic, or symbolic" (Schelling, 1980/1960, 257). How we all treat these weapons changes their character in reality.

4. Emerging Commons and Tragic Institutions

About forty years ago Garrett Hardin recounted what has become the world's most famous environmental fable: the story of a tribe of herdsmen who grazed their cows in an open field (Hardin, 1968). The herdsmen lived by a simple rule: when a herdsman added a cow to the pasture, he took it home for the slaughter. For generations the herdsmen grazed their cows in relative peace. But, if one were looking, problems started to appear. As the herdsmen added more cows, grass became increasingly sparse, the terrain more trampled, and the cows a little crowded. The herdsmen slowly came to understand that adding cows meant more strain on the pasture and that this threatened the herd and their way of life. Yet, each herdsman continued to add cows to the pasture, all the while resenting others that did the same. No herdsman would cut back; each feared that if he did, others would simply continue adding cows.

This ends the story. We are left to wonder if the herdsmen eventually pushed the pasture over the brink and if so, at what cost. But Hardin's message rings clear: the individually rational interest to overuse the commons inevitably resulted in a collectively tragic outcome. Hardin famously termed this clash that threatened the pasture—and even the herdsmen—*the tragedy of the commons*.[1]

---

[1] Others have made many of the points made by Hardin (1968). Elinor Ostrom traces elements of Hardin's argument as far back as Aristotle (Ostrom, 1990). Hardin was not even alone among his contemporaries in identifying what has become known as the tragedy of the commons (Gordon, 1954; Demsetz, 1967). Nonetheless, "Hardin gave the problem a vivid and visceral name that quickly captures our attention and tells us much of what we need to know" (Thompson, 2000).

Scholars have applied Hardin's insight in a dizzying number of contexts to explain real-world problems, including air pollution, water use, water pollution, fisheries, parkland and wildlife conservation, logging and other uses of forest products, grazing, and gas and oil extraction. The tragedy of the commons is increasingly used to explain diverse non-environmental problems as well, including the ability of developing countries to raise and collect taxes, the prevalence of telemarketing, administration of the criminal justice system, the provision of health care, and United States drug policy, among others.[2] Certainly the broad application of the theory not only grows out of Hardin's piercing insight but also out of the realization that commons are almost everywhere we look. The power of the fable explains why more than one hundred anthologies in diverse disciplines have excerpted Hardin's article.[3] Its vast application has made it a cornerstone of environmental scholarship.

Hardin's simple story has also inspired a rich literature challenging and exploring a core assumption—that the herdsmen (or any other users of a commons)[4] cannot craft a better resolution (Ostrom, 1990; Rose, 1994; Axelrod, 1984; Hardin, 1982; Bromley, 1992). Are commons resources necessarily tragic? Relying primarily on empirical studies, scholars have explored a variety of tools that can support sustainable management, such as persuasion, coercion, bribes, and iterative interactions (Axelrod,

---

2 A LexisNexis search of "tragedy of the commons" produces 1,618 results in the Law Reviews, CLE, Legal Journals & Periodicals Combined Database (completed on June 28, 2007).

3 The Garrett Hardin Society keeps a bibliography of Hardin's work. While not updated since September 2001, the bibliography purports that 111 anthologies have included the article.

4 By "commons" this Chapter refers to resources with two traits: 1) rivalry, and 2) difficulties excluding others.

1984; Hardin, 1982). Much of this literature, however, has focused on the role of institutions.[5] We have learned that tragedy is not our only option, and in some cases we even find what Carol Rose has called the "comedy of the commons" (Rose, 1986). Indeed, the most famous scholar in this field, Elinor Ostrom, has emphatically identified key design principles of stable institutions that, if employed, help users withstand the tragedy of the commons (Ostrom, 1990). Due to their ability to protect commons and commons users, these institutions are much admired. In fact, Nobel Prize winner Douglass North calls Ostrom's design principles *commandments* rather than *principles* (North, 1999). However, it turns out these principles, and stable institutions more generally, have an unexplored downside.

To make this clear, let's add another chapter to the herdsmen's story. Assume that the herdsmen created a governing institution that limited the herd to the maximum number of cows the pasture could maintain without showing signs of overgrazing. The herdsmen were given the ability to change the rules by majority vote. The institution also defined which herdsmen could use the commons and to what extent. The tribal chiefs approved of the arrangement, and the herdsmen abided by it. In fact, the herdsmen even began to work together to expand the pasture by clearing away non-edible ground cover, shrubs, and even small trees to make room for more grass. From the herdsmen's perspective, the institution was a great success.

---

[5] The focus on institutions looks at mechanisms that restrict access to the commons without dividing the commons into pieces (McKean, 2000).

Viewed more broadly, however, the institution's success is less clear. Expanding the pasture resulted in unintended consequences. Clearing away land for grasses increased erosion. Particularly when it rained, the stream that meandered through the pasture was visibly dirtier downstream from the pasture. And, many in the tribe suspected that the herdsmen's management of the pasture had muddied the stream. A band of fishers in the tribe complained that the dirty water hurt their fishing grounds and called for the herdsmen to take action.

The herdsmen met. They agreed that the rules governing the pasture had nothing to do with dirty water or fish. Additionally, many of the herdsmen remained skeptical that the pasture, or even the dirty water, had anything to do with the declining stock of fish. Others argued fish were not the concern of herdsman. The herdsmen decided not to act. In fact, they continued grazing, expanding the pasture, causing erosion, and killing fish.

The herdsmen were unwittingly causing other problems too. The land cleared for pasture was an important breeding ground for several birds hunted by the tribe, and clearing away plants had made the area less desirable habitat. Further, by clearing away plants and reducing soil stability, the herdsmen made the entire tribe more vulnerable to landslide risks.

In terms of maintaining the level of forage in the commons, it is easy to call the herdsmen's institution a success. In fact, many probably would. After all, the tribe

avoided a tragedy of the commons, cooperated to solve their problems, and prospered because of it. In doing so, though, they held rival values of the commons hostage. Despite themselves, their institution became a *tragic institution*: the institution's most valuable characteristic—stability—maximized the herdsmen's values but at the same time obstructed efforts to protect rival values, such as the health of the fishery.[6] Viewed from the outside, the herdsmen's gain came at a steep social price. When society changes the way it values the commons, the way we might evaluate the herdsmen's stable institution might also change. While this stable institution spared the herdsmen from the tragedy of the commons, it later obstructed change and complicated problems for other commons users.

In fact, the pursuit to build stable commons institutions systematically creates four important barriers to emerging values. First, we often design institutions to govern the commons with a narrow vision of why a commons has value. Commons institutions are intentionally myopic. The herdsmen looked at a field and saw a pasture; salmon fishers see rivers and oceans in terms of salmon habitat; jurisdictions attempting to limit greenhouse gases look at forests as greenhouse gas sinks; wilderness advocates see remote places as areas "where the earth and its community of life are untrammeled by

6 An institution is a "tragic institution" when, by protecting incumbents, it increases the transaction costs of forming institutions to protect rival values of a commons.

man."[7] Our tendency to focus on one use of a commons at a time sets institutions on a path-dependent course at the outset.

Second, we specifically design commons institutions to *resist* change. These institutions are inertial by design, not by accident. If commons users are going to give up specific liberties or other benefits (such as grazing as many cows as they want), they equally want assurances that the deal will stick over time. Also, stability breeds resistance to change by enhancing a shared worldview that favors and perpetuates the values the institution serves. In a dynamic world, stability is not only a virtue but also a vice. When we change the way we value the commons, stability transforms into rigidity.

Third, those with a stake in incumbent institutions often invest and cooperate to maintain, and ideally expand, their grip on the commons. This public choice problem amplifies the costs of institutional change. Examples are abundant: the American Petroleum Association, the National Association of Broadcasters, Trout Unlimited, and the Wilderness Society all work to assure that commons institutions work to the advantage of particular commons users. Furthermore, incumbent users often form symbiotic relationships with political power brokers: interest groups provide political constituencies and governments deliver political rewards. Rent-seeking, agency capture, and symbolic politics naturally follow, and disenfranchised stakeholders are often marginalized.

---

7 Wilderness Act, 16 U.S.C. §§ 1131–1136, § 1131(c) (2000).

Fourth, sometimes a use of a commons physically alters the commons, making change more difficult. For example, logging a forest can create difficulties for alternative uses such as tourism, wildlife conservation, or preservation of old growth stands. If values shift, a logged forest will take a considerable amount of time and effort to restore, if restoration is possible at all; some old growth forests may not return for centuries—if ever—and some species within the forest may become extinct.

Stable institutions that govern commons are not in and of themselves problematic. Difficulties arise when they confront *emerging values*. Commons can provide different values to diverse sets of users—what seemed a bug infested swamp to some may be prized as an important buffer to flooding by others; lands the government was willing to give away are later cherished as a national treasure. We may value the same commons for many diverse—often conflicting—purposes, ranging from resource extraction to recreation to aesthetic enjoyment. Given competing values, defining what a commons *is* almost invariably results in tradeoffs. At the time governing institutions were created, a particular use may have dominated users' interest in the commons. As circumstances change, however, emerging values may come into view and existing commons institutions may stand in the way of protecting them.

Thus, emerging commons and tragic institutions come in pairs. The scholarship focused on the commons has surprisingly ignored this simple point. Yet, the commons have not: institutions built to address yesterday's problems become today's obstacles to

change. Try as we might to address the tension between stability and responsiveness by reforming commons management in a piecemeal fashion, we often find that the stubborn institutions of the past act as formidable stumbling blocks. This problem is not of merely theoretical interest. The clash between institutions built to last and changing values lies at the heart of many of the most difficult resource conflicts in the recent past, from spotted owls in the Northwest's old growth forests to the debates over drilling in the Arctic National Wildlife Reserve. Nor is this confined to environmental conflicts, as the recent difficulties in unseating incumbent users of the analog radio spectrum makes clear.

Part 4.1 takes up the challenges of protecting the commons. It explains how management of open-access commons poses difficulties for restricting access and promoting cooperation among commons users. It also addresses the related difficulties of convincing commons users to cut back and the hurdles of promoting collective action to protect the commons.

Part 4.2 looks at the basic tools used to build and maintain stable institutions to protect the commons—in particular, credible commitments and threats. This Part ends with a discussion of institutional traits that tend to create stability in the commons.

Part 4.3 explores emerging commons and discusses how crowding causes values of the commons to change over time. A series of practical examples illustrate both how values change and the political economy of different groups driving this change.

Part 4.4 examines tragic institutions and illustrates clashes between stable institutions and emerging commons. It explains why tragic institutions occur and provides a framework to evaluate tragic institutions.

Moving from theory to practice, Part 4.5 applies the framework to three real-life examples that highlight conflicts between emerging commons and incumbent institutions. Specifically, it explores governance of the analog radio spectrum, the founding of Yellowstone Park and the subsequent eviction of Yellowstone's historic users, and the challenges of managing water use in the western United States. This Part ends by synthesizing the case studies and introducing four typologies of tragic institutions.

Part 4.6 examines how a clearer understanding of emerging commons and tragic institutions should alter our approach to governing the commons. In designing institutions, we need to find ways to supplement stable institutions with responsive institutions: institutions that recognize complexities and evolve with new information, integrate piecemeal policies, allow trading of use rights within acceptable bounds, internalize the costs of incumbent users, and provide users the incentive to conserve the commons. Part 4.6 recognizes that institutional fragility may limit opportunities to build responsive institutions and emphasizes that responsiveness introduces some risks. Yet, as a whole, it suggests more responsiveness and less stability would serve the broadest good.

4.1 Challenges of Protecting the Commons

The first step in explaining the conflict between emerging commons and incumbent institutions lies in appreciating the well-documented challenges of building governance institutions in the first place. Recognizing the hurdles to effective governance of the commons helps explain why commons institutions tend to resist change and lock in benefits for select commons users. This Part summarizes the relevant literature and focuses on three major challenges to imposing rules in an open-access commons.[8] Part 4.1.1 looks at how the traits of commons make it hard to either restrict access to or promote cooperation among commons users. Part 4.1.2 explores the difficulties in convincing commons users to cut back their consumption. Finally, Part 4.1.3 examines difficulties facing those promoting collective action.

4.1.1 Challenges Imbedded in the Traits of a Commons

A commons is a natural or manufactured resource with two defining characteristics. First, one person using a commons diminishes the amount of commons available for others.[9] Thus, preserving a commons hinges on restricting consumption. This is unfortunate because the second characteristic of a commons is the difficulty of

8 An "open-access commons" refers to a commons with no mechanism to restrict access to the commons (Bromley, 1992a).

9 The main difference between a commons and a public good is that a public good does not consume or diminish the resource. (Keohane and Ostrom, 1995). In practice, sometimes it is difficult to distinguish public goods from commons.

excluding potential users (Ostrom, 1990; Young, 2002).[10] Classic examples of commons include fisheries, public highways, parks, and public squares.

Difficulties in excluding potential users of a commons pose significant challenges. First, a person acting alone and reducing his own consumption will not only fail to achieve much but also will create an opportunity for other users to consume that part of the commons instead (Thompson, 2000). Second, and related, it is difficult to convince other users to cut back because commons users face constant "temptations to free-ride and shirk" (Ostrom, 1990, 15). Indeed, this is Hardin's fundamental point: users have an incentive to continue using the commons even in the knowledge that continued use will lead to a collective tragedy. Because keeping users out is difficult, the costs of convincing commons users to cut back voluntarily—or due to coercion—are often substantial (Coase, 1960) .[11]

Given the difficulties in restricting access and in promoting cooperation, it sometimes seems entirely rational to keep a commons as an open-access commons. When, for example, there is enough of the commons to meet the demands of all potential users, the costs of institutions may outweigh their perceived benefits (McKean, 2000).

---

10 While the definition of "commons" is straightforward, inconsistent use has somewhat muddled the term (McKean, 2000). Perhaps as an effort to remedy this, scholars have given commons different labels including "common-pool resources" (CPRs) and "common-pool goods" (McKean, 2000).

11 The costs referred to here are transaction costs, meaning the price of understanding, making, monitoring, and enforcing deals (Knight, 1992; North, 1990; Posner, 2003). From the view of the individual, we can say that transaction costs are "all those costs that cannot be conceived to exist in a Robinson Crusoe (one-man) economy" (Cheung, 1992). At a more global level, *transaction costs* are the costs extracted by institutions and the organizations, including the costs of creating, maintaining, and changing institutions (Arrow, 1970).

Additional restrictions only begin to make sense when the users recognize limits and the reality of rivalry becomes tangible (Hardin, 1968, 1244).

4.1.2 Challenges of Convincing Commons Users to Cut Back

Crowding in the commons does not necessarily mean commons users will want to cut back. To the contrary, commons users often resist efforts to restrict access to the commons even when this would presumably benefit them (Thompson, 2000, 243). Therein lies the seeds of the tragedy of the commons.

One difficulty in cutting back arises from the way the commons distribute costs and benefits. Protecting the commons is good for all users collectively. Yet, the costs of cutting back are distributed to individual commons users: fewer of his cows in the pasture or fish in her pan (Hardin, 1968). Given this reality, commons users may rationally fear that they will disproportionately bear the costs.

Additionally, time horizons may cause commons users to discount the benefits of cutting back more than they discount the costs because the costs of cutting back often accrue immediately whereas the payoff of reductions often looms in the future (Ostrom, 1990, 34-35; Baland and Platteau, 1996, 343-44). Uncertainties surrounding benefits may also justify discounting (Ostrom, 1990). Some users may question whether cutting back is necessary at all. The more complex the commons, generally the more difficult it is to forecast how foregoing consumption will benefit users. Additionally, long time horizons

may introduce the possibility that sacrifices today will be undone by users in the future changing or skirting the rules of the game (Ostrom, 1992).

Lastly, a number of well-documented psychological effects also help explain why commons users often find cutting back difficult (Kahneman and Tversky, 1984; Kahneman, Knetsch and Thaler, 1991; Kahneman and Tversky, 1973; Tversky and Kahneman, 1981). People often systematically fixate on potential loss more than they appreciate potential gains (Kahneman and Tversky, 1973). Similarly, once people possess something, they tend to place a higher value on it (Kahneman, Knetsch and Thaler, 1991; Tversky and Kahneman, 1991). In other words, cutting back in the commons is difficult because cutting back benefits is always psychologically difficult—often to an economically irrational extent.

4.1.3 Problems of Engineering Collective Action

Because the traits of a commons make going it alone unattractive and because cutting back is so difficult, cooperation is essential in restricting access to the commons. Yet, engineering collective action is often difficult as well.[12]

Difficulties creep in for several reasons. First, some commons users may attempt to free ride—willingly benefiting from restricted access while avoiding paying for it.[13] Free riding may arise in part because the commons invite such behavior, in part because

---

12 "Collective action problems" are transaction costs that reflect the difficulties of coordinating actions that are not present when an actor acts alone. (Ostrom, 1990; Olson, 1971).

13 A "free rider" is someone who does not pitch in but benefits from the actions of others nonetheless (Ordeshook, 1986).

of the difficulties in cutting back, and in part because some people are just prone to free ride (Ostrom, 1990, 36). Moreover, a small amount of free riding can have a catalytic effect and unravel efforts to build cooperation (Oakerson, 1992; Dagan and Heller, 2002).

Additionally, coordinating behavior may prove more difficult in some commons contexts than in others. As group size increases, so do collective action costs (Ostrom, 1990, 202-05; Posner, 1974; Olson, 1971, 44). This makes sense because two of the most significant collective action costs are spreading information and coordinating behavior: the larger the group, the more people to inform and coordinate (Demsetz, 1967). Likewise, the more dispersed the benefits of the commons, the greater the transaction costs associated with collective action (Oakerson, 1992). Collective action favors small, tight-knit groups that have a lot to gain and are able to muster the political resources to coordinate collective action (Hardin, 1982).

Finally, it is generally presumed that the lower the geographic concentration of commons users, the more costly it is for them to coordinate collective action (Ostrom, 1990; Baland and Platteau, 1996; Agrawal and Gibson, 2001). The same is true of societies with greater diversity of cultures, religions, or race (Ostrom, 1990; Baland and Platteau, 1996). Whether the distance between users is geographic, cultural, linguistic, or emotional, collective action costs increase.

4.2 Building and Maintaining Stable Institutions in the Commons

Part 4.1 discussed both the importance and difficulty in gaining the support of commons users to restrict access to the commons. This Part surveys the policy tools used to build and maintain institutions that restrict access, even in the face of disinterest or resistance.

Part 4.2.1 briefly defines "institutions" and discusses how institutions help govern the commons. Part 4.2.2 then turns to the role of credible commitments and threats in gaining the support of commons users. Part 4.2.3 discusses the design principles of stable institutions identified in the literature, which are often used to explain why some commons institutions survive while others fail.

4.2.1 Institutions and How They Govern the Commons

In everyday use, "institutions" often refer to organizations or to the buildings that house them. However, in the context of this Chapter, "institutions" is meant to refer to the formal and informal "rules of the game" that "shape human interaction" (Ostrom, 1990, 51; North, 1990, 3).[14] Formal institutions are codified rules and informal institutions are unwritten rules and norms (Ostrom, 1990, 51; North, 1990, 4). Both formal and informal institutions play important roles in governing the commons. An example familiar to many law students concerns how Maine lobster harvesters rely on both state

---

[14] Importantly, this definition rejects a formalistic law/society distinction and instead focuses on the rules that motivate people (Knight, 1992).

law and longstanding unwritten norms (enforced by the harvesters) to allocate the right to harvest lobsters (Acheson, 1975).

Commons institutions generally restrict access to the commons without recourse to private property or dividing the commons into pieces (McKean, 2000). Rather, institutions restrict access of users by changing their incentives to consume the commons (Hardin, 1982; Runge, 1992). For an institution to alter incentives, commons users must at least believe consequences flow when they break or follow the rules of the game (Ostrom, 1990, 94-100; Schelling, 1960; Hardin, 1982). Given the difficulty of excluding potential commons users, monitoring and enforcement are no small tasks. How, though, do potential rules become the rules of the game?

4.2.2 Building Stable Institutions

While commons users may resist cutting back, institutions can alter their incentives to consume. However, this takes stability, meaning that in an ongoing way the institution must help commons users overcome "temptations to free-ride and shirk" (Ostrom, 1990, 15). Given the nature of commons resources, resistance—even passive resistance—increases the transaction costs of establishing the institution. This means institutions often need to provide both carrots and sticks to promote and cajole cooperation. At a basic level, commons users must believe that an institution's promises to restrict access to the commons are credible. While virtually all institutions use both,

for the sake of clarity, Part 4.2.2.1 and Part 4.2.2.2 respectively address commitments and threats separately.

4.2.2.1 Credible Commitments

Getting commons users to support proposed institutions often requires not only inducements but also assurances that inducements will come to fruition: credible commitments (Ostrom, 1990, 43-45). But, how do we make credible commitments? The answer to this boils down to aligning the incentives of those governed by institutions with those charged with implementing them (Williamson, 1985).

Credible commitments can help build institutions in many contexts (Kreps, 1990; North and Weingast, 1989; Williamson, 1983; Weingast, 1997). In the commons, making a credible commitment almost always entails giving some commons users preferred access to the commons: users not only want institutions to protect the commons but also—and perhaps primarily—to protect their interests (Baland and Platteau, 1996; Ostrom, 1992). Particularly when a commons is experiencing crowding, commons users are likely to see institutions as a way to get protection from competitors. Examples of institutions providing such commitments in the context of commons include Internet domains, radio frequencies, BCS football bowl bids, and water rights. Additionally, grandfathering provisions, like those used in many environmental laws and land use regulations, give incumbent users benefits to the commons that are kept from others (Stigler, 1971).

Credible commitments must also provide some assurances that the rules of the game will not change. Not surprisingly, potential benefactors often view such promises with suspicion (Weingast, 1997). A popular means to provide such an assurance is to give commons users the power to change and enforce the rules (Ostrom, 1990; McKean, 2000; Wade, 1988). In many small-scale commons, resource users alter, monitor, and enforce the rules of the commons (Ostrom, 1990; Wade, 1986; Baland and Platteau, 1996). Another strategy involves giving control of an institution to a trusted third party, like an agency users believe has their interests at heart (Moe, 1989). For example, fisheries in the United States are governed by councils that often are perceived as being dominated by fishing interests (Eagle, et. al, 2003).

Commitments may also come in the form of simple rules that give benefits to particular users. It is thought that clear rules are harder to change because they permeate informal institutions (Ostrom, 1992). Not surprisingly, clear rules are frequently found in the institutions governing the commons. For example, many commons regimes, including water, oil and gas, Internet domains, and others, allocate access on a "first in time, first in right" basis.

4.2.2.2 Credible Threats

While the commons literature rarely explicitly discusses the concept of credible threats (though they often are implied), credible threats are the flip-side of the same coin: monitoring, enforcement, and sanctions are necessary to make credible

commitments (Ostrom, 1990; Wade, 1986; Schelling, 1960). Threats achieve the support of users by coercing "quasi-voluntary compliance" (Ostrom, 1990, 94). However, using the stick rather than the carrot raises a different set of challenges.

First, credible threats hinge on the ability to monitor and enforce the threat. In some commons, such as vast fisheries, this can be challenging. The need for adequate monitoring often forces those making threats to resort to clear, simple rules that are suboptimal to more precise restrictions (Ostrom, 1990; Schelling, 1960). For example, because they are easy to monitor, we see fishing seasons and gear restrictions instead of more precise catch limits. Additionally, we find simple rules in many federal environmental laws that regulate important commons. For example, the Clean Water Act simplifies monitoring by requiring various pollution control technologies.[15]

Second, delegating monitoring and enforcement to a committed third party increases a threat's credibility (Schelling, 1960). For example, when Congress delegates oversight to an agency, it can provide some credibility by giving powers to an agency that is more likely to follow through with the threat. Likewise, allowing for citizen suits helps make Congress' threats credible, something Congress has provided to protect

15 Clean Water Act, 33 U.S.C. § 1311(b)(2)(A) (2000).

various environmental commons, such as endangered species,[16] water bodies,[17] and airsheds.[18]

Third, threats become credible if they are self-enforcing, meaning the target of the threat has the incentive to monitor itself (North, 1990). Examples of self-enforcing threats in the commons include record keeping and reporting violations for permit holders under the Clean Air Act[19] and the Clean Water Act.[20] Because these requirements assume a violation if a regulated entity fails to keep records, the entity has the incentive to monitor itself.

Lastly, incremental threats may also add to the credibility of threats: enforcement of minor violations tends to increase the credibility of enforcement of significant violations (Schelling, 1960). Many commons institutions, including federal environmental laws, rely on graduated sanctions to punish those who break the rules (Ostrom, 1990; Baland and Platteau, 1996).[21]

4.2.3 Maintaining Stable Institutions

The commons literature contains several noteworthy attempts to generalize about why some institutions are stable and others are not (Ostrom, 1990; Wade, 1986; McKean, 2000; Baland and Platteau, 1996). Among these efforts, Ostrom's "design

16 Endangered Species Act of 1973, 16 U.S.C. § 1540(g) (2000).
17 Federal Water Pollution Control Act, 33 U.S.C. § 1365 (2000).
18 Clean Air Act, 42 U.S.C. § 7604 (2000).
19 42 U.S.C. § 7414 (2000).
20 33 U.S.C. §§ 1318, 1321(b)(5), 1342 (2000).
21 42 U.S.C. § 7413(e) (2000); 33 U.S.C. § 1319(d), 1319(g)(3) (2006).

principles of long-enduring institutions" is probably the hallmark (Ostrom, 1990, 90-102).[22] These design principles have served as the road map for explaining and addressing many natural resource challenges, including transboundary water allocation (Goodman, 2000), irrigation systems (Ostrom, 1993), and forest management (Gibson, 2000). Additionally, because commons are so abundant, these principles are increasingly applied to provide solutions to a diverse array of challenges. For example, these principles have been applied to areas as diverse as intellectual property, computer-mediated communication systems, and the radio spectrum. Nobel Prize winner Douglass North has gone so far to label Ostrom's principles "commandments" in the context of the commons (North, 1999, 10). Stability is so important in this body of scholarship that scholars within it often use "institutional success" and "institutional stability" interchangeably (Ostrom, 1990, 90; McKean, 2000, 44; Wade, 1986, 215, Bromley, 1992a, 4).

Taken together, scholars have identified eight principles related to the design of stable institutions.[23] In reading over them, it is worth noting how these principles often discourage significant change or incorporation of competing values.[24]

---

22 Agrawal (2002) provides a comprehensive review of the contributions of other scholars who have also made helpful contributions to identify these factors.

23 Scholars have identified principles not related to institutional design and governance that are not addressed here (Agrawal, 2002).

24 A few commentators have pointed out that the commons literature's focus on stability may have a dark underbelly (Dagan and Heller, 2002).

First, stability increases if the nature and identity of use rights to the commons—who can do what and to what extent—are clearly defined (Ostrom, 1990; Wade, 1986; Baland and Platteau, 1996). Stability is helped along by predetermining who will benefit from the institution: those advantaged by the institution tend to support and protect it (Ostrom, 1992).

Second, stability is furthered if the commons' boundaries are clearly delineated (Ostrom, 1990; McKean, 2000; Wade, 1986). The purpose of building commons institutions is to restrict access to the commons. Boundaries begin to answer the question, "access to what?" Monitoring the commons becomes much more difficult if those doing it do not have a clear idea of where to begin and end monitoring.

Third, we see more stability when commons users have some power over the rules that govern the commons (Ostrom, 1990; McKean, 2000; Wade, 1986). This provides them at least some control to protect their interest in the commons and also make adjustments to the institution as necessary.

Fourth, stability increases when commons users make up a homogenous group (i.e., shared geography, culture, and background) (Wade, 1986; Baland and Platteau, 1996). An aspect of this is that of commons users valuing the commons for similar—or at least compatible—reasons (Wade, 1986; Baland and Platteau, 1996). Agreement about the value of the commons eliminates the need to make tradeoffs among competing values and make institutional success simpler to define.

Fifth, institutional stability increases when resource users depend on the commons for economic gain (Wade, 1986; Baland and Platteau, 1996). When a commons is managed in a way that results in economic gain, those who stand to gain find time and take extra care to assure their interests are served.

Sixth, enduring institutions generally rely on simple rules to maintain stability in the commons (McKean, 2000; Wade, 1986; Baland and Platteau, 1996). Simple rules can serve the dual purpose of providing credible commitments and credible threats: they can lock in clear benefits for select users while at the same time making monitoring more feasible.

Seventh, stable institutions often allow and even encourage organizations to form to unite resource users and increase cooperation (Ostrom, 1990; McKean, 2000). This helps reduce the transaction costs of collective action and builds social capital that engenders trust among commons users.

Lastly, stability increases when institutions receive the government's support or at least indifference (Wade, 1986). Having government as an ally helps lock in gains and neutralizes a potential threat: governments often have the power to modify or even supplant commons institutions along with the power to legitimize claims by recognizing rights or by providing enforcement.

4.3 Emerging Commons

The commons literature has largely ignored that how we value a commons can change.[25] When circumstances change, dimensions of a commons that have been obscured can emerge and alter our opinion of what a commons is, what its limits are, and why and for whom it has value. Frequently we only come to appreciate different dimensions of a commons as the costs of our neglect become apparent.

Given the different values bundled within a commons, defining what a commons *is* almost invariably results in tradeoffs, whether consciously made or not; setting up commons institutions creates winners and losers. While some of the winners and losers are identifiable at the time an institution is conceived, others will only find that institutions implicate their interests after an underappreciated dimension of the commons emerges.

Commons institutions generally reflect our tendency to manage the commons for a single overarching value at a time. Why do we govern the commons by focusing on single sticks of the metaphorical bundle? Part 4.3.1 attempts to answer this question by focusing on the role crowding plays in the way we value the commons. First, Part 4.3.1.1.I explores how competing *users* can cause crowding of a commons. Second, Part 4.3.1.2 looks at how competing *uses* can crowd out each other. Part 4.3.2 synthesizes

---

25 While little has been written on emerging commons, this is not to say that the complexity of commons has received no attention at all (Young, 2002; Dolšak and Ostrom, 2003).

when crowding is most apparent—the context where institutional protections are most likely to arise.

4.3.1 Crowding

Scarcity of a commons, also known as crowding, is the primary force that changes the way we value commons (McKean, 2000; Ostrom, 1992; Anderson and Hill, 1998).[26] Crowding gives real bite to a commons' trait of rivalry: when there is enough to go around rivalry means little. Until crowding rears its head, users generally show little interest in restricting access (McKean, 2000; Agrawal, 1999; Keohane and Ostrom, 1995). Once crowding sets in, commons users may see restricting access not only necessary to protect the commons but also to protect their consumption of it.

Users of a commons may use the commons in different ways. However, sometimes a particular use of a commons will dominate. For example, broadcasters dominated use of the radio spectrum for decades and sustaining agriculture is the primary use of most western rivers. Yet, most commons can be put to many uses. Relying on the examples just given, the radio spectrum also enables wireless devices like cell phones and laptop computers, and western rivers also provide habitat for wildlife and feed municipal water consumption.

---

[26] Crowding is not the only force of changing values, even if it is the dominant one. Sometimes particular commons are seen as having value distinct from use value (e.g., animal rights or ecosystem rights). Yet, such moral claims usually only have limited influence because many commons are ill suited for such judgments (e.g., airports, the radio spectrum, or public squares) and even where they do apply, we tend to see a diversity of opinions. In contrast, crowding increases the value we place on accessing the commons and tends to synchronize the actions of commons users.

In understanding crowding, it is useful to separate crowding among *users* and crowding among *uses*.

4.3.1.1 Crowding Among Users

Three interrelated factors influence crowding among users pursuing the same use of the commons: the number of commons users, the per capita consumption, and the amount of the commons available. Crowding occurs when the following is perceived to be satisfied:

$$\Sigma\,[(\text{user}) \times (\text{consumption})]$$

$$> (\text{the perceived amount of commons resource available})$$[27]

Given their importance, each factor warrants some attention.

First, consider the impact of crowds on crowding. Perhaps the paradigmatic example of this sort of crowding is the Earth's growing population. However, several factors influence the number of users of a commons, including the size of a population (Hardin, 1968), technological change (Commoner, 1971), levels of wealth and market demands (Libecap, 1994). While these factors are self-explanatory, importantly, increases in all of these factors tend to increase strain on commons, yet there are some notable exceptions. For example, technology can make it less costly to access the commons (e.g., transportation improvements) or less costly to exclude others (e.g., the barbed-wire

[27] This formula is a variant of a formula used by Knight (1992, 118) to explain when social actors will demand institutional change due to the presence of conflict.

fence) (Anderson and Hill, 1998). Likewise, wealth might mean more consumption or the willingness to invest to protect a commons (Gasgupta, 2002).

Second, consumption largely depends on the use in question, the technology employed, and the time horizon of commons users. The first two factors are self-explanatory. Yet, as suggested above, technology changes may increase or decrease the consumptiveness of a use of a commons. As for time horizons, generally speaking, the longer the time horizon, the less of a commons a user will consume.

Third, perception of crowding is more important than actual crowding. Sometimes we are unaware that crowding is taking place. For example, while greenhouse gas emissions have been cause for concern for the past two decades, they began to steadily increase at the onset of the industrial revolution. Similarly, foresight can help us see crowding in the distance. For example, when John Muir began lobbying to set aside Yosemite, he did so even though it faced no immediate threat: he believed potential threats loomed in the future. Additionally, perceptions of threats need not be rational; they only need to exist. For example, some have argued that actions to protect some commons stem from the availability heuristic (Jolls, et. at, 1998), which refers to the tendency of people to overestimate the probability of an event because it is "vivid, well publicized, or more prevalent among a particular actor's friends and acquaintances" (Korobkin and Ulen, 2000, 1088-1089). A vivid example of problems in a particular

commons (e.g., the spontaneous burning of the Cuyahoga River) may lead institutions to protect similar commons (e.g., the Clean Water Act) (Kuran and Sunstein, 1999).

Given that crowding must arise before we build institutions, it is not surprising we tend to protect the commons a value at a time—the value where crowding surfaces first.

4.3.1.2 Crowding Among Uses

While the commons literature overwhelmingly focuses on competition among users that rely on the commons for the same value, sometimes one use of the commons crowds out other uses. So, crowding can also occur when the following is satisfied:

$$\Sigma\,[(\text{use}) \times (\text{consumption of use})]$$

$$> (\text{amount of commons perceived to satisfy uses})^{28}$$

Examples of crowding among uses are many: building a fountain in a public square limits the space for protesters; using surface water for irrigation may reduce opportunities for whitewater rafting; use of the radio spectrum for broadcast media confines opportunities for other technologies that use radio waves.

Even when crowding emerges, it is often difficult to recognize for several reasons. First, complexity can obscure our ability to understand that different uses of the commons may implicate each other. For example, it took years of acid rain on the eastern seaboard before we understood the impact of coal-fired power plants in the

---

28 This formula is another variant of the formula used by Knight (1992, 118) to explain when social actors will demand institutional change due to the presence of conflict.

Midwest. Second, costs begin accruing among uses even before we recognize competing values. Consider the mining operations throughout the American West that spread during the 1800s. Only a clairvoyant could have foreseen how this use of public lands would later interfere with recreational uses, such as skiing and hiking, or how it would impact future settlement interests by contaminating ground water and decreasing slope stability. Third, often the forums used to make decisions are not designed to take into account conflicting values. Likewise, those pursuing conflicting uses may be unfamiliar with the issues facing their counterparts.

Even when we recognize competing values, institutions often fail to take into account conflicting values. In the rush to lock up the commons, users neglect competing uses. For example, we pump groundwater and forget the risks of surface subsidence or fill wetlands without taking into account their benefits for flood protection. Additionally, when one set of users can export the costs of their consumption to others, users may have little incentive to change.

To some degree, emerging commons are unavoidable: we are blinded by the uncertainties, ignorance, and complexities. Still, when we do recognize crowding, it can catalyze change because crowding tends to similarly impact multiple, discrete users of the commons at once, which helps in mobilizing and creating the will to seek change.

4.3.2 Recognizing Crowding

The earlier users recognize crowding, the more likely they will form institutions to address it. As illustrated above, crowding among homogenous users is generally more transparent than crowding among heterogeneous uses. While understanding this dynamic is fundamental to understanding emerging commons, it is not the only reason that crowding is more transparent in some circumstances than in others.

A number of factors contribute to our ability to recognize crowding. First, as compared to less consumptive uses, more consumptive uses can create crowding with fewer users. Second, transparency of consumption varies not only according to the use but also according to the technology employed. For example, in the mining context, the mining implements (shovels as opposed to steam shovels) and mining methods (open pit mining as opposed to underground mining) influence the degree to which mining is apparent. Third, the more users rely on and spend time using the commons, the more likely it is that they will notice signs of crowding. Generally speaking, this factor works to help those users with economic interests in consuming the commons. Fourth, the less complex the use and the smaller and simpler the dimensions of the commons, the more likely commons users will notice crowding. Dimensions of a commons vary enormously: they may be small like a bus bench or vast like the global atmosphere. Lastly, complexity makes some types of consumption more apparent than others. For example, it would be apparent if a boat attempted to tow away even a sliver of an iceberg. Yet, the massive

consumption of the polar ice caps arising from worldwide emissions of greenhouse gases went unnoticed for decades.

These observations suggest that we would often expect to see crowding—and related demands for protection of uses—when uses are more consumptive, time consuming, and market-driven, and along smaller dimensions of a commons. On the other hand, we do not see crowding as effortlessly when uses are less consumptive, less time intensive, or in pursuit of non-market values or when a commons has larger dimensions. Because recognizing crowding almost always precedes building institutions, not surprisingly, we often find that commons institutions favor those uses noticed first. As discussed in the remainder of the Chapter, this has important consequences.

4.4 Tragic Institutions

Crowding drives institutional change in the commons and results in a tendency of those building commons institutions to fixate on dimensions of the commons experiencing crowding. Furthermore, to get commons users to support these institutions, we often provide select users privileged access to the commons and control over the governance of the institution. Additionally, we build institutions to maximize stability. These generalizations characterize some of the most substantial findings of the commons literature.

However, when the way we value the commons changes, stability loses some of its sheen. With a change of circumstances, aspects of the commons we previously neglected take on import. Where we find changing values, institutions built to protect one value of the commons often stand in the way of protecting competing values. Stability becomes rigidity: incumbent institutions stand in the way of protecting emerging values.

This Part discusses institutional change and how incumbent institutions create burdens for emerging values. Part 4.4.1 discusses the lack of attention paid to institutional change in the commons scholarship. Part 4.4.2 discusses the main factors driving tragic institutions. Part 4.4.3 puts forward a framework that explains the interactions between stable institutions and emerging commons.

4.4.1 Relative Neglect of Institutional Change within the Commons Scholarship

Particularly in the context of changing values, institutional resistance to change has received little attention in the commons literature.[29] This is a significant oversight. While attention to institutional change in the commons literature is sparse, many commons scholars have made convincing arguments to study institutional change. One of the most convincing came from Dolšak and Ostrom (2003, 5-6):

> Most traditional common-pool resources have already been governed by one regime or another . . . . The challenge in managing such resources is

[29] Some authors exploring the challenge of solving the tragedy of the commons have focused on path dependency (Libecap, 1994).

> to devise more effective institutions when the remnants of the previous regimes are still present . . . . [and] to devise institutions that reallocate the common-pool resources in the presence of political action by those who would lose in the process of reallocation.

While the commons literature generally neglects institutional change, probably the most well known discourse is Ostrom's chapter on the subject in *Governing the Commons* (Ostrom, 1990, 103–39). She observes that sometimes institutional change comes easy while other times it is costly (Ostrom, 1990, 141). She explains that institutional change often occurs by adding layers of institutions "each buil[t] on the base of prior rules" (Ostrom, 1990, 141). While this glimpse of institutional change begins to grapple with institutional inertia, unfortunately, Ostrom leaves the topic almost as quickly as she raises it.

However, as a generalization, discussions of institutional change within the commons literature are most notable for their absence rather than contribution. This neglect leaves important stones unturned, such as the importance of credible commitments in the literature. While commitments help induce commons users to support commons institutions, commitments providing select privileged access makes change difficult even when our values evolve.

Moreover, the much acclaimed "design principles of enduring institutions" often cut against protecting emerging commons. For example, when institutions define who can use the commons and to what extent, this predetermines winners and losers and makes institutional change difficult unless it happens to benefit incumbent users. The

same is true of giving users control of the institutions that govern the commons. Additionally, encouraging users to form user organizations creates social capital, which can be used to rally incumbents to curtail change (North, 1990, 112; Ostrom, 1992, 308-309).

Even if the literature has ignored the issue of changing values, the commons have not. Stability, of course, is important. However, this focus on stability has made it all too easy to ignore the import of institutional responsiveness. Our heavy investment in stability comes at a cost.

4.4.2 Tragic Institutions

When emerging values cross the interests of incumbents, existing institutions increase the costs of change or even prohibit change all together. This grows out of four phenomena. First, those building institutions tend to narrowly define a common's value—often protecting one value of a commons at a time. As discussed above, this is often due to the role of crowding influencing decisions to build institutions. Institutions provide a platform for those with a stake in the commons to try to solidify why a commons has value and who will benefit from it. Once created, commons institutions entrench the interests of those who create and maintain them (Knight, 1992).

Second, we frequently engineer commons institutions to resist change. In large part, this occurs due to the use of credible commitments to create institutions: we promise select users privileged access to the commons to induce their support. Once

promised institutional advantages, commons users generally use institutions to attempt to lock in privileged access, making it all but impossible to renege on these promises. Incumbent users have some power to both maintain their access to the commons and to fend off change contrary to their interests.

Third, once the rules of the game are in place, those who benefit from the incumbent institutions invest in political, economic, and social organizations to protect their interests.[30] Not surprisingly, however, when emerging values conflict with the interests of incumbent users, these organizations increase the costs of change.

Lastly, some uses of the commons change the commons physically. When a value calls for restoring a commons to how it was before, this is an additional cost for those attempting to further emerging values. For example, the consequences of surface mining, clear cutting forests, and bottom trawling on the ocean's floor are often difficult to reverse. This equally applies to the human-built landscape: each building and piece of infrastructure is costly to remove or change. Sometimes, an emerging value calls for physical restoration in addition to political engineering.

4.4.3 Tragic Institutions Framework

How do existing commons institutions interact with efforts to protect emerging dimensions of the commons? The answer to this question turns on three factors:

---

30 In contrast to institutions, *organizations* "are groups of individuals bound by some common purpose to achieve objectives" (North, 1990, 5). Organizations and institutions interact with each other and often reinforce each other (North, 1990).

demands of those with a stake in the commons to pursue institutional change or stability; the relative power of parties with an interest in institutional change or stability; and the role of institutions in shaping outcomes. So, we find the following relationship of factors influencing change:

Crowding × Power × Institutions[31]

Similarly, the factors relating to stability include the following:

Conflict with Incumbents' Interests × Power × Institutions

Tragic institutions reflect the drag of the forces favoring stability on the forces favoring change.

Each factor included in the framework deserves attention. First, the inclusion of crowding and conflicts with incumbents' interests amplifies that competition and conflict often explain institutional arrangements (Agrawal, 1999; Alchian, 1950; Alchian and Demsetz, 1972; Knight, 1992; Demsetz, 1967) and reflects that parties use institutions to realize gains (North, 1990). The demand for change grows out of crowding, whereas the interests behind stability depends on whether change impacts the interests of incumbents, including the benefits they extract and the degree to which they control commons institutions (Libecap, 1994). In determining the degree of conflict, the framework assumes the parties' perceptions are what matter: ignorance, uncertainty, and discounting may alter an incumbent's assessment of the situation.

---

[31] This framework is a variation of Plott's Equation: Preferences × Institutions = Outcomes (Plott, 1991).

The framework takes a broad conception of the relative power of incumbents and those pushing emerging values. Power comes from access to wealth and resources, political allies, ability to overcome collective action problems, and from the physical traits of the commons. While most of these factors are self explanatory, note that political allies might include those with goals only tangentially related to the commons, such as building political constituencies or an interest reason to appease rent seekers.[32] As far as overcoming collective action problems, this generally favors incumbents, who have created organizations to pursue their shared political, economic, and social interests (Olson, 1971; Demsetz, 1967). But, collective action may also depend on other factors such as group size, availability of technology (Anderson and Hill, 1998; Libecap, 1994), and leadership (North, 1990, 87; Stigler, 1971, 3-4; Libecap, 1994, 27-28). As far as the physical characteristics of a commons, sometimes they favor one user over another. For example, the upstream user of a river can impact downstream quantity and quality of water but not the other way around. Similarly, decisions might have different impacts at different geographic scales. For example, local government land use policy is often seen as contributing to regional urban sprawl. The decision that serves local interests presumably best then often cuts against regional interests.

Finally, institutions can also impact outcomes in several ways. First, institutional inertia can complicate efforts to bring about change (North, 1990; Posner, 2000). This

---

[32] Rent seeking does not expand the pie, rather it redistributes it (Posner, 2003).

often means that incremental change is the dominate form of institutional change (North, 1990; Libecap, 1994). As mentioned previously, this is only compounded by the fact that commons institutions are often designed to resist change. Second, uncertainty over institutions deters those seeking change and emboldens those committed to the status quo. Third, institutions provide tools that can often be useful in fending off change and sometimes useful in promoting it (Libecap, 1994). These tools might come in the form of legally enforceable rights or other mechanisms to draw on government enforcement. Lastly, changing some aspects of institutions may be more difficult than others (Ostrom, 1990, 52). We would expect those pursuing new values to look to the least costly way of achieving change (Coase, 1937; North, 1990; Williamson, 1985).

4.5 From Theory to Application

So far, this Chapter has focused much on theory. This Part attempts to root this discussion in three real world examples. The examples were selected because they provide useful vantage points to examine tragic institutions. Additionally, the diversity of the examples underscores the broad applicability of the theory to real-world situations.

I begin with the past century's incremental change of the United States' approach to the analog radio spectrum. The second case looks at the first decades of Yellowstone National Park, and how the creation of a park supplanted other users of Yellowstone,

specifically uses by Native Americans, fur trappers, and entrepreneurs. The final case explores western water law in the context of the changing West.

4.5.1 Case Studies

4.5.1.1 Bringing the Radio Spectrum into the Information Age

The radio spectrum is a classic commons: users are difficult to deter and too much use of a frequency jams the air waves.[33] Time has brought enormous challenges to accommodate innovative uses of the spectrum.

The beginning of the twentieth century saw a growing number of ships at sea begin to use the spectrum for Morse code messages (Benkler, 1998).[34] However, as more and more used the air waves, we began to see congestion. This congestion received much attention in 1912, as the result of communication problems surrounding the sinking of the Titanic (Benjamin, et. al, 2006). The most publicized of these was the garbling of two unrelated messages from two ships that resulted in the misimpression that the Titanic was safely being towed to Halifax (Benjamin, et. al, 2006).

Shortly thereafter, Congress passed the Radio Act of 1912,[35] which charged the Secretary of Commerce with some responsibility to license use of the spectrum (Benjamin, et. al, 2006). In substantial part, the Act relied on a first-in-time, first-in-right allocation of licenses (Hazlett, 1990).

---

33 Nat'l Broad. Co. v. United States, 319 U.S. 190, 213 (1943).

34 Due to the import and prospect of crowding, the U.S. Navy advocated regulation of the spectrum and even made some attempts to appropriate it for its use (Coase, 1959; Hazlett, 1990).

35 Radio Act of 1912, Pub. L. No. 264, 37 Stat. 302 (1912).

However, Congress's solution did not foresee that by the 1920s voice radio would come to dominate the spectrum (Benkler, 1998; Hazlett, 1990). As this became clear, then-Secretary of Commerce Herbert Hoover attempted to use the Radio Act to facilitate the growth of commercial broadcast radio by reserving more desirable parts of the spectrum for commercial broadcast, relegating amateur radio to less desirable segments, and even providing protections for incumbent broadcasters from interference from others (Benkler, 1998; Hazlett, 1990; Benjamin, et. al, 2006).

The popularity of radio grew, the waves were saturated, and in 1925, Hoover stopped issuing new licenses (Benkler, 1998). But, in 1926, a federal court ruled that Hoover had no authority to stop.[36] So, in the summer of 1926, Hoover began reissuing licenses, and within several months more than two hundred new radio stations made their way onto the air waves (Benkler, 1998). However, with so many stations on air, "nobody could be heard."[37] This represented the second radio tragedy of the commons in as many decades.

In February 1927, Congress responded to public outcry concerning the overcrowded spectrum and passed the Radio Act of 1927.[38] The Act in significant part parroted the scheme put forward by Hoover (Hazlett, 1990) with one important caveat—

---

36 United States v. Zenith Radio Corp., 12 F.2d 614, 617 (N.D. Ill. 1926).
37 Nat'l Broad. Co. v. United States, 319 U.S. 190, 212 (1943).
38 47 U.S.C. §§ 81–84, 85, ch. 652, § 602(a), 48 Stat. 1102 (repealed 1934); *id*. §§ 84a–84b, 80 Stat. 647 (repealed 1966).

it cut Hoover out of the picture and created the Federal Radio Commission (Benkler, 1998), later to become the Federal Communications Commission (FCC).

In large part, the Radio Act of 1927 established several rules that have largely shaped regulation of the spectrum to the present (Benkler, 1998; Hazlett, 1990). First, the Act presumed that the government owned the spectrum and that ownership would not change hands.[39] Second, those administering the Federal Radio Act would not charge licensees for their use of the spectrum.[40] Rather, licensees "paid for" their use of the spectrum by adhering to government dictates and facilitating activities that were thought to have benefited the public (e.g., airing of children's programming and political debates). Third, the Act gave much discretion to the implementing agency, only requiring that the agency's regulation conform to the amorphous "public interest." Fourth, the Act protected licensees from interference from others.

With time, these institutions became entrenched. Why?

First and foremost, the government did not relinquish its ownership claim and incumbents have worked hard to maintain their privileged access. This is hardly surprising, as the radio spectrum is an increasingly scarce and valuable commodity.

Second, Congress and the FCC have developed strong relationships with incumbent users. Incumbents solidified their relationship with regulators by attempting to comply with federal mandates and goals. In a more cynical light, relationships have

---

39 47 U.S.C. § 301 (2000).

40 This point has largely captured the interest—if not the ire—of many (Coase, 1959).

strengthened due to intelligent lobbying (Hazlett, 1990). The National Association of Broadcasters has made itself into a substantial political force in Washington, D.C. While perhaps somewhat overstated, many commentators have claimed that the broadcasters have "captured" the FCC. Regardless, leaving so much discretion in the hands of the FCC at least made it an attractive target for rent seeking.

Despite—or some might argue because of—the broad "public interest" standard and the federal government's position that it owns the spectrum, incumbent users have become entrenched political winners: the FCC almost always renews and almost never revokes licenses.

Over the past fifteen years, we have seen much innovation and increasing public demand for new technologies reliant on the spectrum—cellular phones, WiFi, and palm pilots. Of course, all of this demand comes in a context where the Internet, cable television, and satellite television and radio have arguably made broadcast uses of the spectrum relatively less important than they once were. Society's changing values with regards to the spectrum provides some interesting insights into how institutional inertia in the commons bumps up against the demands of a dynamic world.

Consider three different examples that illustrate efforts to take into account the escalating demand for new technologies where incumbents have increased the costs of change—often resulting in complaints that change came too slowly and in too small of quantities (Goodman, 2004). First, historically, licensees have not paid for their use of the

spectrum. Yet, in the 1990s, we saw a great deal of pressure to rely on auctions rather than comparative hearings (Goodman 2004; Benkler, 1998). For the most part, this pressure arose from the Clinton Administration's attempt to reduce the federal deficit. Not surprisingly, incumbent licensees cringed at the idea of paying for licenses and lobbied against the proposed auctions. The political compromise reached made auctions only applicable to new licenses and not renewals.[41] Still, supporters of the bill had to stomach key members of Congress adding a number of pork barrel projects before it could pass.[42]

Second, in the 1990s, Congress attempted to begin relocating broadcast television from the analog radio spectrum to the digital bandwidth.[43] Obviously, this transfer would free up much space on the analog spectrum. Not surprisingly, broadcast television wanted to claim space on the digital spectrum—where broadcast quality could improve dramatically—but resisted giving up privileged access to the analog spectrum. Again, Congress settled this matter by striking a compromise. First, Congress gave broadcasters access to the digital spectrum without charge.[44] Second, Congress pushed off the date broadcasters would have to surrender the analog spectrum to

---

41 Balanced Budget Act of 1997, 47 U.S.C. § 309(j)(1), (2)(b) (2000).

42 Some of the line items prompted President Clinton to at least attempt to exercise the line item veto. *See* City of New York v. Clinton, 985 F. Supp. 168, 171–73 (D.D.C. 1998), *aff'd*, 524 U.S. 417 (1998).

43 Balanced Budget Act of 1997, Pub. L. No. 105–33, § 3003, 111 Stat. 251, 265–66 (1997) (codified as amended at 47 U.S.C. § 309(j)(14)(B) (2000)).

44 47 U.S.C. § 336(a).

December 31, 2006,[45] later postponed again until February 2009.[46] Third, Congress provided a loophole: even after broadcasters transferred to the digital spectrum, they would still have access to the analog spectrum until at least eighty-five percent of the market affected had access to digital television.[47] Many commentators suspect that this eighty-five percent threshold will mean that broadcast television will hold its claim to the analog spectrum longer than the 2009 cutoff date. Until the eviction, broadcasters can use both the analog and digital spectrums.

Third, in 1997, the FCC issued an order that created what it called the "Unlicensed National Information Infrastructure."[48] This order increased access to the spectrum of wireless technologies by allowing them to use the spectrum, so long as they did not interfere with incumbents' use (Benkler, 1998). Technical innovations designed to minimize interference made it possible for wireless technologies to utilize this leeway (Benkler, 1998). Of course, incumbents did not enjoy the prospect of additional competition but could not complain too loudly because the rights of these users were qualified to the extent that impinged on incumbents' licensed use. While many unlicensed users have found at least temporary relief by this order, some have voiced concerns that incumbents have no incentive to make themselves less prone to

---

45 Balanced Budget Act of 1997, Pub. L. No. 105–33, § 3003, 111 Stat. 251, 265 (1997) (codified as amended at 47 U.S.C. § 309(j)(14)(A)).

46 Digital Television Transition and Public Safety Act of 2005, Pub L. No. 109–171, § 3002, 120 Stat. 21 (2006) (codified as amended in various sections of 47 U.S.C.).

47 Balanced Budget Act of 1997, Pub. L. No. 105–33, § 3003, 111 Stat. 251 at 265–66 (1997) (codified as amended at 47 U.S.C. § 309(j)(14)(B)(iii)).

48 Amendment of the Commission's Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range, Report and Order, 12 F.C.C.R. 1576 (1997) (to be codified at 47 C.F.R. pts. 1, 2 & 15).

interference and—in fact—may intentionally make themselves more prone to interference to keep out competitors (Benkler, 1998; Goodman, 2004). Additionally, this liberalization of the spectrum only applies to small niches of the spectrum, leaving most of the spectrum as is (Benjamin, et. al, 2006).

How does this narrative relate to the framework discussed in Part 4.4? In answering this question, it is necessary to compare the factors that promote a resolution that favor incumbents (i.e., crowding, power, and institutions) with that of factors that favor rivals (i.e., the degree of conflict between the new value and incumbents, power, and institutions).

Beginning at the turn of the twentieth century, we see crowding but not necessarily the need to exclude many users of the spectrum: with some organization the spectrum could facilitate that time's major use of the spectrum, Morse code. As broadcast radio and then television came onto the scene, it became much more important for users of the commons to lock in their gains and seek protection from rival users. This translated into individual and collective efforts to lobby the federal government for a stable right to the spectrum. This pressure along with the public import of broadcast radio and television helped bolster incumbents' claims to the spectrum. The institutions did much to favor broadcasters. However, spectrum institutions did not explicitly give incumbents long-term, secure access to the commons:

to get this sort of access, incumbents invested a great deal of effort in appeasing and lobbying the federal government.

Overtime, incumbents increased their power and tightened their grip of the commons as they secured a place of prominence in American culture. Additionally, it became increasingly clear to political actors that broadcasters served an important role in politics. Broadcasters had the ability to finesse the news of the day and to shine the spotlight—either to enhance or to tarnish—on political actors. At the same time, broadcasters had amassed a robust lobbying apparatus to protect their interests. So, by the time rivals users who wanted to use the spectrum for wireless came on the scene, broadcasters had developed a great deal of power and created much security in their continued right to use the spectrum.

Still, the rival use of the spectrum for wireless devices only grew at the tail end of the twentieth century. Increasingly, society demanded and in fact relied upon wireless devices. At the same time, the importance of broadcast media perhaps began to wane as alternatives to broadcasters reliant on the spectrum made headway on media other than broadcast television, such as the Internet, cable, and satellite. Still, in significant part incumbent users withstood rival interests.

Yet, in the 1990s, rivals received a significant boost as the Clinton administration and members of Congress came to link the use of the spectrum commons with a political strategy to help reduce the federal deficit.

In the end, even with the institutional advantages and significant power that incumbents enjoyed, it was not enough to keep new rivals out of the spectrum commons. But, rivals did not get everything that they wanted, and incumbents were able to cut their losses. As the framework would suggest, this occurred by incumbents finding ways to allow rivals access to the commons while at the same time minimizing conflict with their own claims. Specifically, the new rules only opened limited parts of the spectrum to rivals, incumbents did not have to pay for their continued use whereas rivals had to pay to access the spectrum, and rivals were barred from interfering with incumbent users. Additionally, broadcasters received a carrot in form of free access to the digital spectrum to compensate them for losses that they might accrue to accommodate rival uses.

4.5.1.2 Creation of Yellowstone National Park and the Eviction of Historic Users

Yellowstone National Park is among the world's most celebrated commons. Its national park status only dates back to 1872, but people have used and enjoyed Yellowstone for much longer. While visitors today may see Yellowstone—despite its persistent flow of traffic—as nature untamed, for centuries before Yellowstone became a park, it was a place where people hunted and even lived. The coming of the park closed an era for Native Americans and fur trappers. Yet, these established uses did not fade away the moment that President Grant signed the bill that made Yellowstone a national

park. Even though the federal government was much more powerful than these traditional users, rooting them out took decades.

Most retellings of how Yellowstone became a national park begin with events that occurred in 1870 specifically surrounding a small group of influential citizens of Montana. These Montanans took at trip to what is now called Yellowstone National Park to verify what they had heard about Yellowstone from trappers and miners (Schullery and Whittlesey, 2003). As they toured Yellowstone, they not only saw many natural wonders but also an opportunity to bring the area the railroad, tourists, and an infusion of money (Barringer, 2002; Magoc, 1999). While the actual motivations spurring their actions remain unclear (Schullery and Whittlesey, 2003), the group determined to spread excitement about the natural wonders they saw on their trip (Barringer, 2002).

Shortly after their trip, Nathaniel Langford (later to become the first superintendent of Yellowstone) convinced Jay Cooke, president of the Northern Pacific Railroad, to support efforts to protect and promote Yellowstone as a way to further investment in his railroad (Schullery and Whittlesey, 2003). Then, on the railroad's dime, Langford made his way to Washington, D.C. to tell those in the government what his group saw in Yellowstone (Schullery and Whittlesey, 2003). Among those who met Langford was Dr. Ferdinand Hayden of the U.S. Geological Survey (Barringer, 2002; Magoc, 1999; Schullery, 1997). Hayden was enthralled with what he heard and successfully lobbied several members of Congress to fund him to complete a survey of

Yellowstone (Schullery, 1997). When Hayden later returned to Washington, overwhelmed with the majesty of Yellowstone, he brought with him photographs, sketches, and the scientific credibility to help lobby for Yellowstone's protection (Barringer, 2002; Magoc, 1999). His trip also documented some commercial exploitation of the area: during his journey he ran across a number of entrepreneurs attempting to profit from the "healing waters" of Yellowstone (Barringer, 2002). Additionally, upon returning, he found a letter on his desk from Cooke's company encouraging Hayden to lobby to protect Yellowstone (Schullery, 1997; Magoc, 1999).

Langford, Hayden, and the Northern Pacific Railroad joined forces and lobbied Congress to make Yellowstone a national park (Schullery, 1997). The prospect that entrepreneurial efforts might somehow ruin Yellowstone's beauties became the sounding bell for action—the tragedy of the commons spotted far on the horizon. Congressional debate went briskly. The bill to create the park passed easily—though Congress appropriated little money to fulfill its mandate (Schullery, 1997). By March 1, 1872, Present Grant signed the legislation into law.[49] The Act declared Yellowstone "a public park or pleasuring-ground for the benefit and enjoyment of the people" and instructed the Secretary of the Interior to protect the park's wildlife.

In charting the course for Yellowstone, it appears that Congress showed little or no concern for those who then-currently used Yellowstone. If anything, action was

---

[49] Yellowstone National Park Protection Act, ch. 24, sec. 1, 17 Stat. 32 (1872).

furthered—not set back—by these users, particularly the entrepreneurs attempting to profit from Yellowstone. And, throughout Congress's proceedings, it appears virtually no thought was given to the long established stakes of the Shoshoni, Crow, Blackfeet, Flathead, Kootenai, Bannock, and Nez Perce tribes or to the trappers who regularly hunted in Yellowstone (Nabokov and Loendorf, 2004; Spence, 1999; Germic, 2001).

Despite the power and resources of the federal government, creation of a national park did not immediately change things on the ground. The next several decades were characterized by the federal government's attempts to remove the Native Americans, trappers, and unauthorized entrepreneurs from the park (Barringer, 2002). So, even in this case, the drag of institutions of the past increased the cost of change.

The most senior users of the parks received the most hostile ejection from Yellowstone. Native Americans, who had been using the park for centuries (Spence, 1999; Schullery, 1997), for the most part tried to avoid tourists (Germic, 2001). However, in the early years of the national park, several bloody confrontations departed from this generalization, most notably an infamous 1877 attack by Nez Perce Indians (Schullery, 1997; Magoc, 1999; Barringer, 2002). In 1879, the park superintendent "removed" all Native Americans from Yellowstone (Barringer, 2002), which even though in many ways ineffectual, seemed to help lure in more tourists (Nabokov and Loendorf, 2004; Spence, 1999). However, while the park management made some efforts to forcibly evict the Native Americans, this campaign was not successful in the most frequented parts of the

park until near the end of the nineteenth century when the United States Army built a fort in Mammoth Hot Springs (Spence, 1999; Schullery, 1997).

The creation of Yellowstone may have accompanied a mandate to evict trappers, yet initially, park management lacked the tools required to accomplish this task. In fact, in the years following the creation of the park, hunting increased tremendously, almost obliterating Yellowstone's bison herd (Schullery, 1997). This resulted in outrage from the press, the general public, and many sportsmen (Schullery, 1997). The boiling point came in 1894 when park management caught a poacher with several bison pelts within the park boundaries (Spence, 1999). After media and public outcry, Congress passed the Lacey Act,[50] which provided park management tools to curb hunting, including the ability to fine and imprison violators (Magoc, 1999). Granted, the bison decline did not end immediately (Magoc, 1999). But, with this hefty tool and the assistance of the United States Army to enforce it, hunting began to disappear from Yellowstone (Schullery, 1997). However, this was not enough to save the bison. Ultimately, park managers turned their attention to exterminating predators, particularly wolves, and to introducing domesticated bison to the park (Schullery, 1997).

While ridding the park of entrepreneurs may have helped inspire the creation of Yellowstone, it took time. Once it occurred, it was more of an exchange than an eviction. The creation of the park only increased the desires of speculators to use the park. Still,

---

50 Lacey Act, ch. 553, 31 Stat. 187 (1900) (codified as amended at 16 U.S.C. § 3372 (2000)).

with time, park management managed to evict those entrepreneurs that had "illegitimate" stakes in Yellowstone (Barringer, 2002). However, ouster of these was followed by installation of "legitimate" entrepreneurs who had the support of park management (Barringer, 2002). In fact, one entrepreneur early in the park's history convinced park management to give him substantial portions of Mammoth Hot Springs—something that was later invalidated by Congress (Barringer, 2002). As the twentieth century came, and the park was firmly implanted, the most influential entrepreneurial interests were aligned with the railroads, which competed fiercely to provide concessions, road transportation, and lodging (Barringer, 2002).

Turning to the framework, again it is necessary to compare the factors that promote a resolution that favor incumbents (i.e., crowding, power, and institutions) with that of factors that favor rivals (i.e., the degree of conflict between the new value and incumbents, power, and institutions). At first blush it might seem surprising that for decades, incumbent users—the Native Americans, trappers, and early entrepreneurs—withstood the federal government's attempt to expel them from Yellowstone. Yet, the framework helps expose why incumbents had the foothold they did.

The law passed by Congress and the informal institutions that had created patterns of use of the park over a long period of time were unavoidably at odds with each other. This stark clash of institutions put in place a clash between incumbent and rival users. While a decree in Washington D.C. did not automatically alter the

incumbents' use of Yellowstone, the federal government's track record in the nineteenth century showed that it had the ability to remove Native Americans—the most substantial group of incumbents—when those in power determined to do so.

So, how were incumbents able to remain in Yellowstone as long as they did? The answer to this differs across incumbent users. For the incumbent entrepreneurs—the entities Congress focused upon when making Yellowstone into a national park—their staying power is largely a reflection in the time lag between Congress making Yellowstone a park and federal land mangers and rival entrepreneurs getting a foothold in Yellowstone. Until this occurred, at least in a limited way rivals and incumbent entrepreneurs had a manageable—and perhaps at times even a symbiotic—relationship. This, of course, changed as rival entrepreneurs got a stronger foothold within the park and made headway with park management. This ultimately lead to the eviction of incumbent entrepreneurs.

What about the trappers and the Native Americans? As mentioned in the context of discussing the framework, sometimes the physical traits of the commons favors one user over another. This plays out here. Even with the federal government promoting tourism, Yellowstone was big enough for hunters and Native Americans to find plenty of places where tourists did not frequent much. Unlike the entrepreneurs, these incumbents had the ability to relocate quite easily. So, even though these incumbents would have noticed conflicts between their traditional use and the desires to make

Yellowstone a national park, from the incumbents' perspective they still had ample opportunities to use the commons as they desired. For the federal government to close off the commons to these incumbent users, it took a great deal of effort and resources: the extended attention and presence of the United States Army within the park.

So, despite what seems an obvious advantage in the power to call upon resources, rivals had to make significant commitments to transform Yellowstone from a place that people had used for centuries to the desired façade that Yellowstone was nature untouched. While here too, rivals users prevailed, the ability of incumbents to hold on as long as they did shows the staying power of institutions.

4.5.1.3 Western Water Law and the Changing West

Major water bodies are a quintessential commons resources. In the arid interior of the western United States, they are also very important commons resources: lack of water defines the West's natural and built landscapes. Not surprisingly, water proved paramount as settlers attempted to move into the interior West. In the modern West—one of the fastest growing areas of the United States—the thirst for water only grows. Despite all the changes the West has seen over the past 150 years, the rules allocating water have hardly changed at all.

Before the emergence of western water law, however, history reflects that water was a source of great uneasiness and conflict: hoarding, diversions, and even out-and-out brawls. In fact, all this caused Mark Twain to purportedly observe: "In the west,

whiskey is for drinkin' and water is for fightin'." Uncertainty over water made it difficult to settle in the West and added a barrier to entice settlers and investors—in other words, a tragedy of the commons.

Not surprisingly, given the importance of water, western settlers attempted to close off access by creating commons institutions. These institutions began as informal norms among the settlers and boiled down to two simple principles. First, seniority mattered: first in time, first in right. Second, water users had to put water to a continued "beneficial use."[51] The concept of beneficial use has two parts: a prohibition against waste and a requirement that water users had to use their claims on a continual basis,[52] both making it more difficult to hold water for speculative purposes.

These simple institutions served nineteenth century settlers and their time well. They provided settlers with the certainty they desired, allowed for increased investment in the West, and provided a system that helped the West grow and flourish.[53]

As such, it is not surprising to find that western society invested resources to help bolster and entrench these rules. In fact, every settler who had a place in line arguably had an interest to assure that the institution translated into a right to use water.

---

51 *See, e.g.*, ALASKA STAT. § 46.15.260(3) (2006) (defining "beneficial use" as "a use of water for the benefit of the appropriator, other persons or the public, that is reasonable and consistent with the public interest"); CAL. WATER CODE § 1240 (West 1971) (explaining that appropriation "must be for some useful or beneficial purpose, and when the appropriator or his successor in interest ceases to use it for such a purpose the right ceases"); COLO. REV. STAT. § 37–92–103(4) (2006) (defining "[b]eneficial use"); TEX. WATER CODE ANN. § 11.002 (4) (Vernon 2006) (providing the Texas definition).

52 *See, e.g.*, NEV. REV. STAT. § 533.035 (2005); N.M. STAT. ANN. § 72–1–2 (West 1997); UTAH CODE ANN. § 73–1–3 (1989); ARIZ. REV. STAT. ANN. § 45–141(c) (1956); IDAHO CODE ANN. §§ 42–104 (2003).

53 *See* Arizona v. California, 460 U.S. 605, 620 (1983).

Additionally, the settlers' shared stake in the rules helped spur collective action: water user organizations built irrigations ditches and devoted resources to monitor the resource and its users. Social organizations bolstered the institutions. For example, the Mormon Church—which helped settle hundreds of communities throughout the West—not only encouraged members of the community to honor the rules but even enforced water rules in ecclesiastical courts (Firmage and Mangrum, 1988).

Significantly, these institutions found the support of state and territorial governments. As early as the 1850s, state courts began to rely on the settlers' rules as the common law. Legislatures soon followed and made common law statutory law. By the beginning of the twentieth century, most states west of the Mississippi had formed administrative agencies to administer the rules, to keep track of the seniority of different users, and to consider applications by those who wanted a place at the back of the line. State governments became western water's line monitors. For the past century, these institutions also received tremendous support from the federal government, which has invested billions of dollars to dam and distribute western water (Getches, 2001).

While things may look fine from the perspective of incumbents, as the queue for water has only grown, the rationales for the West's water institutions have become increasingly tenuous. This is true particularly in light of the changing face of the West: once home to sparsely populated agrarian communities but now increasingly populated by urbanites and suburbanites.

Consider three examples of how institutions governing the water commons have stood in the way of changing values held by much of the changing West. While eighty to ninety percent of the inhabitants of the western United States live in urban areas—such as Phoenix, Los Angeles, Denver, Salt Lake City, and Las Vegas—approximately eighty to ninety percent of the water used in the West feeds agriculture and mining interests (Thompson, 1993). Rural-urban transfer of water has progressed at a slow pace (Anderson, 1991). In large part, this is due to resistance from rural water users and communities, who see transfers as potentially threatening to rural communities, economies, and irrigation districts (Thompson, 2000a, 245; Libecap, 2005, 15).

Second, the requirement of beneficial use has also proved both too broad and too narrow to meet the challenges of the modern day West. It is too broad because the concept of beneficial use is static (Wilkinson, 1992, 235).[54] The bar against wasting water in the context of incumbent uses has not progressed as demand for water has increased or as the technologies for consuming water have blossomed (Neuman, 1998). On the other hand, it is too narrow because the institutions have only begrudgingly recognized many of the emerging values of the water in the West as beneficial (Boyd, 2003). Additionally, even though most states have now recognized—at least in a limited way—

---

54 While the case law has been slow to evolve, some courts have seemed to indicate that they are willing to consider beneficial use in relative rather than objective terms. *See, e.g.*, Butler, Crockett, and Walsh Dev. Corp. v. Pinecrest Pipeline Operating Co., 98 P.3d 1, 11–12 (Utah 2004); Imperial Irrigation Dist. v. State Water Res. Control Bd., 225 Cal. App. 3d 548, 570 (Cal. Ct. App. 1990). Despite this, courts have been unwilling to impose relative standards in a meaningful way.

the value of keeping water in rivers and streams for recreation, wildlife, and scenic values, states have done little to pursue these values (Sterne, 1997).

Third, the use-it-or-lose-it aspect of beneficial use has only encouraged use of water. When a user is inclined to not use water, she has to consider whether this may result in losing the right to use water in the future (Babcock, 2006). Additionally, because conservation may result in non-use, it discourages users to institute efficiency gains (Russell, 1997).

The greatest changes to western water management over the past century have not come from changes to the institutions formed by the original settlers, but rather from the creation of institutions that challenge western water law. For example, while western water law has made no real progress in increasing the amounts of instream flows, enforcement of the Endangered Species Act[55] and Clean Water Act[56] have (Ransel, 1995; Weber, 1992).

Many scholars and commentators have highlighted the slow evolution of western water institutions (Thompson, 2000a). The lesson to take away from all this, however, is not just that these institutions need updating. Rather, by solving the tragedy of the commons more than a century ago, the West began down a path of creating and bolstering a tragic institution.

---

55 16 U.S.C. §§ 1531–1544 (2000).
56 33 U.S.C. §§ 1251–1387 (2000).

This story harmonizes well with the framework discussed above. In fact, the factors laid out in the framework helps parse out why incumbents have dominated rivals. Beginning with the influence of institutions, more than the context of the spectrum or of Yellowstone, the institutions at work here—western water rules—were explicitly designed to strongly favor incumbents over the long term. Unlike the spectrum where first in time, *de facto* meant first in right, under the prior appropriations doctrine, this has been explicit from the beginning.

The power of incumbents increased as the water institutions became increasingly embedded in the power structure of the West: starting as informal norms among miners and settlers, these rules were accepted by society generally and even written into the case law and statutes of state governments. This full embrace of the West's water institutions have made it very difficult to change rules when other uses of the commons emerged.

The most substantial changes to the West's water rules has occurred along the lines—so as it might be—of rural to urban water transfers. Here incumbents have resisted change to a large degree, and when change has occurred, very often incumbents have received impressive compensation for their willingness to transfer what has become a recognized property right to use water.

However, while some efforts to challenge incumbents have arisen within the context of the western water law, rivals have more commonly avoided that battle and

tried to reform western water law by latching onto rival institutions, such as the Clean Water Act and the Endangered Species Act. While incumbents' desire to stifle such change is no different in the context of rival institutions, an alternative forum to address claims to the commons has compromised incumbents' ability to resist change. This conforms to a major assumption built into the framework: in securing change rivals will attempt to reduce the transaction costs change—in this context which often comes in the form of resistance from incumbents.

4.5.2 Four Typologies of Tragic Institutions

Can we make any generalizations about tragic institutions based on these cases? In these cases and in examples of the commons more generally, we see four faces of tragic institutions. As suggested in the framework discussed above, the key question revolves around the extent to which the interests of incumbents or those pushing emerging values dominate, and to what extent.

When an incumbent institution dominates the influence of an emerging commons, we often find that those pushing emerging values cannot alter the incumbent institution. This may mean that we see no change or that a rival institution embodies the value, leaving the incumbent institution—at least for the time—untouched. On the other hand, when an emerging value dominates the influence of an incumbent institution, we do see changes of the incumbent institution—the only question is how much. We generally only see incremental change, but in rare circumstances we find an emerging

value completely dominating an incumbent value. However, even in those rare cases we often find that—despite this dominance—relics of prior institutions remain. While each of these typologies are examined in more detail below, the following table illustrates the categories of tragic institutions.

Table 10: Tragic Institution Typologies

	Relative Domination	Complete Domination
Incumbent Institution Dominates	Rival Institution	Static Institution
Emerging Value Dominates	Layered Institution	Residual Institution

4.5.2.1 Rival Institutions

When incumbents manage to secure a strong foothold over those pursuing emerging values, incremental change—if it comes at all—generally takes the form of a rival institution. Rival institutions create an avenue for potential change without directly altering existing institutions. This, for example, seems to explain what happened in the context of western water and reliance on federal laws (e.g., the Endangered Species Act and the Clean Water Act) to protect instream flows rather than relying on western water law. This observation is furthered by speculation that that instream flows may not have received such protections if drafters of the Endangered Species Act and the Clean Water Act understood what they had unleashed (Thompson, 1998).

Further, those attempting to protect emerging values may look to rival institutions when the geographic reach of an existing commons institution differ

significantly from the dimensions of the emerging value at stake. In fact, when problems are larger than the boundaries of the governed dimension of a commons, there might even be some economies of scale for those promoting changes to look for ways to vest rival institutions within entities with a broader geographical outlook. An example that illustrates this point is the regulation of a classic commons—our urban landscapes. Direct land use controls are often perceived as a matter for local government zoning. Yet, local control is often blamed for regional problems, such as isolation of the poor and environmental challenges related to urban sprawl. The strength of local government regulation—ability to hone in on local problems—does not add much when the problems are regional in nature and have dimensions that extend beyond the jurisdiction of the local government.[57] While local land use has been slow to change, it is not uncommon to see those attempting to protect the rival values rely on federal laws and—to a lesser extent—state laws to push their agenda. Perhaps because local governments have proven so slow to embrace rival values, some have even turned to market and private solutions, such as working with homeowners' associations. While these rival institutions have not fully remedied the tragic dimensions of local land use, they have at least made some difference.

Rival institutions found in different levels of government can also arise as a refuge for those in the commons smarting of political defeats from incumbent

---

57 *See* Andrew Achincloss Lundgren, *Beyond Zoning: Dynamic Land Use Planning in the Age of Sprawl*, 11 BUFF. ENVTL. L.J. 101, 128 (2004) ("The virtue of zoning—its local purview—was transforming into its vice.").

institutions at a different level of government. For example, we might see rival institutions formed at the state level attempt to reign in a local government or rival institutions at the federal level attempt the same to a state. A classic example of this is the institutions built within the federal government to address discriminatory practices that worked to exclude people of color from many important common pool resources: access to the electoral franchise, access to the public marketplace, access to public schools, access to the provision of state and local government services, and access to employment opportunities.

Those seeking to create or latch onto rival institutions may also look to the courts. In fact, courts have at times provided those pushing rival values assistance when other branches of the government failed to do so. Court enforcement of substantive and administrative laws often acts as a last line of defense.

Creation or use of a rival institution generally does not immediately resolve matters. Instead rival institutions generally translate into a prolonged conflict. When used effectively, they can begin to channel, constrain, and perhaps even begin to reshape existing institutions. The conflict generally only subsides once those vested in rival institutions find some way to stomp out the other value or make their interests coincide.

4.5.2.2 Layered Institutions

When those pushing for protection of emerging values have the clout to force existing institutions to undergo incremental change, what results is a layered institution.

The cases explored illustrate several examples of layered institutions: changes made in the 1990s to allow for new uses of the radio spectrum; minor changes to western water laws to begin to recognize instream flows as a beneficial use; and, the endorsement of particular commercial interests within Yellowstone National Park.

The cost of incremental change generally relates back to resistance of incumbents. For this reason, we often find that incremental change provides some sort of concession for incumbent users, which obviously works to reduce resistance from incumbents. Perfect examples of this are all the changes made in the 1990s to facilitate new uses of the radio spectrum: limiting auctions to only new licenses; allowing unlicensed users to use underutilized parts of the spectrum so long as this does not interfere with incumbent uses; and only forcing television broadcasters to cease using the analog spectrum once the vast majority of television viewers had made the switch themselves. Examples of facilitating change without harming incumbents are pervasive in the commons: the Clean Air Act—which protects the air shed commons—grandfathers in emitters who built plants prior to the passage of the Act; land use plans that permit existing nonconforming uses; new wilderness designations often grandfathers in existing uses.

When we find layered institutions harming incumbent users, we generally find incumbents giving up relatively weak, dispersed benefits to those seeking to use a commons in a way that provides concentrated benefits to a small number of users. This

is essentially the story of how a single railroad company became the major benefactor of Yellowstone Park's concessions, transportation, and lodging at the turn of the twentieth century.

In other cases, incremental change confronts advantages of incumbents more directly and provides a pathway for institutional change that in some ways negotiates between the interests of incumbents and that of those supporting emerging values. This is the story of institutional change that Elinor Ostrom tells in *Governing the Commons*. She explains what seems to be a hopeless tragedy of the commons of overused groundwater aquifers in southern California and explains how a somewhat surprising decision by a state court essentially altered the rules of the game to force groundwater conservation (Ostrom, 1990, 103-142). We also see this sort of change in the new found flexibility mechanisms employed in the administration of the Endangered Species Act, which have been used to shed the more unpredictable—by some accounts even draconian—features of the Act.[58] Yet, of course, the more a change alters the power of incumbents, the more resistance we expect to find from incumbents opposing that change.

4.5.2.3 Static Institutions

We see the face of tragic institutions most clearly when incumbent institutions lock out emerging values. Those attempting to protect emerging values can face

---

58 *See* Endangered Species Act Amendments of 1982, Pub. L. No. 97–304, sec. 6, 10(a), 96 Stat. 1411, 1422–25 (codified as amended at 16 U.S.C. § 1538 (2000)); Habitat Conservation Plan Assurances ("No Surprises") Rule, 63 Fed. Reg. 8859 (Feb. 23, 1998) (to be codified at 50 C.F.R. pt. 17).

significant hurdles: collective action, informal norms, established organizations, and institutional remedies. In the case of western water law, the institution that locked up the West's waters—"first in time-first in right"—still remains unchanged. The same is true of the radio spectrum: since the time of Herbert Hoover broadcasters have held the strongest bandwidths of the radio spectrum.

We often find commons with static institutions, where we do not expect to see commons at all. The reason we do not see commons is because incumbents have captured them so successfully that they hardly resemble commons anymore. Take the example of the commons to split up voters among congressional districts: gerrymandering is essentially as old as the districts themselves. These institutions have become increasingly static as tools to carve up districts have become more robust. One might tell a similar story about the creation of the BCS bowl bid system to determine college football's national champion.

We have seen an impressive ability of institutions created to preserve designated wilderness and even the Artic National Wildlife Refuge (ANWR) to withstand change. While these institutions are clearly static institutions, they are somewhat unique because the benefits that they provide are diffuse and generally only enjoyed in small doses. Factors to explain such institutions include the import of symbolic politics, willingness of the public to pursue expressive interests where no instrumental interest is available to them, and existence of non-use values.

4.5.2.4 Residual Institution

The final type of tragic institutions is the residual institution. These institutions crop up in the rare circumstance that those attempting to protect an emerging value have the power to supplant incumbent institutions. Yet, typically even when emerging commons completely dominate existing institutions, it takes some persistence to stomp out the last relics of the incumbents' institutions. Of the cases examined above, we see the residual institution most clearly in the difficulties of the federal government to stomp out the interests of Native Americans, trappers, and unauthorized entrepreneurs in Yellowstone. This sort of tragic institution—though quite rare—does appear occasionally in the commons literature, most often when an aggressive government attempts to take away the benefits of a commons from a small group of users.

Sometimes, residual institutions result in relocating incumbent institutions rather than supplanting them. This explains what has happened with global whaling institutions over the past few decades. The International Whaling Commission (IWC) came about to regulate harvesting of whales and to maintain the whaling stocks. However, by the 1980s, enough countries that opposed harvesting whales signed onto the commission to prevail in an effort to get the IWC to take on a moratorium on whaling. For a time, it appeared that non-whaling countries had successfully hijacked whaling decisions made on the international stage. However, by the 1990s, countries that favored whaling began leaving the IWC (Chayes and Chayes, 1993). Some of these

countries created a new commission—the North Atlantic Marine Mammal Commission—and others disengaged in the international forum or did so only with extremely lax enforcement and robust use of the IWC's loopholes. While the IWC continues advocating for whale preservation, it does so with substantial difficulties because it has little sway over whaling countries and what have now become rival institutions.

Finally, it is important to note that given the prospect of complete defeat, incumbent users, compared to others, will put up more resistance than when faced with other sorts of change, thereby increasing the costs of change (Ostrom, 1990, 200). In the face of eminent domination by those pushing emerging values, incumbent users have resorted to extreme measures to salvage what value of the commons they can or even destroy the commons in protest.

4.6 Managing Emerging Commons and Tragic Institutions

While institutional stability may help solve the tragedy of the commons, stability also may create rigidity when values change. In some ways, recognizing that the major solution to the tragedy of the commons leads to yet another tragedy may leave us with a sense of futility. This Part attempts to provide policy makers and others with influence over commons with some advice about navigating this difficult tension.

Part 4.6.1 briefly discusses the difficulties associated with balancing two often conflicting goals: institutional stability and institutional responsiveness. In cases where

stability has become or threatens to become rigidity, this Part proposes several design principles for responsive institutions. These principles are meant to supplement—not supplant—Ostrom's "design principles of long-enduring institutions" (Ostrom, 1990). In significant ways, these proposed principles connect the literature with several other bodies of literature, particularly the political ecology literature on resilience and the adaptive management literature.

Part 4.6.2 attempts to draw some general conclusions about the sorts of circumstances that may shift the optimal balance of institutional stability and adaptability. This discussion looks at factors that can shift the feasibility and desirability of altering the balance between stability and responsiveness.

4.6.1 Design Principles for a Changing World

The "design principles . . . [of] . . . long-enduring institutions" put forward by Ostrom and others help address the tragedy of the commons. Yet, these principles ignore that with a change of circumstances and values sensible institutions can morph into tragic institutions. So, even though the traditional measuring stick may suggest an institution is successful, once we take into account multiple uses of a commons, we may decide the same institutions are failing. A theme of this Chapter is that design principles that do not allow for institutional evolution spells trouble in a changing world. Yet, it is difficult to find pathways that avoid tragedies of the commons and tragic institutions because stable institutions and responsive institutions are often uneasy companions.

The road to responsive institutions is not an easy one. First, in institutional design, specifics have great import; it is a complex task. And, as the case study regarding regulation of the radio spectrum illustrates, merely providing an agency broad discretion generally does not solve the problem. Second, changes generally work against incumbent users and are therefore often politically difficult. Third, efforts to create responsiveness and stability sometimes conflict.

This Chapter—of course—is not the first to focus on the benefits of responsive institutions. In fact, threads of this insight are found in the sometimes overlapping literatures of new institutionalism (Coase, 1937; Knight, 1992; North, 1990; Williamson, 1985; March and Olson, 1984; Eggerstonn, 1990) and political ecology and adaptive management (Berkes, 2004; Holling, 1996). Yet, significantly, this is the first real introduction to the topic rooted in the commons literature. In the commons, the goal of institutional stability is often so lofty that we have overlooked the threat of potential rigidity.

Recognizing the difficulty of supplementing stable institutions with increased adaptability, the following draft principles provide some guidance to decision makers. These principles are meant to start the conversation. Particularly, given the substantial literature that these principles draw upon, it is likely these principles would benefit if they were revisited by those who are much more vested in those academic projects.

The following principles are a starting point for the next chapter of the commons literature:

Help institutions evolve by continually exposing them to competing values. Most stable commons institutions are governed by those good at seeking and adapting to new information: it is vital for institutional survival. Yet, those charged with maintaining institutions—particularly incumbents—often resist information that conflicts with their interests. The first step to remedying tragic institutions is to provide an outlet to highlight rifts between incumbents and competing values. Procedural features that allow for robust public participation, governance transparency, and disclosure of impacts of policy decisions expose these rifts (Holling, 1996). In addition to conflict, this can lead to the consideration of creative solutions and alternatives.

Avoid credible commitments that tie up the commons. Often commons users require some inducement to accept an institution that reduces short-term consumption in favor of long-term sustainability. Providing privileged access to the commons often seems like an easy way, and sometimes an unavoidable prerequisite, to induce commons users to accept institutions. Yet, where viable options remain, it may be worthwhile to consider providing alternative incentives (e.g., side payments or credible threats). Even when commitments are given, they can be included with caveats, such as sunset provisions or reservations for other foreseeable uses (Moe, 1989).

Work toward integrating piecemeal policies. Because we often let crowding dictate when we govern the commons, we tend to build institutions to protect one value of the commons at a time. Integrated institutions that reflect multiple values are often more apt to grapple with the complexities of the commons (Holling, 1996). "Successful" institutions that maximize a single or a few values may actually cause tragedies along other dimensions of the commons. In suggesting this, it is obvious that it is not enough to merely provide that an agency recognize multiuse. Integration means tying policies together in sensible ways and not just expanding the purview of an entity overseeing a commons.

Within sensible bounds, allow trading among users and uses. Many commons institutions often specifically forbid trading of any institutional advantages provided to commons users (Dagan and Heller, 2002, 566). Not surprisingly, this use-it-or-lose-it approach tends to entrench incumbents. Trading among users can loosen the grip of the past's institutions over today's decisions. Yet, trading can lead to unintended and undesired consequences, so we should still monitor trading regimes closely (Salzman and Ruhl, 2000).

Build mechanisms to internalize externalities. An externality is a cost of a decision shouldered by someone other than the decision makers (Coase, 1960). Externalities can describe many of the problems related to emerging commons. Particularly where

policies are not integrated, this helps to create incentives among commons incumbents to take into account rival values (Demsetz, 1967).

Provide incentives for users to conserve the commons. Conserving the commons, obviously, leaves more to go around for all potential users. Conservation is often expensive. Not surprisingly, when commons institutions fail to promote conservation, change comes slowly. Policy carrots can send signals to incumbents that encourage them to value conservation or at least desire to avoid wasteful practices (Young, 2002).

Create limited rights for those with interests in the commons. Providing all users—privileged and otherwise—tools to oversee and perhaps even challenge decisions of those governing the commons creates avenues for change and limits the degree to which institutions become encrusted. The tools to accomplish this include what might be characterized as administrative process protections: the right to provide input, analyze, and even challenge decisions regarding the commons. This might also include providing those with an interest the ability to bring legal causes of action (e.g., specific remedies or the right to bring citizen suits). Of course, for such protections to have meaning, the person or entity providing redress must be somewhat impartial.

If necessary, buy out interests of entrenched users. Sometimes accommodating incumbent users and emerging values is not possible (North, 1990, 90). When the interests of entrenched users and emerging values and emerging commons are

irreconcilable, buying out conflicting users often makes sense: it is a pathway out of political turmoil or gridlock.

4.6.2 Finding the Right Mix Between Institutional Stability and Responsiveness

While the design principles laid out above attempt to avoid direct conflicts with Ostrom's principles that promote stability, to some extent this is irresolvable: the former resists change and the later facilitates it. So, those with influence over institutional design will need to determine how much weight to put into stability as compared to adaptability.

In finding the right mix, practical concerns will often constrain available options. For the most part, incumbents will favor stability over responsiveness because it favors their interests. Given the difficulties in solving the tragedy of the commons, institutional survival may require leaving fledgling institutions alone until they have acquired sufficient stability. Yet, this is a difficult balance because waiting too long to begin building in responsiveness may significantly increase the costs of reform. While these timing issues are difficult, we might find some comfort in that, generally speaking, by the time a particular use begins to crowd out others, change will not risk introducing a tragedy of the commons. Yet, acting before interests collide can often reduce the political costs of moving ahead.

Second, when we think that our institutions have got it right, we might resist adding more responsiveness to institutional design (Young, 2002). This contention has

the greatest weight when the trajectory of a commons institution bucks the typical evolutionary trend. The typical trajectory first sees institutions (i.e., crowding) for those uses of the commons that serve relatively small numbers of tight-knit people, who utilize a localized dimension of a commons in pursuit of economic gain. Institutions that generally come later protect values that benefit larger numbers of people, focus on broader dimensions of the commons, and maximize non-market values. Surface water is a well recognized commons that illustrates this trajectory: water institutions first emerged to allocate the commons to agriculture or to some other highly consumptive use like mining; over time demands grew from municipal water users; still later, we saw institutions for demand to preserve instream flows for scenic, recreation, and wildlife values. However, when we do not see the typical trajectory of institutional evolution, we might resist change because it may risk a shift from accommodating more people to fewer people, from less consumptive uses to more consumptive uses, from regional dimensions to local dimensions, and non-market values to market-driven values. While we can explain part of this by individual preferences, such reservations may also stem from concerns relating to collective action problems: those values we tend to protect first in the commons are those values with the smallest collective action problems.[59] When institutions emerge in spite of greater collective action costs, it may raise concerns that

---

59 The costs of collective action increase as the number of users increase, the distance between users increases, and the per capita benefit decreases. Likewise, the more a use is market-driven, the more likely it is that commons users will be willing to invest in institutions to protect the commons and to lock-in privileged access to its benefits.

increasing the responsiveness of institutions may give those values facing less substantial collective action costs a second opportunity to prevail over incumbent uses that are, for some reason, preferred.

Third, stability might be favored over responsiveness when a commons is nonrenewable or at least slow to renew because responsiveness might lead to more consumptive uses of the commons, which might be difficult or impossible to reverse. It is somewhat troubling—a paradox of preservation—that the more a commons is preserved for less consumptive uses, the more attractive it might seem to those who would use the commons for more consumptive uses: the more a commons is preserved, the more it becomes a target. In contrast, the more a commons user destroys the value of a commons for other users, the less competition we are likely to find over the commons.

The combination of collective action problems and perceived non-renewability of resources causes many to hesitate at the suggestion of increased institutional adaptability. This, for example, explains why suggestions to auction off national parks[60] cause many to pause. Such a proposal incites concern that benefactors of this responsive mechanism might end up excluding large segments of those who currently use the national parks or that the use (e.g., developments of bed and breakfasts, condos, and high-end cabins) might damage what is left of the sense of wilderness found in national parks.

---

60 For example, some claim the National Park System Reform Act (H.R. 260), sometimes referred to as the Parks Closing Commission Bill, was a scheme to put hundreds of national parks on the auction block.

4.7 Proposing The Next Chapter of the Commons Literature

For four decades, the academic literature surrounding the commons has primarily focused on identifying and attempting to solve tragedies of the commons. An entire body of literature focuses on the role of stable institutions. Yet, this important scholarship neglects the fact that seemingly successful institutions create new problems because stability becomes rigidity when the way we value commons changes.

When values change and interest percolates in shaping institutions to protect an emerging dimension of the commons, the institutions of the past often stand in the way. Thus the heart of many of today's challenges in governing the commons arise from attempts to solve yesterday's looming tragedies. In taking a closer look at this problem, we find that the resistance of institutions to account for change is not a matter of chance but rather of design. In order to muster the support to overcome tragedies of the commons, we tend to create institutions that myopically define the value of the commons and that lock in protections of the commons by providing users credible commitments so that they—and nobody else—will benefit from the sacrifices necessary to overcome tragedies of the commons. Further, once users gain privileged access to the commons, it generally follows that those users invest in maintaining and expanding these gains. To the extent incumbent institutions increase the cost of change, an institution is a tragic institution.

Whether or not an institution will increase the cost of change hinges on the extent to which an emerging value conflicts with the interests of the incumbent users and the institutional mechanism that governs them. Whether an emerging commons or an incumbent institution prevails hinges on several factors: the willingness of those supporting the emerging value and the incumbent institutions to invest in maintaining or changing an institution; the degree of power of each of these groups; and the degree to which either party can harness institutions in pursuit of their gains. Tragic institutions can take different forms, sometimes completely dominating rival uses, sometimes limiting changes to incremental changes, and sometimes creeping into the picture even when it appears that an emerging commons is so well rooted that it appears to have extinguished the incumbent use all together.

Tragic institutions challenge our prior conceptions of how to define institutional success in the commons. Rather than defining institutional success with institutional stability, tragic institutions highlight the need for institutional responsiveness as well. While institutions need some degree of stability to stave off the tragedy of the commons, the prevalence of tragic institutions in the commons suggest that we have over invested in stability and sold short responsiveness. Still, responsiveness is not much of an option where there is institutional fragility. Additionally, even when it is an option, we may have qualms, particularly when the current institutional mix has overcome collective action challenges and found ways to protect values that focus on broader dimensions of

the commons, less consumptive uses, incorporating broader numbers of users, and non-market driven values. We also may have concerns when extraction of a commons is nonrenewable or at least slow to renew. In such cases, stability may serve heroic rather than tragic purposes. Yet, most often, a close examination suggests that less reliance on stability and more reliance on responsiveness would work to the greatest good.

References

Acheson, J.M. 1975. The Lobster Fiefs: Economic and Ecological Effects of Territoriality in the Maine Lobster Industry. Human Ecology 3:183-207.

Addis, D. GOP's Early Primary Gets Va. an Invite to the Party. *Virginian-Pilot* (June 23, 1999), at B1.

Agrawal, A. 1999. *Greener Pastures: Politics, Markets, and Community among a Migrant Pastoral People*. Durham, NC: Duke University Press

Agrawal, A. 2002. Common Resources and Institutional Stability. In *The Drama of the Commons*, edited by Elinor Ostrom, et al. Washington, D.C.: National Academy Press.

Agrawal, A., and C.C. Gibson. 2001. Communities and the Environment: Ethnicity, Gender, and the State in Community-Based Conservation. Rutgers, NJ: Rutgers University Press.

Ainslie, E.K. 2006. Indicting Corporations Revisited: Lessons of the Arthur Andersen Prosecutions. *American Criminal Law Review* 43-107-142.

Alchian, A.A. 1950. Uncertainty, Evolution and Economic Theory. *Journal of Political Economy 58*: 211-21.

Alchian, A.A. and H. Demsetz. 1972. Production, Information Costs, and Economic Organization. *American Economic Review* 62 (December): 777-795.

Anderson, O.L. 1991. "Reallocation." In R.E. Beck. *Waters and Water Rights*. Charlottesville, VA: Lexis Law Publishing.

Anderson, T., and P. Hill. 1975. The Evolution of Property Rights: A Study of the American West. *Journal of Law and Economics*: .

Anderson, T.L. and P.J. Hill. 1998. "From Free Grass to Fences: Transforming the Commons of the American West." In J.A. Baden and D.S. Noonan, eds. *Managing the Commons*. Bloomington, IN: Indiana University Press, 119-134.

Anderson, T.L., and P.J. Hill. 2003. The Evolution of Property Rights. In *Property Rights: Cooperation, Conflict, and Law*, edited by T. L. Anderson and F. S. McChesney. Princeton: Princeton University Press.

Andrews, R. 1980. Class Politics or Democratic Reform: Environmentalism and American Political Institutions. *Natural Resources Journal* 20: 221-241.

Aranson, P.H., E. Gellhorn and G.O. Robinson. 1982. A Theory of Legislative Delegation. Cornell Law Review 68:1.

Arrow, K.J. 1963/1957. *Social Choice and Individual Values*. 2d ed. New York: John Wiley & Sons, Inc.

Arrow, K.J. 1970. "The Organization of Economic Activity: Issues Pertinent to the Choice of Market Versus Nonmarket Allocation," in Haveman, R.H. and J. Marglois (eds), *Public Expenditures and Policy Analysis*. Chicago, Ill: Markham Publishing, 59-71.

Axelrod., R.M. 1984. *The Evolution of Cooperation*. New York: Basic Books.

Ayres, B.D. Political Briefing: Oregon Advances By Retreating. New York Times (Aug. 15, 1999), at A24.

Ayres, I. and J. Braithwaite. 1992. *Responsive Regulation*. New York: Oxford University Press.

Ayres, I. and M. Funk. 2003. Marketing Privacy. Yale Journal on Regulation 20(1):77-137.

Babcock, H.M. 2006. Reserved Indian Water Rights in Riparian Jurisdictions: Water, Water Everywhere, Perhaps Some Drops for Us. *Cornell Law Review* 91:1203.

Baker, S. and K.D. Krawiec. 2004. The Penalty Default Canon. *George Washington Law Review* 72:663.

Baland, J.M. and Platteau, J.P. 1999. The ambiguous impact of inequality on local resource management. *World Development* 27: 773-788.

Baland, J.-M., and J.-P. Platteau. 1996. *Halting Degradation of Natural Resources: Is There a Role for Rural Communities*. Oxford: Clarendon Press.

Balz, D. Romney Out, McCain Looks Ahead. *Washington Post* (Feb. 8, 2008), at A1.

Banner, S. 2002. Transitions between Property Regimes. *Journal of Legal Studies* 31: S359-S71.

Barkin, J.S., and G.E. Shambaugh. 1999. Hypotheses on the International Politics of Common Pool Resources. In *Anarchy and the Environment: The International*

Relations of Common Pool Resources, edited by J. S. Barkin and G. E. Shambaugh. Albany: State University of New York Press.

Barrett, S. 2002. Creating Incentives for International Cooperation: Strategic Choices. In *Providing Global Public Goods: Managing Globalization*, edited by L. Kaul, P. Conceicao, K. Le Gloulven, and R.U. Mendoza. New York: Oxford University Press.

Barringer, M.D. *Selling Yellowstone: Capitalism and the Construction of Nature*. Manhattan, KS: University Press of Kansas.

Bartels, L.M. 1985. Expectations and Preferences in Presidential Nominating Campaigns. *American Political Science Review* 79:804-815.

Bartels, L.M. 1998. *Presidential Primaries and the Dynamics of Public Choice.* Princeton, N.J.: Princeton University Press.

Barzel, Y. 1997. *Economic Analysis of Property Rights*. Cambridge: Cambridge University Press.

Baudinet, M. Time Is on My Side: The Nomination Gap. *Larry J. Sabato's Crystal Ball* (June 26, 2008).

Baxter, W. 1974. *People or Penguins: The Case for Optimal Pollution*. New York: Columbia University Press.

Beghin, J., and M. Potier. 1997. Effects of Trade Liberalization on the Environment in the Manufacturing Sector. *The World Economy* 20(4): 435-56.

Benjamin, S.M., et. al. 2006. *Telecommunications Law and Policy*. 2d ed. Chapel Hill, NC: Carolina Acedemic Press.

Benkler, Y. 1998. Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment. *Harvard Journal of Law and Technology* 11:287

Berkes, F. 2004. Rethinking Community-Based Conservation. *Conservation Biology.* 18(3):621-630.

Bernauer, T. 1997. Managing International Rivers. In *Global Governance: Drawing Insights from the Environment*, edited by O. R. Young. Cambridge: MIT Press.

Bonine, J.E. 1975. "The Evolution of 'Technology-Forcing' in the Clean Air Act." In Environmental Reporter (BNA). *The Clean Air Act: Monograph No. 21*. Washington, D.C.: Environmental Law Institute.

Boyd, J.A. 2003. Hip Deep: A Survey of State Instream Flow Law from the Rocky Mountains to the Pacific Ocean. *Natural Resources Journal*. 43:1151.

Brady, H.E. and R. Johnston. 1987. "What's the Primary Message: Horse Race or Issue Journalism?" in G.R. Orren and N.W. Polsby (eds). *Media and Momentum: The New Hampshire Primary and Nomination Politics*. Chatham, NJ: Chatham House, 127-186.

Breyer, S. 1993. *Breaking the Vicious Circle*. Cambridge, MA: Harvard University Press.

Bromley, D.W., ed. 1992. *Making the Commons Work: Theory, Practice, and Policy*. San Francisco: ICS Press.

Bromley, D.W. 1992a. "Commons, Property, and Common-Property Regimes." In D.W. Bromley, ed. *Making the Commons Work: Theory, Practice, and Policy*. San Francisco: CIS Press.

Brooks, R., S. Davidson, and R. Faff. 2003. Sudden Changes in Property Rights: The Case of Australian Native Title. *Journal of Economic Behavior & Organization* 52: 427-42.

Brunnermeier, S.B., and A. Levinson. 2004. Examining the Evidence on Environmental Regulation and Industry Location. *The Journal of Environment and Development* 13(6): 6-41.

Butler, R.L. 2004. *Claiming the Mantle: How Presidential Nominations Are Won and Lost Before the Votes Are Cast*. Cambridge: Westview Press.

Carney, B.M. Super-Duper Tuesday. Wall Street Journal (Mar. 12, 2007), at A14.

Cass, R.A. 1988. Privatization: Politics, law and theory. *Marquette Law Review* 71: 449–523.

Chayes, A., and A.H. Chayes. 1993. On Compliance. *International Organization* 47(2): 175-205

Cheung, S.N.S. 1992. "On the New Institutional Economics," in L. Werin and H. Wijkander, eds. *Contract Economics*. Cambridge, MA: Basil Blackwell.

Clark, C.W. and G.R. Munro. 1975. The Economics of Fishing and Modern Capital Theory: A Simplified Approach. *Journal of Environmental Economics and Management* 2(2): 92–106.

Coase, R.H. 1937. The Nature of the Firm. *Economica* 4(16):386-405.

Coase, R.H. 1959. The Federal Communications Commission. *Journal of Law and Economics* 2:1-40.

Coase, R.H. 1960. The Problem of Social Cost. *Journal of Law and Economics* 3: 1-44.

Colby, B.G. 1995. Bargaining over Agricultural Property Rights. *American Journal of Agricultural Economics* 77: 1186-91.

Cohen, Michael, James March, and Johan Olsen. 1972. "A Garbage Can Model of Organizational Choice." Administrative Science Quarterly 17:1-25.

Commoner, B. 1971. *The Closing Circle*. New York: Knopf.

Connolly, B. 1999. Asymmetrical Rivalry in Common Pool Resources and European Responses to Acid Rain. In *Anarchy and the Environment: The International Relations of Common Pool Resources*, edited by J. S. Barkin and G. R. Shambaugh. Albany: SUNY Press.

Cooper, M. Iowa Results Lead Dodd and Biden To Quit Race. *New York Times* (Jan. 4, 2008), at A14

Richard Cornes & Todd Sandler, The Theory of Externalities, Public Goods, and Club Goods 6–7 (1986).

Crenson, M. 1987. The private stake in public goods: overcoming the illogic of collective action. *Policy Sciences* 20:259-276.

Crotty, W. and Jackson, J.S. 1985. *Presidential Primaries and Nominations*. Washington, D.C.: Congressional Quarterly.

Dagan, H. and M.A. Heller. 2001. The Liberal Commons. *Yale Law Journal* 110:549-623.

Davies, P. and K. Scannell. Guilty Verdicts Provide "Red Meat" to Prosecutors Chasing Companies. *Wall Street Journal* (May 26, 2006), at A1.

Davis, J.W. 1997. *U.S. Presidential Primaries and the Caucus-Convention System: A Sourcebook*. Westbport, Conn.: Greenwood Press.

Davis, K.C. 1969. *Discretionary Justice: A Preliminary Inquiry*. Westport, CT: Greenwood Press.

Arthur T. Denzau & Michael C. Munger, *Legislators and Interest Groups: How Unorganized Interests Get Represented*, 80 Am. Pol. Sci. Rev. 89, 90 (1986).

DeSombre, E.R. 1999. Tuna Fishing and Common Pool Resources. In *Anarchy and the Environment: The International Relations of Common Pool Resources*, edited by J. S. Barkin and G. E. Shambaugh. Albany: State University of New York Press.

DeSombre, E.R. 2000. Developing Country Influence in Global Environmental Negotiations. *Environmental Politics* 9(3): 23-42

Demsetz, H. 1967. Towards a Theory of Property Rights. *American Economic Review* 57(2): 347-59.

Demsetz, H. 2002. Towards a Theory of Property Rights II: The Competition between Private and Collective Ownership. *Journal of Legal Studies* 31: S653-S72.

Dixit, A.K. and B.J. Nalebuff. 1991. *Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life*. New York: W.W. Norton.

Dixon, K. State Workers Face Ban on Politicking. Connecticut Post (Mar. 31, 2007), *available at* http://forum.connpost.com/politics/2008/01/.

Dolšak, N. and E. Ostrom. 2003. "The Challenges of the Commons." In Dolšak, N. and E. Ostrom eds. *The Commons in the New Millennium*. Cambridge, MA: MIT Press. 3–34.

Downs, A. 1972. Up and Down with Ecology: The Issue Attention Cycle. *Public Interest.* 28, 1972 Summer 38-50.

Downs, G.W., D.M. Rocke, and P.N. Barsoom. 1996. Is the Good News About Compliance Good News About Cooperation? *International Organization* 50(3): 379-406.

Dreyfuss, J. State, U.S. Agree on Clean Air Plan: It Won't Work. *Los Angeles Times* (Jan. 16, 1972)

Dunkelberger, L. Florida—In Full and Up Front. *Sarasota Herald-Trib.* (Aug. 25, 2008), at A1.

Dwyer, J.P. 1990. The Pathology of Symbolic Legislation. *Ecology Law Quarterly* 17: 233.

Josh Eagle, B.H. Thompson and S. Newkirk. 2003. *Taking Stock of the Regional Fishery Management Councils*. Washington, D.C.: Island Press.

Eggertsson, T. 1996. The Economics of Control and the Cost of Property Rights. In *Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment*, edited by S. S. Hanna, C. Folke and K.-G. Maler. Washington, D.C.: Island Press.

Eggertsson, T. 1990. *Economic Behavior and Institutions*. Cambridge: Cambridge University Press.

Elliot, E.D., B.A. Ackerman and J.C. Miller. 1985. Toward a Theory of Statutory Evolution: The Federalization of Environmental Law. *Journal of Law, Economics, and Organization* 1:313-340.

Elliot, T.S. 1936. *Collected Poems, 1909-1935*. New York: Harcourt, Brace.

Environmental Law Institute. 1987. *Law of Environmental Protection*. Deerfield, IL: Clark Boardman Callaghan.

Epstein, D. and S. O'Halloran. 1999. *Delegating Powers: A Transaction Cost Politics Approach to Policy Making Under Separate Powers*. New York: Cambridge University Press.

Epstein, R.A. 2002. The Allocation of the Commons: Parking on Public Roads. Journal of Legal Studies 31:S515.

Esposito, J.C. 1970. *Vanishing Air: The Ralph Nader Study Group Report on Air Pollution.* New York: Grossman.

Farber, D.A. and P.P. Frickey. 1991. *Law and Public Choice: A Critical Introduction*. Chicago, Ill.: University of Chicago Press.

Farragher, T. Delegate-Rich State Moves to March. *Mercury News* (Oct. 6, 1993).

Faustmann, M. [1849] 1968. On the Determination of the Value which Forest Land and Immature Stands Possess for Forestry. Edited by M. Cane. *Oxford Institute Paper* 42.

Feeny, D., F. Berkes, B.J. McKay, and J.M. Acheson. 1990. The Tragedy of the Commons: Twenty-Two Years Later. *Human Ecology* 18(1): 1-19.

Fiorina, M.P. 1982. Legislative Choice of Regulatory Forms: Legal Process or Administrative Process. *Public Choice* 39:33-66.

Firmage, E.B. and R.C. Magrum. 1988. *Zion in the Courts: A Legal History of the Church of Jesus Christ of Latter-day Saint, 1830–1900*. Urbana, IL: University of Illinois Press.

Firmin-Sellers, K. 1995. The Politics of Property Rights. *American Political Science Review* 89(4): 867-81.

Fitzpatrick, D. 2006. Evolution and Chaos in Property Rights Systems: The Third World Tragedy of Contested Access. *Yale Law Journal* 115(5): 996-1048.

Foss, K., and N.J. Foss. 2005. Resource and Transaction Costs: How the Property Rights Economics Furthers the Resource-Based View. *Strategic Management Journal* 26: 541-53.

Frankel, J.A. 2005. The Environment and Globalization. In *Economics of the Environment*, edited by R.N. Stavins. New York: Norton.

Frankel, J.A., and A.K. Rose. 2005. Is Trade Good or Bad for the Environment? Sorting out the Causality. *The Review of Economics and Statistics* 87(1): 85-91.

Freeman, J. and L. Langbein. 2001. Regulatory Negotiation and the Legitimacy Benefit. New York University Environmental Review 9:60.

Gailmard, Sean. 2002. "Expertise, Subversion, and Bureaucratic Discretion." Journal of Law, Economics, and Organization 18:536-55.

Gasgupta, S., B. Laplante, H. Wang, and D. Wheeler. 2002. Confronting the Environmental Kuznets Curve. *Journal of Economic Perspectives*, 16(1):147-168.

Germic, S. 2001. *American Green: Class, Crisis, and the Deployment of Nature in Central Park, Yosemite, and Yellowstone*. Lanham, MD: Lexington Books.

Getches, D.H. 2001. The Metamorphosis of Western Water Policy: Have Federal Laws and Local Decisions Eclipsed the States' Role? *Stanford Environmental Law Journal* 20:3-72.

Gibson, C. et al. 2000. "Forests, People and Governance: Some Initial Theoretical Lessons." In M.A. McKean, C. Gibson and E. Ostrom eds. *People and Forests: Communities, Institutions, and Governance*. Cambridge: MIT Press.

Giordano, M. 2003. The geography of the commons: The role of scale and space. *Annals of the Association of American Geographers* 93:365-375.

Goodman, E.J. 2000. Indian Tribal Sovereignty and Water Resources: Watersheds, Ecosystems and Tribal Co-Management. Journal of Land Resources and Environmental Law 20(2):185-221.

Goodman, E.P. 2004. Spectrum Rights in the Telecosm to Come. *San Diego Law Review* 41:269-404.

Goodstein, L. Ministers to Defy I.R.S. by Endorsing Candidates. *New York Times* (Sept. 26, 2008), at A20.

Gordon, H.S. 1954. The Economic Theory of a Common Property Resource: The Fishery. *Journal of Political Economy* 62: 124-142.

Goulder. L.H. 2005. Environmental Policy Making in a Second-Best Setting. In *Economics of the Environment*, edited by R.N. Stavins. New York: Norton.

Grossman, G., and A. Krueger. 1995. Economic Growth and the Environment. *Quarterly Journal of Economics* 110(2): 353-77.

Hahn, R.W. and R.G. Noll. 1983. Barriers to Implementing Tradable Air Pollution Permits: Problems of Regulatory Interactions, Yale Journal of Regulation 1:63.

Halfteck, G. 2008. Legislative Threats. *Stanford Law Review* 61:629.

Hallett, J. Ohio May Move Up Presidential Primary Day. *Pittsburgh Post-Gazette* (May 16, 1993), at B8.

Hardin, G. 1968. The Tragedy of the Commons. *Science* 162: 1243-48.

Hardin, R. 1982. *Collective Action*. Baltimore: The Johns Hopkins University Press.

Haskell, J. 1996. *Fundamentally Flawed: Understanding and Reforming Presidential Primaries*. Lanham, MD: Rowman and Littlefield.

Hasnas, J. 2009. Two Theories of Environmental Regulation. Social Philosphy and Policy, 26:95-129.

Hazlett, T.W. 1990. The Rationality of U.S. Regulation of the Broadcast Spectrum. *Journal of Law and Economics* 33:133-174.

Henderson, J.A. and R.N. Pearson. 1978. Implementing Federal Environmental Policies: The Limits of Aspirational Commands. *Columbia Law Review* 78:1429.

Hess, C. 2008. Mapping the New Commons. *Syracuse Univ. Library, Working Paper Series, Paper No. W08-21*, available at http://ssrn.com/abstract=1356835.

Heywood, J.B., H.D. Jacoby and L.H. Linden. 1974. *The Role for Federal R & D on Alternative Motive Power Systems*. Cambridge, MA: MIT Energy Laboratory Report (No. MIT-EL 74-013).

Holling, C.S. 1996. Surprise for Science, Resilience of Ecosystems, and Incentives for People. Ecological Applications 6:733.

Hotelling, H. 1931. The economics of exhaustible resources. *Journal of Political. Economy* 39, 137-75.

Hsu, S.L. 2005. What Is a Tragedy of the Commons? Overfishing and the Campaign Spending Problem, *Alabama Law Review* 69:75.

Hundt, R. *Speech at the Center for National Policy* (May 6, 1996). Available at http://www.fcc.gov/Speeches/Hundt/spreh624.txt.

Illich, I. 1983. Silence Is a Commons. *Coevolution Quarterly* 40:4.

Internal Revenue Service. 2010. *Fiscal Year 2009 Enforcement Results*. Washington, D.C.: United States.

Jaffe, A.B, S.R. Peterson, P.R. Portney, and R.N. Stavins. 1995. Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us? *Journal of Economic Literature*, 33:132-163.

Jefferson, J. Letter to Samuel Kercheval on the Virginia Constitution (July 12, 1816). Reprinted in H. S. Randall. 1858. *The Life of Thomas Jefferson*.

Jolls, C., et al., A Behavioral Approach to Law and Economics. *Stanford Law Review* 50:1471-1550.

Joyner, C.C. 1998. *Governing the Frozen Commons: The Antarctic Regime and Environmental Protection*. Columbia, SC: University of South Carolina Press.

Kahneman, D. and A. Tversky. 1979. Prospect Theory: An Analysis of Decision Under Risk. *Econometrica* 47:263-291.

Kahneman, D. and A. Tversky. 1984. Choices, Values and Frames. American Psychologist 39:341-250.

Kahneman, D., J.L. Knetsch and R. Thaler. 1991. Anomalies: The Endowment Effect, Loss Aversion and Status Quo Bias. *Journal of Economic Perspectives* 5:193-206.

Keeter, S and C. Zukin. 1983. *Uninformed Choice: The Failure of the New Presidential Nominating System*. New York: Praeger Publishers.

Kettles, G.W. 2004. Regulating Vending in the Sidewalk Commons. *Temple Law Review* 77:1.

Keohan, N.O., R.L. Revesz, and R.N. Stavins. 1998. The Choice of Regulatory Instruments in Environmental Policy. *Harvard Environmental Law Review*, 22:313-367.

Keohane, R.O., and E. Ostrom, eds. 1995. *Local Commons and Global Interdependence*. London: Sage.

Kitchen, S. Parties Oppose Primary Date Change. *Mobile Register* (Feb. 16, 2007), at B1.

Knight, J. 1992. *Institutions and Social Conflict*. New York: Cambridge University Press.

Korobkin, R.B. and T.S. Ulen. 2000. Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics. *California Law Review* 88:1051-1104.

Kreps, D. 1990. "Corporate Culture and Economic Theory." In J. Alt and K. Shepsle, eds. *Perspectives on Positive Political Economy*. Cambridge, MA: Cambridge University Press.

Kreps, D.M. 1990a. *Game Theory and Economic Modelling*. Oxford: Oxford University Press.

Kuran, T. and C. Sunstein. 1999. Availability Cascades and Risk Regulation. *Stanford Law Review* 51:683-768.

Larson, B.A., and D.W. Bromley. 1990. Property Rights, Externalities, and Resource Degradation. *Journal of Development Economics* 33: 235-62.

Leavitt, P. Balkans Situation Spurs Some in GOP To Change Tax Stance. *USA Today* (Apr. 21, 1999), at A12.

Leopold, A. 1949. *A Sand County Almanac and Sketches Here and There*. Oxford: Oxford University Press.

Libecap, G.D. 2005. Chinatown: Owens Valley and Western Water Reallocation—Getting the Record Straight and What it Means for Markets. Texas Law Review 83:2055-2089.

Libecap, G.D. 1994. *Contracting for Property Rights: Political Economy of Institutions and Decisions*. Cambridge: Cambridge University Press.

Lindblom, C. 1959. The Science of Muddling Through. *Public Administration Review* 19(2): 79-88.

Lindlaw, S. 2000 Primary Date Draws Fire. *Fresno Bee* (Sept. 4, 1998), at A4.

Lipsky, Michael. 1980. "Street-Level Bureaucracy: The Critical Role of Street-Level Bureaucrats." Pp. 401-408 in Shafritz and Hyde, Classics of Public Administration.

Lovenheim, S. Betting on the Futures of Politics. *Washington Post* (Oct. 2, 2008).

Lowi, T. 1979. *The End of Liberalism: The Second Republic of the United States*.

Magoc, C.J. 1997. *The Creation and Selling of an American Landscape, 1870–1903*. Albuquerque: University of New Mexico Press.

Manatt, C.T. 1985. "A New Primary System," in G. Grassmuch ed. *Before Nomination: Our Primary Problems*. Washington, D.C.: American Enterprise Institute, 116-121.

Mandel, R. 1984. Transnational Resource Conflict: The Politics of Whaling. *International Studies Quarterly*: 99-127

March, J. and J. Olsen. 1984. The New Institutionalism: Organizational Factors in Political Life. *American Political Science Review* 78:734-748.

Mashaw, J.L, Prodelegation: Why Administrators Should Make Political Decisions, 1 J.L. Econ. & Org. 81 (1985).

Mayer, W.G. and A.E. Busch. 2004. *The Front-Loading Problem in Presidential Nominations* 50 (2004).

McCay, B. and Jentoft, S. 1998. Market or community failure? Critical perspectives on common property research. *Human Organization* 51(1):

McCubbins, M.D. and T. Schwartz. 1984. Congressional Oversight Overlooked: Police Patrols vs. Fire Alarms. *American Journal of Political Science* 28:165-179.

McGovern-Fraser, Commission. 1970. *Mandate for Reform: A Report of the Commission on Party Structures and Delegate Selection to the Democratic National Committee*. Washington, D.C.

McKean, M.A. 2000. "Common Property." In M.A. McKean, C. Gibson and E. Ostrom eds. *People and Forests: Communities, Institutions, and Governance*. Cambridge: MIT Press. 27-56.

McKean, M.A. 1992. Success on the Commons: A Comparative Examination of Institutions for Common Property Resource Management. *Journal of Theoretical Politics* 4:247.

Meeks, W. 2006. Corporate and White-Collar Crime Enforcement: Should Regulation and Rehabilitation Spell an End to Corporate Criminal Liability? *Columbia Journal of Law and Social Problems* 40:77.

Melville, N., A. Stevens, R. Plice and O. Pavlov. 2006. Unsolicited Commercial Email: Empirical Analysis of a Digital Commons. *International Journal of Electronic Commerce*, 10(4) 143-168.

Moe, T. 1989. The Politics of Bureaucratic Structure. In J.E. Chubb & P.E. Peterson eds. *Can the Government Govern?* Washington, D.C.: Brookings Institution Press.

Morrow, J.D. 1994. *Game Theory for Political Scientists*. Princeton: Princeton University Press.

Nabokov, P. and L. Loendorf. 2004. *Restoring a Presence*. Norman, OK: University of Oklahoma Press.

Nesbitt, J. Would Megaprimary Help or Hurt South? *Orlando Sentinel* (Apr. 20, 1986), at H1.

Neumayer, E. 2002. Does Trade Openness Promote Multilateral Environmental Cooperation? *The World Economy* 25: 815-32.

Nichols, J. Wisconsin Could Have Been the Decider. *Capital Times* (May 7, 2008), at 39

Nie, Martin. 2003. Drivers of natural resource-based political conflict. *Policy Sciences*, 36:307-341.

Nixon, R.M. 1970. *Environmental Quality: The President's Message to the Congress Recommending a 37-point Administrative and Legislative Program*. Washington, D.C.: Office of the President.

Norrander, B. 1992. *Super Tuesday: Regional Politics and Presidential Primaries*. Lexington, Ky: University Press of Kentucky.

Norrander, B. 1993. Nomination Choices: Caucus and Primary Outcomes, 1976-88. American Journal of Political Science 37: 343-64.

North, D.C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

North, D. C. 1999. Forward dealing *with a non- ergodic world*: institutional economics, property rights, and the g*lobal environment. Duke Environmental Law and Policy Forum* 10: 1-12.

North, D. and Weingast, B. 1989. Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in 17th Century England. *Journal of Economic History* 49(4):803-832.

Neuman. J.C. 1998. Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use. *Environmental Law* 28:919.

Oakerson, R. 1992. "Analyzing the Commons." In In D.W. Bromley, ed. *Making the Commons Work: Theory, Practice, and Policy*. San Francisco: CIS Press.

Olson, M. 1971. *The Logic of Collective Action*. Cambridge: Harvard University Press.

Ordeshook, P.C. 1986. *Game Theory and Political Theory: An Introduction*. Cambridge: Cambridge University Press.

Orren, G.R. and N.W. Polsby. 1987. "New Hampshire: Springboard of Nomination Politics," in G.R. Orren and N.W. Polsby (eds). *Media and Momentum: The New Hampshire Primary and Nomination Politics*. Chatham, NJ: Chatham House, 1-11.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

Ostrom, E. 1992. Covenants With and Without a Sword: Self Governance is Possible. *American Political Science Review* (86:2 June 1992) 404-417.

Ostrom, E. 1992. Rudiments of a Theory of Common-Property Institutions. In D.W. Bromley, ed. *Making the Commons Work: Theory, Practice, and Policy*. San Francisco: CIS Press.

Ostrom, E. 2000. Collective action and the evolution of social norms. *Journal of Economic Perspectives* 14(3): 137-158.

Ostrom, E. 1993. Design Principles in Long-Enduring Irrigation Institutions. Water Resources Research 29(7):1907-1912.

Ostrom, E. and C. Hess. 2007. A Framework for Analyzing the Knowledge Commons. In *Understanding Knowledge as a Commons: From Theory to Practice*. C. Hess and E. Ostrom, eds. Cambridge, Massachusetts: MIT Press.

Ostrom, E., R. Gardner and J. Walker. 1994. *Rules, Games, and Common-Pool Resource*. Ann Arbor: University of Michigan.

Ostrom, E., and E. Schlager. 1996. The Formation of Property Rights. In *Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment*, edited by S. Hanna, C. Folke and K.G. Maler. Washington, D.C.: Island Press.

Ostrom, E. et al. 1999. Revisiting the Commons: Local Lessons, Global Challenges. *Science* 284(5412): 278-82.

Palmer, K, W.E. Oates, and Portney, P.R. 1995. Tightening Environmental Standards: The Benefit-Cost or the No-Cost Paradigm? *Journal of Economic Perspectives*, 9(4): 119-132.

Parisi, F. 2007. Entropy and the Asymetric Coase Theorem. In D. Porrini and G. B. Ramello, eds. *Property Rights Dynamics: A Law and Economics Perspective*. London: Routledge.

Peterson, M.J. 1995. International Fisheries Management. In *Institutions for the Earth: Sources of Effective International Environmental Protection*, edited by P. M. Haas, R. O. Keohane and M. A. Levy. Cambridge: MIT Press.

Platteau, J-P. 2004. Monitoring Elite Capture in Community Driven Development. *Development and Change* 35: 223-246.

Plott, C.R. 1991. Will Economics Become an Experimental Science? *Southern Economics Journal* 57:901-919.

Porter, M.E. and C. van der Linde. 1995. Toward a New Conception of the Environment-Competitiveness Relationship. *Journal of Economic Perspectives* 9(4):97-118.

Posner, R.A. 1974. Theories of Economic Regulation. *Bell Journal of Economics and Management Science* 5(2):335-358.

Posner, R.A. 1990. *The Problems of Jurisprudence.* Cambridge, MA: Harvard University Press.

Posner, R.A. 2000. Path-Dependency, Pragmatism, and a Critique of History in Adjudication and Legal Scholarship. *University of Chicago Law Review* 67(3):573-606.

Posner, R.A. 2003. *Economic Analysis of Law*. New York: Aspen, 6th edition.

Power, T.M. 1996. Lost Landscapes and Failed Economies: The Search for the Value of Place (Washington, D.C.: Island Press).

Prah, P.M. What Govs Think of '08 Primary Calendar. *Stateline.org*, (Feb. 28, 2008), *available at* http://www.stateline.org/live/details/story?contentId=286106.

Pritchard, A.C. 1997. Auctioning Justice: Legal and Market Mechanisms for Allocating Criminal Appellate Counsel. *American Criminal Law Review* 34(3):1161-1192.

Ransel, K.P. 1995. The Sleeping Giant Awakens. *Environmental Law* 25:255.

Rasband, J.R. 2001. The Rise of Urban Archipelagoes in the American West: A New Reservation Policy? *Environmental Law* 31:1.

Rasband, J.R. et al. 2004. *Natural Resources Law and Policy*. New York: Foundation Press.

Rawls, P. Last Day May Make State Presidential Player in'08. *Mobile Register* (Apr. 16, 2006), at B1.

Ray, E.J. 1987. Changing Patterns of Protectionism: The Fall of Tariffs and the Rise in Non-Tariff Barriers. *Northwestern Journal of International Law and Business* 8(2): 285-327.

Regan, T. 1985. The Case for Animal Rights. In *Defense of Animals*, edited by P. Singer. Massachusetts: Harper & Row.

Reyes, R.P. Bill Richardson: God Wants Iowa to be the First Caucus State. *American Chronicle* (Sept. 5, 2007).

Ridout, T.N. and B. Rottinghaus. 2008. The Importance of Being Early: Presidential Primary Front-Loading and the Impact of the Proposed Western Regional Primary. *PS: Political Science & Politics* 41(1): 123-28.

Rieser, A. 1999. Prescriptions for the Commons: Environmental Scholarship and the Fishing Quotas Debate. *Harvard Environmental Law Review*, 23(2):393-412.

Robinson, J.B. 1992. Risks, Predictions, and Other Optical Illusions: Rethinking the Use of Science in Social Decision-Making. *Policy Sciences,* 25: 237-254.

Robinson, M.J. and M.A. Sheehan. 1983. *Over the Wire and On TV: CBS and UPI in Campaign '80*. New York: Russell Sage Foundation.

Rose, C. 1986. The Comedy of the Commons: Custom, Commerce, and Inherently Public Property. *University of Chicago Law Review* 53:711-781.

Rose, C.M. 1994. *Property and Persuasion: Essays on the History, Theory, and Rhetoric of Ownership*. Boulder, CO: Westview Press.

Runge, C.F. 1992. "Common Property and Collective Action in Economic Development." In D.W. Bromley, ed. *Making the Commons Work: Theory, Practice, and Policy*. San Francisco: CIS Press.

Russell, K.A. 1997. Eliminating Waste as a Way of Restoring Instream Flow. *Environmental Law* 27:151.

Sabato, L.J. 2007. "The Current Nomination Process Should Be Replaced," in T. Lansford. *The Presidential Election Process*. Detroit: Greenhaven Press.

Salzman, J., et al. 2001. Protecting Ecosystem Services: Science, Economics and Law. *Stanford Environmental Law Journal* 20:309.

Salzman, J. and J.B. Ruhl. 2000. Currencies and the Commodification of Environmental Law. *Stanford Law Review* 53:607-694.

Sax, J.L. 1970. The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention. *Michigan Law Review* 68:471.

Schelling, T.C. 2008/1966. Arms and Influence. 2d ed. New Haven: Yale University Press.

Schelling, T.C. 2007. The Nuclear Taboo. *MIT International Review* 1:9-11.

Schelling, T.C. 1997. The Cost of Combating Global Warming: Facing the Tradeoffs. *Foreign Affairs*, 76(6):8-14.

Schelling, T.C. 1980/1960. *The Strategy of Conflict*. 2d ed. Cambridge, MA: Harvard University Press.

Schlager, E., and E. Ostrom. 1992. Property Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics* 68(3): 249-62.

Schoenbrod, D. 1993. *Power Without Responsibility: How Congress Abuses the People through Delegation.* New Haven: Yale University Press.

Schullery, P. 1997. *Searching for Yellowstone: Ecology and Wonder in the Last Wilderness*. Boston: Houghton Mifflin.

Schullery, P and L. Whittlesey. 2003. *Myth and History in the Creation of Yellowstone National Park*. Lincoln, NE: University of Nebraska Press.

Selden, T.M., and D. Song. 1994. Environmental Quality and Development: Is There a Kuznets Curve for Air Pollution Emissions? *Journal of Environmental Economics and Management* 27: 147-62.

Sell, S. 1996. North-South Environmental Bargaining: Ozone, Climate Change, and Biodiversity. *Global Governance* 2: 97-118

Shakespeare, W. 1994/1623. *The Tempest*. London: Routledge.

Shapiro, W. My Letter to the Most Important Man in American Politics, *Salon.com* (Oct. 15, 2007).

Shepsle, K.A. 1983. "Overgrazing the Budgetary Commons: Incentive—Compatible Solutions to the Problem of Deficits." In L.H. Meyer. *The Economic Consequences of Government Deficits*, 211.

Shepsle, K.A. 1992. Congress Is a "They," Not an "It": Legislative Intent as Oxymoron. *International Review of Law and Economics* 12: 239.

Simon, H.A. 1955. A Behavioral Model of Rational Choice. *Quarterly Journal of Economics* 69: 99-118.

Singleton, S. 2000. Co-Operation or Capture? The Paradox of Co-Management and Community Participation in Natural Resource Management and Environmental Policy-Making. *Environmental Politics* 9(2): 1-21.

Singleton, Sara and Michael Taylor. 1992. Common property, collective action and community. *Journal of Theoretical Politics,* 4(3): 309-324.

Sirota, D. We've Seen This Healthcare Trigger Before. *Salon.com* (Sept. 12, 2009).

Slovik, P. 1987. Perception of Risk. *Science*, 236(4799): 280-285.

Smith, H.E. 2002. Exclusion Versus Governance: Two Strategies for Delineating Property Rights. *Journal of Legal Studies* 31: S453-S87.

Snidal, Duncan. 1979. Public Goods, Property Rights and Political Organizations. International Studies Quarterly, 23(4).

Spence, M.D. 1999. *Dispossessing the Wilderness.* New York: Oxford University Press.

Sterne, J. 1997. Instream Rights and Invisible Hands: Prospects for Private Instream Water Rights in the Northwest. *Environmental Law* 27:203.

Stavins, R.N. 1998. What can we learn from the grand policy experiment? Lessons from SO2 allowance trading. *Journal of Economic Perspectives*, 12(3):69-88.

Stearns, M. States 'Tripping over Each Other' for Prime Primary. *Charleston Gazette* (Sept. 30, 2007), at 14A.

Sterba, J.P. 2004. Completing Thomas Sowell's Study of Affirmative Action and then Drawing Different Conclusions. *Stanford Law School*. 57:657.

Stevens, K. York Officials Debate Whether Pennsylvania's Primary Should Be Moved to February. *York Dispatch* (June 25, 2007).

Stigler, G.J. 1971, The Theory of Economic Regulation. *Bell Journal of Economics and Management Science* 2(1):3-21.

Stone, C.D. 1972. Should Trees Have Standing? Toward Legal Rights for Natural Objects. *Southern California Law Review* 45:450.

Taylor, M. 1987. *The Possibility of Cooperation*. Cambridge: Cambridge University Press.

Taylor, M., and H. Ward. 1982. Chickens, whales, and lumpy goods: Alternative models of public goods provision. *Political Studies* 30:350-70.

Thompson, B.H. 2000. Tragically Difficult: The Obstacles to Governing the Commons. *Environmental Law* 30:241-287.

Thompson, B.H. 2000a. Markets for Nature. *William and Mary Environmental Law and Policy Review* 25:261.

Thompson, B.H. 1998. Water Law as a Pragmatic Exercise: Professor Joseph Sax's Water Scholarship. *Ecology Law Quarterly* 25:363.

Thompson, B.H. 1993. Institutional Perspectives on Water Policy and Markets, California Law Review 81:671-764.

Tversky, A. and D. Kahneman. 1974. Judgment Under Uncertainty: Heuristics and Biases. *Science* 185: 1124-1131.

Tversky, A. and D. Kahneman. 1981. The Framing of Decisions and the Psychology of Choice. *Science* 211:435.

Tversky, A. and D. Kahneman. 1991. Loss Aversion in Riskless Choice: A Reference-Dependent Model. Quarterly Journal of Economics 106:1039-1061.

Umbeck, J. 1981. Might Makes Rights: A Theory of the Formation and Initial Distribution of Property Rights. *Economic Inquiry* 19(1): 38-59.

Walsh, W. 2008. *Fishy Business*. Alabama Law Review 59:1661.

Weber, G.S. 1992. The Endangered Species Act: New Weapon Enters Sixty-year Fish Fight. *Rivers* 3:276.

Wedge, D. Mass. Voters Get a Say on Super Tuesday. *Boston Herald* (Nov. 27, 2007), at 15.

Weingast, B.R. 1997. *Political Foundations of Democracy and the Rule of Law. American Political Science* Review 91:245-263.

Weingast, B.R. 1984. The Congressional-Bureaucratic System: A Principal-Agent Perspective (with Applications to the SEC). *Public Choice* 44:147-191.

Weingast, B.R. and M.J. Moran. 1983. Bureaucratic Discretion or Congressional Control Regulatory Policymaking by the Federal Trade Commission. *Journal of Political Economy* 91:765-800.

Wheaton, S., and M. Sharpe. 2008. *New York Times Presidential Candidate Visit Data*. Unpublished.

Wheeler, D. 2002. Beyond Pollution Havens. *Global Environmental Politics* 2(2): 1-10.

Whitmire, K. Crashing Our Parties: Could Early Voting Save Alabama's Early Primary? *Birmingham Weekly* (Mar. 1, 2007).

Wilkinson, C.F. 1992. *Crossing the Next Meridian: Land, Water, and the Future of the West*. Washington, D.C.: Island Press.

Williamson, O.E. 1983. Credible Commitments: Using Hostages to Support Exchange. *American Economic Review* 73: 519-540.

Williamson, O.E. *The Economic Institutions of Capitalism*. New York: Free Press.

Willis, D. Supporters of Early Primary Will Try Again. *Contra Costa Times* (Aug. 10, 1998), at A8.

Wilson, J.Q. 1980. The Politics of Regulation. In *The Politics of Regulation*. New York: Basic Books Incorporated.

Wood, Dan B. Principals, Bureaucrats, and Responsiveness in Clean Air Enforcements. *The American Political Science Review* Vol. 82, No. 1 (March 1988), 213-234.

Wade, R. 1988. *Village Republics: Economic Conditions for Collective Action in South India*. Cambridge: Cambridge University Press.

Xing, Y., and C.D. Kolstad. 2002. Do Lax Environmental Regulations Attract Foreign Investment? *Environmental and Resource Economics* 21: 1-22.

Young, O. 2002. *The Institutional Dimensions of Environmental Change*. Cambridge, MA: MIT Press (2002).

Zuckman, J. Delaware Ready To Drop Challenge to N.H. Primary. *Boston Globe* (Aug. 4, 1999), at A14.

Biography

Earl Brigham Daniels was born in Provo, Utah on December 20, 1972. In 1998, he earned a B.S., *magna cum laude*, economics from the University of Utah. In 2000, he received a masters in public administration also from the University of Utah. In 2003, he graduated from Stanford Law School.

His published articles include "Governing the Presidential Primary Commons," published in *Tulane Law Review* in 2010; "Regulating Climate: What Role for the Clean Air Act?" published in *Environmental Law Reporter* with Hannah Polikoff, Timothy Profeta, and James Salzman in 2009; "Is that a Loophole or a Noose? How Congress Assured Neglect of Rural America's Arsenic-Tainted Tap Water," published in *Policy Sciences*, *with* Erika Weinthal and Blake Hudson in 2008; "Revitalizing Zion: Nineteenth-Century Mormonism and Today's Urban Sprawl," published in *Journal of Land, Resources, and Environmental Law* in 2008; "Emerging Commons and Tragic Institutions," published in *Environmental Law* in 2007; and "California, Climate Change and the Constitution," published in *Environmental Law Reporter* with Erwin Chemerinsky, Brettny Hardy, Tim Profeta, Chris Schroeder, and Neil Siegel in 2007.

He has received a National Science Foundation Graduate Research Fellowship, the Harry S. Truman Scholarship, the Stanford Public Interest Law Fellowship, and the University of Utah Graduate Fellowship. At Stanford Law School, he was Associate Editor for the *Stanford Law Review.*