INSTITUTIONS AND INFORMATION:

THE POLITICS OF EXPERTISE IN CONGRESS

by

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B.S. Electrical Engineering, Stanford University (1983)

Submitted to the Department of Political Science
In Partial Fulfillment of
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ABSTRACT

This study examines the circumstances under which expert information about policy
problems is useful to members of Congress, demonstrating links between uncertainty,
information, the demands of electoral coalitions, and institutional structure in Congress.
Members’ interaction with the Office of Technology Assessment (OTA), a congressional
support agency offering expert advice across the policy spectrum, provides a window into
these issues. Members use information from OTA chiefly in two ways, labelled
"informatively" and "persuasively." These types of uses are correlated with stages in the
legislative process, and are interpreted through a conceptual model derived from
information theory.

Members’ individual desires for information are aggregated into collective congressional
demands for policy advice that are profoundly shaped by institutional arrangements in
Congress. The legislature’s decentralized, two-party internal structure produces
heterogeneous demands for information that have driven OTA to develop strategies of
neutrality in the provision of advice. Congress’ interaction with the executive branch in
the system of separation of powers is also a crucial determinant of members’ demands for
information from this agency. Congress’s interaction with OTA, seen from an institutional
perspective that is based on a model of the utility of information, sheds light on the
politics of expertise in the legislature.

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January 10, 1992
ACKNOWLEDGEMENTS

Custom encourages the use of a particular format for expressing gratitude at the beginning of a scholarly work. Typically thanks go first to other scholars, then to institutions that have provided support, and finally to friends and family. Whether this order implies priority or ranks depth of feeling has never been clear to me, but in my case a break with tradition seems appropriate. I owe the most to my wife Laura Mancuso, who gave in many ways so that I could undertake this project. I also owe a great deal to my friend Daniel Lerner and to my parents. All three have provided love, inspiration, and support, but I want to acknowledge each especially in one of these ways. I thank Laura for her affection and companionship, Dan for setting a great example in life, and my parents for their unconditional support.

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Finally, I am indebted to the Brookings Institution for a fellowship, an excellent working environment, and a close-up view of politics within the Washington Beltway.
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CHAPTER I.
INTRODUCTION

Understanding the role of policy expertise in political decisions is one of the most enduring problems in the study of representative government. Observers of politics often come to differing conclusions about the influence of substantive information and expertise on political processes. Many have argued that information is an invaluable resource to politicians. In this Baconian view, where knowledge leads directly to power, expertise confers authority on political actors. Fenno's classic study of congressional committees is one of the most authoritative statements of support for this interpretation (Fenno 1973). Fenno finds that specialization and the development of substantive expertise increase the power of individual members of Congress. He argues that mastery of information helps members pursue their political goals, whether these are re-election, the making of public policy, or professional influence and status.

Russell Long, Chair of the Senate Finance Committee for fifteen years, provides a memorable example of this type of connection between information and power. Respected not only for his skills as a politician, Long has been called an "inspired maestro" for his extensive knowledge of the U.S. tax code (Barone and Ujifusa 1987, 483). Long's command of information served him as a source of no small amount of political authority.

Senator Lee Metcalf, Chair of the Joint Committee on Congressional Operations during
the debate over the monumental budget reform act of 1974 clearly saw knowledge in a
Baconian way. Arguing in favor of reform, Metcalf remarked in a floor statement,
"Information is the name of the game in budget control" (Metcalf 1974, S8344). In this
view, being an expert and having access to information are often key factors in gaining
political power.

Yet not all agree. Policy experts and substantive information may also be interpreted
as having a fundamentally limited role in politics. In this view, those with greater access
to information do not necessarily prevail over less informed political competitors, whether
in congressional floor debate or in the local town meeting.

Critics sometimes note that when political actors seem to pay attention to experts at
all, they often take great care to choose only those experts who agree with them.
Politicians commonly seem to justify their positions publicly on the basis of the claims of
their own selected experts. Members of Congress frequently line up teams of disagreeing
advocates who cite conflicting studies. Debates by "the experts" about whether passive
cigarette smoke is harmful, or whether nuclear reactors are safe seem to be a source of
much cynicism about politics -- as well as science -- on the part of the public. By the
mid-1970s, public distrust of the political use of expertise was great enough that a proposal
for the creation of "Science Courts" to adjudicate the contested claims of experts received
serious attention for several years before being abandoned (Mazur 1977).

This view of the politics of expertise is not limited to the general public. Scholars
commonly argue that knowledge and expertise need not be connected with power in a
Baconian way. For example, Sinclair (1989) reports that members of the contemporary
Congress are decidedly less specialized than Fenno found them in the 1950s and 60s. She
argues that changes in the political landscape have diminished the value of members’
expertise in specific policy areas. Jones (1977) argues that members of Congress have few incentives for using expert information or policy analysis, and therefore they should not be expected to behave as legislator-experts. In this view, where a connection between knowledge and power exists, it is indirect at best.

Both of these interpretations offer reasonable insights about the role of expertise in politics, yet they lead to rather orthogonal conclusions. A consistent explanation of the connections between the availability of expert information about policy and its actual use and influence on the actions of political decision makers has been stubbornly elusive.

The tension between these common interpretations of the politics of expertise, where knowledge is either a source of power or a marginal factor in politics, reveals a basic problem in our understanding of politics and policy making. How does the value of expertise depend upon its political context? What factors in the political environment are responsible for systematically shaping whether or not political outcomes are well informed by expertise and policy information? These are central empirical questions in the politics of information and expertise.

Underlying these questions are normative issues that have long been attached to political theory, since as far back as Plato’s philosopher-king. Arguments about politics and expertise, especially those advocating a solution to perceived problems, are typically conditioned by preferences for what form politics and political institutions ought to take, as well as by beliefs about what constitutes legitimate public action. Following the rise in the authority of reason and science during the Enlightenment, for example, political actors could turn to a new form of public legitimation for their actions, in the place of the authority of religious dogma and mysticism (Ezrahi 1991). Leaders could be held to a new standard of efficacy and order by their followers and by political thinkers.
Since the French and American revolutions, optimists about expertise such as Veblen and Saint-Simon have encouraged the rationalization of politics and have rejoiced at what they perceive as possibilities for expert action against social problems.\(^1\) For some in the U.S. during the first decades of the twentieth-century, the major lesson of the progressive era was that the failures of virtue in old-style politics could be overcome by applying science and expertise to government.

On the other hand, those who have above all insisted on moral legitimation for action, such as Habermas or Mumford, have feared the rise of technocracy and the transformation of political discourse into the mere rendering of technical judgements.\(^2\) Well before the industrial revolution, Taylorism, or the rise of the administrative state in the U.S., Jefferson (1820) remarked that when decisions made through a public, representative process are judged not sufficiently well informed, the solution must be the better education of voters rather than the yielding of power to ostensibly more knowledgeable expert politicians and judges. Normative disagreements such as these, about the proper place of expertise in political decisions, have tended to make empirical questions about the politics of expertise only more difficult to answer satisfactorily. The literature has often been shaped by observers and critics with sharp preferences for how politics and expertise ought to be

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\(^1\) Veblen (1921) called for control of the political economy by an engineer class of production experts, in order to overcome the "inefficiency" of early twentieth-century industrial states. Saint-Simon (1964), the nineteenth-century utopian thinker, advocated the replacement of politics with a system of expert management and administration. For a review of technocratic thought such as this, see Fischer (1990).

\(^2\) Habermas (1970) has examined the extent to which normative discourse has been sublimated in political and social life, in favor of technical judgements about efficiency. In his voluminous work on the history of "technics" as a mode of social practice, Mumford (1964; 1966) offers a historical critique of technocracy that is roughly consistent with that of Habermas.
connected.

Limitations on our understanding of the role of expert information are especially acute in the case of congressional politics, because of the very nature of the legislature's role in the polity. Congress is typically asked to be both expert and representative -- to act on the best available information and substantive judgement about policy problems, while being responsive and reflective of constituents' demands.

Congress often appears suited to meeting only the latter of these expectations. With its decentralized structure, short-term and often parochial focus, and its prominent re-election logic, Congress seems better at satisfying the interests of specific groups than at incorporating those interests into well-informed, studied responses to policy problems. Congress is frequently credited with being the branch of government least capable of informing its work with policy analysis and substantive expertise (Schick 1977; Schneier 1977; Weiss 1989). Its comparative advantage appears to be consensus, compromise, and representation rather than expertise, analysis, and administration (Mann 1990). As members of Congress pursue their own individual goals, establish and re-establish relations of power, and negotiate compromises over policy roughly as equals, experts may participate, but they have no formal role as they might in an executive bureaucracy. In contrast to administrative processes, no formalized system of bureaucratic review and decision making influences whether the claims of experts are heeded in the legislative process.

Yet Congress surrounds itself with expertise and information. During the reforms of the 1970s, members increased the size of the their staffs, created two new expert agencies -- the Congressional Budget Office and the Office of Technology Assessment --
and expanded the existing support organizations. An army of experts now testifies annually at congressional hearings, and even more submit unsolicited views about policy problems. In spite of the perception that Congress is often disinterested in expertise, Capitol Hill is rich in expert information of all sorts. This point illustrates that little is known about when and why legislators rely on policy expertise in the course of their activities. What value do members of Congress derive from expert information? How do they use it? Under what circumstances should we expect congressional policy to reflect expert judgements? Empirical questions about the politics of expertise are especially intriguing in the case of Congress, and they provide the framework for this study.

One way to obtain a better grasp of the politics of expertise in Congress is to take an institutional perspective on questions of information and power. After a relatively long absence from the center stage of social science, institutional structure is again receiving some of the spotlight in political science (March and Olsen 1989). Recent research on Congress has shown how institutional arrangements shape appropriations politics (Stewart 1990), the oversight process (McCubbins and Schwartz 1987), the stability of voting coalitions (Shepsle 1986), and so forth.

There is good reason to believe that institutional structure might also figure importantly

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3 These were the General Accounting Office and the Congressional Research Service (formerly the Legislative Reference Service).

4 Understanding the politics of expertise in Congress is challenging in part because the limited research on expertise and politics has focused almost exclusively on the executive branch. This literature tends to be topically oriented, including policy histories and case studies (Dupree 1957; Gilpin and Wright 1964; Greenberg 1967; Primack and von Hippel 1974; Smith 1990), evaluations of agency advisory organizations and processes (Jasanoff 1990; Kuehn and Porter 1981), and autobiographical accounts of White House advising (Burger 1980; Killian 1982; Kistiakowsky 1976). Much of this work is descriptive, offering little in the way of over-arching principles or theory that could add to our knowledge of legislative process or political decision making.
in shaping the politics of expertise, although this hypothesis has not been examined explicitly. For example, Fenno (1973) observed that the value of expertise and information to members of Congress varied from committee to committee. He found that the House Education Committee rarely relied on well-developed expertise, unlike Appropriations, where individual expertise and mastery of information were much more highly regarded and rewarded. The value of expertise on Appropriations depended not so much on the subject matter in question but on the fact that committee members operated under a norm of specialization and deference toward one another's expertise. This system of reciprocity, with members deferring to each other, rewarded participants for their expertise. Without this informal organizational feature, the development of expertise would have little utility, as was the case with the Education Committee. Fenno shows one basic reason why the value of information can vary over time and across committees.

A broader perspective on institutional features may reveal more far reaching connections between congressional structure and the politics of expertise. An important benefit of focusing on institutional arrangements is that this approach allows one to cross the boundaries of specific cases and decisions, and allows for ready comparisons between different institutions. Neither of these features has typically been offered in discussions of expertise that are designed as policy case studies or analyses of political advising. An institutional perspective allows one to focus on the motivations and incentives of members of Congress and on how the actions of individuals are aggregated into collective outcomes. Both components -- the individual and the aggregate -- turn out to be important to understanding the dynamics of information in Congress.

Institutional structure in the legislature may be defined in many ways for the purposes
of studying expertise. Congress is a richly textured institution, formed of both the broadest features and the finest details, from bicameralism to the parliamentarian’s ruling on a specific motion. I have chosen three types of institutional arrangements to consider in connection with the politics of expertise. The first of these is Congress’s decentralized, two-party internal structure. Decentralization of authority and sharing of power between parties are trademark images of congressional structure, and are vital to how we understand the legislature. I ask how these features of Congress affect its use of expert information.

The second form of institutional arrangement I consider is the system of separation of powers. Congress’s constitutional context is clearly of profound importance to nearly everything it does. Rarely does Congress or the executive branch accomplish anything in complete isolation from the other (Fisher 1987). I examine how the structure of inter-branch relations can shape the politics of expertise in Congress.

Lastly, I examine a very detailed type of institutional feature, namely amendment rules in the House. These "special rules," as they are called, are reported from the House Rules Committee and are voted on by the entire chamber. They govern debate on individual bills, and specify whether amendments may be offered and by whom. By helping structure the legislative process, special rules can be an important form of institutional arrangement. They also bear the interesting quality of varying over time. Unlike party ratios in the chamber or committee jurisdictions, amendment rules can be negotiated and selected anew for each bill. I examine possible connections between types of amendment rules and the information content of bills. These three institutional features of Congress structure my examination of the politics of expertise.

The vast amount of information and expertise that reaches Congress comes from countless sources: constituents, lobbyists, the media, corporations, the administration and the
bureaucracy, outside experts at universities, and inside experts on its own staff. One of these sources, the Office of Technology Assessment (OTA), lends itself especially well to research on institutional arrangements and information. As one of the support agencies created in the 1970s, OTA serves Congress as an internal research and analysis organization, with the goal of increasing members’ access to expert advice about policy problems.

Congress’s interaction with this agency provides an instructive subject of research for several reasons. First, because it is a congressional agency, OTA’s only prerogative is serving members of Congress. Its sole mission is to respond to demands for information arising from the legislative process. Unlike the behavior of external policy resources such as think tanks, what OTA does as an organization can almost universally be attributed to the rhythms and pressures of congressional politics.

Also, despite its name, OTA provides expertise to Congress on nearly every conceivable policy topic. It has performed studies of gun control, international trade, polygraph testing, the Strategic Defense Initiative, the costs of health care, nuclear power, and AIDS. Unlike the Congressional Budget Office and narrowly focused external organizations such as environmental groups or professional associations, OTA’s interaction with Congress is not limited in scope to a single policy area. Studying how Congress interacts with OTA allows one to examine congressional politics across the policy spectrum.\(^5\)

\(^5\) OTA is often thought of as a "science advisory" organization, participating chiefly in a special category of public policy labelled "science and technology policy." I do not treat OTA in this narrow way. I view it instead as a general policy resource for Congress, as is the Congressional Research Service, for example. I am skeptical about whether any systematic differences exist between "science" policy and other kinds of policy, or between "science advice" and expert advice in general. See Bimber and Guston (forthcoming).
Furthermore, OTA's role in Congress is poorly understood. Aside from a few
descriptive essays by agency insiders, little has been published about OTA, making it one
of the least well known agencies in Washington.6

In this research I use OTA's actions and contributions to congressional politics as a
lens on Congress. I focus on how the agency interacts with members of Congress, in
order to learn about members' demands for information. Therefore I am more concerned
with the agency's external relationship to Congress than I am with how it operates
internally, although naturally the two are connected. I have framed questions about
Congress and OTA not to serve as a study of the agency itself as a bureaucracy, but to
serve as a study of the legislature. The research is directed toward answering broader
questions about expertise and policy making in Congress.

My approach to studying Congress's interaction with this agency centers on the
question of demand. Under what conditions do members of Congress solicit policy
expertise from OTA? What explains their demand for information, and what motivates
them to request OTA's assistance in their activities as legislators? Members' demand for
OTA can be measured in several ways, both quantitatively and qualitatively, so it possible
to accurately describe who requests information from OTA and under what circumstances.
Characterizing the contours of this demand reveals a great deal about the politics of
expertise in Congress. For the principal portions of the research, demand for OTA
information serves as my chief dependent variable.

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6 Useful empirical research on OTA has been limited to Whiteman's (1986) study of
how members of Congress used five agency reports issued in 1978 and 1979, and Caspar's
(1981) critical review of OTA's first years of operation. Several committees have issued
legislative histories of OTA's creation and oversight reviews of its operation. See Chapter
VI.
To look for independent influences on demand, I rely on my institutional perspective on Congress. I examine how three structural features of the legislature -- internal decentralization and two-party design, separation of powers, and amendment rules -- shape demand for expert information. The primary research question is therefore:

*How do institutional arrangements in Congress shape demand for expertise and information from OTA?*

I use answers to this question to reveal connections between political structure, information, and the exercise of power in Congress.

There is an underlying problem that must be understood before proceeding with the study of demand for information, and this problem concerns members’ individual use of expert information. Before turning to the question of institutional structure and aggregate demand for information by Congress as a whole, a theory of the individual utility of expertise for members of Congress is needed. A model of how expertise provides value to the member of Congress can guide the interpretation of findings about political structure and expertise at the level of Congress as an institution. I consider this problem in two initial chapters that serve as the conceptual background to the subsequent analyses of institutional arrangements. In Chapter III, which is empirical, I distinguish between two categories of information use, labelled "persuasive" and "informative," and show that these uses of information are correlated with different stages of the political process.

In Chapter IV, I draw on this finding and on information theory to build the conceptual model of the utility of information. This model is based on the capacity of information to shape members’ preferences for policy, and it serves as a theoretical bridge between questions about uses of information and questions about demand. I argue that
information has utility where it has the capacity to reduce members’ uncertainty about
which policies to choose in order to meet the needs of electoral coalitions. Expert
information is a resource that can help members understand how to satisfy the preferences
of those whom they represent.

This model of the individual utility of information guides my interpretation of
institutional arrangements and aggregate demand by Congress for OTA expertise. In
Chapter V, I take up Congress’s decentralized, two-party internal structure, examining how
party politics and the committee system affect Congress’s interaction with OTA. I provide
an implicit comparison between Congress and the hierarchical, single-party executive branch
as consumers of expertise. I find that Congress manifests a very heterogeneous demand
for information, driven by "many masters," in the form of committee chairs and two party
organizations. This collective demand has driven OTA away from highly politicized
origins and toward a strategy of political neutrality. The dynamics of this interaction
between the decentralized Congress and its advisors at OTA appears to contrast markedly
with the political dynamics of such relationships in the executive branch. Nowhere is the
influence of institutional arrangements on the politics of expertise greater than in
Congress’s internal structure.

I next consider the separation of powers, in Chapter VI, showing the importance of
inter-branch politics in stimulating Congress to create OTA in the 1970s and in continuing
to motivate demand for its services. I find that much of Congress’s use of OTA arises
from institutional prerogatives driven by the separation of powers, and that the nature of
Congress’s demand for information from OTA as a resource in inter-branch relations varies
across policy domains.

Lastly, in Chapter VII, I turn to amendment rules in the House. I begin with a
hypothesis derived theoretically by Gilligan and Krehbiel (1987; 1989; 1990) that suggests a connection between rule restrictiveness and the information content of bills. This positive hypothesis extends my thesis to the most detailed and negotiable level of structure in the House, because it suggests a direct relationship between the use of expert information and one form of institutional arrangement. I probe this hypothesis using three sources of evidence, but find that none support it. I find that the marked influence of institutional arrangements on demand for information at the level of committees, parties, and separation of powers can not be demonstrated at the level of amendment rules with my evidence. Further research would be necessary to conclusively reject this hypothesis, but for now I conclude that I have identified a potential boundary on my thesis about structure and expertise.

This study encompasses both the utility of information for the individual and the collective demands for expertise in the institution as a whole. It extends from the most sweeping form of institutional arrangement to the most particular. The result is a portrait of the politics of expertise in Congress that may shed light on the capacity of Congress to produce policy that reflects well informed judgements and substantive expertise. In the process, the study illuminates some of the connections between knowledge and power that often seem obscure in Congress. Hopefully it can also indicate fruitful directions for further theoretical developments in the study of information and legislative process. Chapter VIII, the conclusion, takes up this issue, drawing together some conceptual questions raised in the research and identifying problems for future consideration.
CHAPTER II.

OVERVIEW OF OTA AND DESCRIPTION OF MY RESEARCH

Understanding Congress's demand for expertise from the Office of Technology Assessment requires some background information about the agency's operations. While this study is not intended an analysis of the agency itself, an overview of how OTA functions is necessary before turning to the dynamics of its interaction with Congress. The present chapter provides this background, and in the second section, describes my research on its role in the legislative process.

OVERVIEW OF OTA

OTA began operations for the first time in 1974, the year that President Nixon left office. The agency's mission, as stated in its 1972 authorizing legislation, was to provide neutral, competent assessments about the probable beneficial and harmful effects of new technologies. OTA's chief contribution to Congress was to be improved foresight about the consequences of political decisions involving scientific or technological questions. OTA's chief sponsor in the House, Rep. Emilio Daddario, explained in an interview with me that the agency's goal was to help members "minimize the negative effects of new technologies and maximize the positive effects."\(^7\)

\(^7\) Interview with Emilio Daddario, Dec. 19, 1990.
When OTA opened its doors, it became Congress’s third support agency, along with the Congressional Research Service (CRS) and the General Accounting Office (GAO). But unlike CRS, which was designed to provide quick assistance to members of Congress through factual responses to questions, OTA was to pursue its mission through lengthy studies of policy problems. OTA was to produce thoroughly researched assessments of issues involving substantive uncertainties, drawing on the best available expertise inside and outside of the government.

Also unlike CRS or GAO, the new OTA was restricted by its authorization to assisting full committees of Congress. Only committee chairs, acting alone or on behalf of the committee or ranking minority member, may request that OTA initiate a study. The rationale for this limitation was to ensure that the agency serve the most urgent legislative needs of the committees considering legislation, rather than responding to the potentially vast number of requests that might come from 535 individual members. This feature of OTA’s operation is important at many points in this research, because the committee system provides an intervening structure through which all members’ individual interests are represented to the agency. The committees provide one of the first levels of aggregation through which Congress’s diffuse and often parochial demands shape OTA’s actions.

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8 The Congressional Budget Office (CBO), the fourth agency, was established by the Congressional Budget and Impoundment Control Act of 1974.

9 Whereas CRS specializes in handling a very large volume of requests from all the members, on the order of 500,000 per year, OTA was intended to produce a limited number of major studies that would be of interest to the entire institution. CRS can respond to two-thirds of its requests for information within 24 hours; OTA takes closer to 24 months to produce a single study for its committee clients.
Organization

The most important structural feature of OTA is its board of directors. This board is comprised of 12 members of Congress divided equally between parties and chambers, with an alternating chair, in the fashion of a joint committee.\(^\text{10}\) Known as the "Technology Assessment Board," it has final authority over the agency's agenda. OTA may initiate studies only upon approval of the board. Board approval is also required for final release of reports.\(^\text{11}\)

Members of OTA's board are appointed by the Speaker and Senate President pro tempore, on the recommendations of the majority and minority leaders of each chamber. In the 101st Congress, the following members served on OTA's board:

<table>
<thead>
<tr>
<th>OTA BOARD OF DIRECTORS, 101st CONGRESS</th>
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</thead>
<tbody>
<tr>
<td>Sen. Edward Kennedy, Chair</td>
</tr>
<tr>
<td>Sen. Clarence Miller, Vice-Chair</td>
</tr>
<tr>
<td>Sen. Ted Stevens</td>
</tr>
<tr>
<td>Sen. Ernest Hollings</td>
</tr>
<tr>
<td>Sen. Claiborne Pell</td>
</tr>
<tr>
<td>Sen. Orrin Hatch</td>
</tr>
<tr>
<td>Sen. Charles Grassley</td>
</tr>
<tr>
<td>Rep. John Dingell</td>
</tr>
<tr>
<td>Rep. George Brown</td>
</tr>
<tr>
<td>Rep. Amo Houghton</td>
</tr>
<tr>
<td>Rep. Don Sundquist</td>
</tr>
<tr>
<td>Rep. Morris Udall</td>
</tr>
</tbody>
</table>

\(^\text{Chart 1.}\)

Several of these members have shown a long-standing interest in OTA's activities.

\(^\text{10}\) OTA's board chair rotates between chambers and parties. By convention, the position of vice-chair also rotates, being held by a member of the opposite party and chamber from the chair.

\(^\text{11}\) Small studies, costing less than $50,000, may be initiated at the director's discretion without board approval.
Senators Kennedy, Stevens, and Hollings, and Rep. Udall have served as board members continuously since 1974. Rep. Brown has served since 1975, and Rep. Dingell since 1979. In several cases, these individuals have played important roles in shaping OTA's capacity to assist members of Congress.

OTA's operations are managed by its director, who is appointed by the board to six year terms. The current head of the agency, Dr. John Gibbons, is a physicist by training and is the agency's third director. He has discretion over how the agency is organized internally. Currently OTA has three assistant directors, each of whom oversees a division comprised of three research programs, which are carefully balanced to maintain parity in size. These nine programs are identified in Chart 2.

<table>
<thead>
<tr>
<th>OTA DIVISION AND PROGRAM STRUCTURE, 101ST CONGRESS</th>
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<tbody>
<tr>
<td>Energy, Materials and International Security Division</td>
</tr>
<tr>
<td>Energy and Materials Program</td>
</tr>
<tr>
<td>International Security and Commerce Program</td>
</tr>
<tr>
<td>Industry, Technology and Employment Program</td>
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<tr>
<td>Health and Life Sciences Division</td>
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<tr>
<td>Biological Applications Program</td>
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<tr>
<td>Food and Renewable Resources Program</td>
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<tr>
<td>Health Program</td>
</tr>
<tr>
<td>Science, Information and Natural Resources Division</td>
</tr>
<tr>
<td>Communications and Information Technologies Program</td>
</tr>
<tr>
<td>Oceans and Environment Program</td>
</tr>
<tr>
<td>Science, Education and Transportation Program</td>
</tr>
</tbody>
</table>

Chart 2.

In the 101st Congress, 229 staff were divided among these research programs, an Operations Division and the Office of the Director. Of these 229 employees, 143 were
permanent OTA employees and the remainder were temporary contractors hired for the duration of on-going studies.\textsuperscript{12}

\textbf{Funding}

OTA receives its funding through the legislative branch appropriations bill. In 1990, the agency’s budget was $18.9M. As Chart 3 shows, OTA has enjoyed a relatively steady and modest annual increase in appropriations averaging 8.4% since 1976.

\begin{center}
\textbf{Chart 3.}
\end{center}

\textsuperscript{12} As staff of a congressional agency, OTA employees are not civil servants in the formal sense. OTA operates its own personnel system and hiring procedures, and it pays employees according to its own internal pay scale.
The agency has a relatively high degree of discretion over how it spends its funds. OTA produces budgets for proposed studies as they come up, drawing from its annual allocation of money by object code or category.\textsuperscript{13}

This funding process for the agency means that committees who request studies from OTA do not pay for them directly. Because the cost of OTA's budget is born by the entire legislature, the agency does not charge committees individually for its services. Information from OTA is free.

\textit{Process and Interaction with Congress}

OTA follows a procedure when producing studies for Congress, and this procedure is initiated by a written request from a committee chair to the agency director. These letters of request are generally a few pages in length, stating the nature and importance of the issues at hand, and then posing several questions to be answered by the OTA study. Written requests from committees typically follow a period of consultations between OTA employees and committee staff, who discuss the proposed study and come to an agreement about its proposed parameters. OTA analysts often help draft the language of the letters that formally request studies. These consultations often give the agency an opportunity to shape the content of the requests it eventually receives.\textsuperscript{14}

\textsuperscript{13} Within certain limits OTA may shift funds allocated for one category of spending into another, giving it flexibility in budgeting for studies. OTA provides annual estimates to the legislative branch appropriations subcommittees as to how it will spend its funds, but in practice the agency can draw funds out of one category, such as facilities, and dedicate them another, such as research. For actual spending in any object category which is 10\% or $100,000 greater than estimated, OTA must only provide an explanation to the subcommittees.

\textsuperscript{14} OTA staff sometimes informally solicit requests for studies in their conversations with Hill staff, although this practice is frowned upon. In general, sufficient checks are in
OTA's director forwards letters of request from the committee chairs to one of the agency's research programs, where a project director is assigned and a written proposal for the study produced. The study itself is initiated only after a vote of approval by the agency's board of directors. In practice, the board very rarely rejects study proposals outright, although it often requires that a proposal be reworked or re-framed before it gives its approval.

Once begun, OTA projects are monitored by external review panels. These committees are composed of individuals outside of OTA who are typically prominent in their fields and who are chosen to represent differing points of view. The panels perform periodic reviews and offer suggestions during the course of OTA studies, but they do not have authority over substance or the power to approve or disapprove findings. This peer-review process provides a large measure of political credibility to OTA's work, as I will show in Chapter V.

Analytic work on OTA studies is performed under the direction of a small project staff, typically about five in number. Projects commonly hire outside experts to serve as contractors and consultants to the study. OTA studies therefore generally draw on the diverse expertise of university scholars, private researchers at corporations, and employees of federal agencies or executive departments.

In the process of completing a major study, which typically takes about two years, OTA may release a variety of interim reports or papers, as well as presenting testimony at hearings or in briefings. Agency experts frequently meet informally with congressional staff. Personal consultations between OTA analysts and Hill staff are of great importance place, through the need for a committee chair's signature and board approval, that self-motivated studies are not a significant source of activity at OTA.
to congressional committees and are a vital conduit through which OTA expertise reaches members. In one set of interviews about OTA with thirty-five staff, over two-thirds (25) told me that their personal contacts with OTA were just as important or more important than printed studies and reports.

OTA's committee clients have been remarkably varied, ranging from constituency service committees such as House Veterans Affairs and Post Office to the prestige committees such as Budget and Appropriations. Nearly every committee has requested a study from OTA at some time since 1974. As I will show in Chapter V, this large committee clientele sometimes results in conflict, especially when more than one committee directs OTA to study the same policy problem. OTA's studies often have multiple committee sponsors. In the case of a 1987 report on Alzheimer's disease, seven committees jointly requested the study (OTA 1987).\textsuperscript{15} Chart 4 shows the committees most active in requesting OTA studies in the 1980s.

\textsuperscript{15} Senate Finance; Senate Labor and Human Resources; Senate Special Committee on Aging; Senate Veterans Affairs Committee; House Committee on Energy and Commerce; House Committee on Science, Space and Technology; and House Select Committee on Aging.
## TOP 10 COMMITTEE CLIENTS FOR OTA

With Number of Requests to OTA, 1981-89

<table>
<thead>
<tr>
<th>Committee</th>
<th>Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>House Science, Space and Technology</td>
<td>49</td>
</tr>
<tr>
<td>House Energy and Commerce</td>
<td>45</td>
</tr>
<tr>
<td>Senate Labor and Human Resources</td>
<td>24</td>
</tr>
<tr>
<td>Senate Environment and Public Works</td>
<td>20</td>
</tr>
<tr>
<td>Senate Commerce, Science and Transportation</td>
<td>16</td>
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<tr>
<td>Senate Veterans Affairs</td>
<td>15</td>
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<tr>
<td>Senate Foreign Relations</td>
<td>11</td>
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<tr>
<td>Senate Finance</td>
<td>10</td>
</tr>
<tr>
<td>House Foreign Affairs</td>
<td>10</td>
</tr>
<tr>
<td>House Government Operations</td>
<td>10</td>
</tr>
</tbody>
</table>

### Chart 4.

**Scope and Workload**

As the diverse list of committee clients in this chart suggests, the scope of congressional demand for OTA is broad. Committees have not limited themselves to requesting information about policy problems that might be considered strictly scientific or technological in nature. OTA has been asked to provide information about the most salient of issues, such as health care, trade, gun control, and nuclear weapons, as well as about more arcane or esoteric issues, such as the "marine applications of fuel cell technology."

In the 101st Congress, OTA released 34 major studies for 16 committees, and issued roughly the same number of interim reports, memoranda, and so forth. Chart 5 shows the historical growth in OTA's output of research, measured in number of studies.
Chart 5.

DESCRIPTION OF MY RESEARCH ON CONGRESS AND OTA

Congress’s interaction with OTA is characterized as much by informal discussion and evolving trust between individual experts and decision-makers as by regularized procedures and formal rule-following. Studying how members of Congress use OTA requires methods appropriate to both domains. Evidence about both the formal and informal record of Congress’s use of OTA is necessary.

Rather than draw from a series of case studies or policy episodes, I have organized the research around my institutional variables. I have studied demand for OTA in the following way. Because each request to OTA requires a letter from a committee chair, a written record of demand for OTA exists in the agency’s correspondence files and log of
incoming mail. From these sources I have compiled data on demand by year, by committee and by chamber. This record allows the testing of hypotheses about how changes in party control of the chamber or about how divided vs. unified control of Congress and the Presidency affect demand for OTA expertise.

Equally important to understanding this demand is knowing what is being asked of OTA by these committees. Through interviews and the content of written requests to OTA, I have characterized what committees want from the agency when they request studies. This allows me to examine how demand for OTA varies qualitatively from committee to committee, as well as how the agency responds to the collective pressure of many committees whose interests in information often diverge. I have complemented this historical record about demand with a variety of other forms of evidence, such as interviews, data on OTA participation in hearings, and data on references to OTA in the Congressional Record.

To learn about the institutional arrangements that I hypothesize shape demand, I have also relied on several types of evidence. Primary among these are interviews, as well as internal documents from OTA such as transcripts of members’ conversations at board meetings. For Chapter VII, on amendment rules, I have also examined legislative calendars for the whole House, the Rules Committee, and the House Science Committee.

Summary of Evidence\textsuperscript{16}

I conducted three categories of interviews, totalling about 80 in number. The first set involved 33 exploratory questions given face-to-face to a set of 35 congressional staff who

\textsuperscript{16} See the Appendix for a thorough discussion of evidence and research methods.
are familiar with OTA. These interviews lasted 30 to 50 minutes. About two-thirds of the questions required staff to select answers from a ordinal scale of choices. The remainder were open-ended.

To choose this set of interviewees, I identified nearly 100 staff who have responsibility for technical affairs, on the basis of their assignments as indicated in the Congressional Yellow Book, on recommendations from OTA employees, from references by staff themselves, and from other recommendations. I drew names randomly from this list until 35 interviews were completed, seeking a roughly equal balance between House and Senate staff, and a 2:1 ratio of committee to personal staff. The mean length of time that these staff have served on Capitol Hill is 10.1 years, making this a decidedly senior group. These interviews do not comprise a random sample of congressional staff, nor is the number large enough to allow statistical inferences about the larger population of staff. I treat these and all subsequent discussions with staff as elite interviews rather than survey responses.

In a second round of interviews, I returned to 19 of the initial 35 staff who had particularly useful experiences and comments to offer. This time my questions focused on issues of interest at the later stages of my research, and most were open-ended. I also added 6 interviews with staff of the House Rules Committee as well as with Rep. Joe Moakley, Chair of that committee, for the analysis of rules politics in Chapter VII.

My third category of interviews involved former and current OTA employees. I spoke with 18 individuals in structured interviews and contacted another six via a set of written questions submitted my mail. Included in these interviews are all three persons who have served as agency director. Dr. John Gibbons, the agency’s current director, shared his time with me on a number of occasions. Eugenia Ufholz and Jim Jensen of the agency’s
Congressional and Public Affairs Office, and Martha Dexter, formerly of OTA's Information Center met with me on an on-going basis.

Documentary evidence in the research came in many forms. At OTA, I relied on transcripts of transcripts of meetings of OTA's board of directors, at which members discuss study proposals and findings and OTA's relationship with Congress. The agency maintains a well-indexed archive of miscellaneous documents, memoranda, correspondence, and so on, and I drew on this resource frequently. A very important source of evidence is correspondence to OTA, especially letters of request for studies from congressional committees. These letters are logged at OTA in the director's office and stored in chronological files. I relied on this correspondence to compile quantitative summaries of committee requests to the agency.

Each year OTA prepares a "Justification of Estimates" in support of its budget request to the Legislative Branch Appropriations subcommittees in the House and Senate. These provide summaries of the agency's activities, and are held in OTA's Budget and Finance Office. I used these in conjunction with Quarterly and Annual Reports for simple historical data on the agency, such as lists of employees. These agency-prepared documents are generally well sanitized of controversial material, so I used them with some caution.

One of the most important sources of information about OTA's activities is its collection of reports and accompanying database. The OTA Information Center maintains copies of each report and document issued by the agency, and has entered a variety of information about these publications, such as which committees requested each study, in its "QuOTAtion" computer database. I found this database to be extremely useful in characterizing OTA's changing clientele and activities across years.
Several other sources of on-line data also provided me with data. The Library of Congress’s Scorpio system provided a convenient way to track references to OTA in the Congressional Record, a source of data I employ in Chapter III. The Congressional Information Service database, on CD-ROM, was helpful for identifying the frequency with which OTA employees testified at congressional hearings each year. The Washington Post’s LegiSlate database offers summary data on bills reported out of committee. I used this source for the analysis of rules politics, drawing on data about the type of amendment rules granted by the House Rules Committee. I confirmed the LegiSlate data by reviewing the relevant Committee Calendars.

I also draw on a variety of standard congressional documents throughout the study, including committee reports and prints, hearing records, and calendars. These various sources provide a wide range of evidence about Congress’s demand for information from OTA. Before turning to questions about how institutional structure affects aggregate demand for OTA, consider first what this evidence can tell us about the utility of information from OTA to individual members of Congress.
CHAPTER III.

INFORMING VS. PERSUADING: HOW IS INFORMATION USED?

One of the most abiding questions regarding the role of experts in the political process is, "How is technical information used?" The most commonly heard answer is that politicians, including members of Congress, use the information and expertise of agencies like OTA to support their political positions. That is, members of Congress select experts who agree with them, and tout those experts’ claims as evidence of the correctness of their policy positions, which they have taken for reasons aside from the claims of experts. The laywer’s adage "Never ask a question to which you do not already know the answer" is common on Capitol Hill.

There can be no doubt that this practice is widespread; it may be the rule rather than the exception. I call this use of information "persuasive," because the advice of experts is used to persuade. That is, one acquires information in order to use it in persuading others of the correctness of one’s policy position. The member of Congress cites information supportive of his or her view as evidence that others should also adopt that position. In persuasive uses of information, the persuader’s preferences and goals are not affected by the acquisition of information or the claims of experts.

Another use of information in the political environment exists, although in the above view it is uncommon. Here information is used to inform. That is, the advice of experts is used by those acquiring it in informing their own political choices and in formulating
preferences for policy. In "informative" uses, one acquires information with the goal of learning or reducing uncertainty, and as a consequence, one's preferences for policy change. The use of experts' claims to inform is the practice modelled in information economics and in positive theory in political science (Bimber 1991).

The use of information to inform is also generally viewed as normatively superior to the use of information to persuade. It is often thought that politicians should form their positions and preferences on the basis of informed judgement, judgement that takes into account available knowledge. Positions that are arrived at independently of expert information and that rely on information only for rationalization or persuasion are more often viewed as suspect, the frequency with which they may occur notwithstanding.

For a number of reasons, the distinction between informative and persuasive uses of information need not, in practice, be sharp. First, unless one believes that information has informative uses and influences, at least on others, one could not engage in the persuasive use of information. If information could not inform some individuals, it could not be used by others to persuade.

Furthermore, the corpus of information surrounding any issue is not necessarily complete and certain. Often, ostensibly expert information comes with points of view. Facts and values are not often easily distinguished. Experts disagree, and commonly no scientific means for judging between the competing claims of experts is available. Such cases are common. In my initial round of interviews with thirty-five congressional staff, 52% report that issues involving debates among experts occur "often," and 39% report that they occur "very often." In these instances, the capacity of information to inform directly is limited, since not all information is itself certain and credible. In later chapters, I will explore further the implications of the credibility of information.
Also, where information is more certain, individuals who attempt to persuade may also encounter other persuaders who contest their claims publicly. The process of debate between persuaders can in fact be highly informative to third parties, who may be numerous. A large majority (70%) of the staff I interviewed report believing that it is valuable to have many expert perspectives aired on technical issues, even when they conflict, and that even though members are not technically trained they are usually able to make sound choices in the face of conflicting expert claims.

Lastly, politicians who are attempting to persuade others of their positions using expert information may, in fact, have been informed by that information prior to engaging in acts of persuasion, or in the process of attempting to persuade, may themselves become more informed. What looks like a persuasive use may be an informative use, followed by debate.

On this basis then, the influence of the expert advisor on the political client may take at least the two main forms discussed above, with the possibility of several variations. One can therefore expect circumstances in which members of Congress use information from experts such as OTA differently.

Unfortunately, studying uses of information is quite difficult. OTA’s influence on a political outcome may be straightforward or subtle and circuitous. For example, a committee conducting a bill mark-up may rely on an OTA report to form its "mark" and amendment agenda, voting literally on "OTA Option 1," "OTA Option 2," and so on in producing legislation. On the other hand, a congressional staffer may read of an OTA

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17 This occurred in the case of bill to require identifying "taggants" in explosives to aid law enforcement officials in tracking the sources of bombs, which was considered by the Senate Committee on Governmental Affairs. OTA reported three policy options, labelled 1, 2, and 3, and the committee voted explicitly on these alternatives. See Sharfman (1983) and
report in the *New York Times* and include the clipping in a daily briefing book for his member. That clipping may jog the member’s memory of a conversation with an influential constituent, and she may then persuade her committee chair to hold hearings on the issue, eventually producing a bill.

Little research has attempted to identify patterns in such "influences" and uses across OTA’s history. The literature on congressional decision making has only tangentially addressed the influence of congressional support agencies, and reports about OTA have either focused on internal operations or have discussed its external influences only in broad terms (Kingdon 1981; Bradley 1980; Sabatier and Whiteman 1984; Thurber 1981; Brooks Commission 1976; Obey Commission 1977; House Science Committee 1978; U.S. Senate 1976).

The only well designed empirical study of OTA’s influence previously published is unfortunately very limited in scope. Whiteman (1985) measures the influence of five OTA projects completed in 1978 and 1979. Consistent with the common perception, he finds that members of Congress use OTA persuasively more often than informatively.\(^{18}\) More interestingly, he attempts to find political variables that may affect which kind of use predominates in any particular case. He finds persuasive uses to be positively correlated with high rather than low levels of group conflict over policy. The higher the level of conflict, the greater the tendency for members to use information to persuade. Whiteman’s case studies also suggest that these persuasive uses tend to occur later in the legislative

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OTA (1980).

\(^{18}\) Whiteman (1985) employs somewhat different labels. He uses strategic (persuasive), substantive (informative), and elaborative (a hybrid or combination "in the middle range of the substantive-strategic dimension").
process, while informative uses tend to occur earlier.

These findings suggest the possibility of finding systematic influences on the use of information, but, drawing on only five cases that are now over a decade old, these problems require additional research. OTA has issued several hundred reports and analyses between 1974 and 1990, and so a sample of five is now too small. Furthermore, as I will show in Chapter V, OTA's relationship with Congress has changed dramatically since the late 1970s. What other data might help fill out this picture?

There are several sources of evidence that avoid some of the contingencies and case selection problems typically plaguing attempts to measure "uses" and "influences" of information. The first of these are my interviews with the chief users of OTA information, congressional staff. While OTA ultimately exists to serve elected members of Congress, it does so primarily through interaction with Capitol Hill staff. Although members themselves may hear testimony from agency personnel or may occasionally refer to the work of the agencies in debate, congressional staff constitute the regular day-to-day recipients of the information and expertise provided by the agency.¹⁹

In my interviews, I asked staff to explain where and how they use information from OTA, and a pattern clearly emerges in their responses, which I will discuss later. I have also examined the frequency with which OTA employees participate in congressional hearings, as well as the occurrence of references to OTA work by members in the

¹⁹ In interviews staff overwhelmingly indicate that members themselves infrequently see reports and studies from OTA. What information members receive from the agency generally reaches them by way of staff. Staff also report being responsible for the majority of requests for OTA studies in the first place. The House Science Committee (1978) reported similar findings in its survey.
**Congressional Record.** These longitudinal data corroborate responses given by staff in interviews. Although each of these sources provide an only incomplete glimpse into congressional process, they are consistent with each other and, combined, provide a useful characterization of one aspect of OTA’s influence on Congress. These data show where in the legislative process OTA’s expertise is most commonly used and most directly influential. They also illustrate some of the limits of persuasive and informative uses of information.

**DATA ON USES OF INFORMATION**

As a first indicator about the uses of OTA information, I asked thirty-five staff in my initial round of interviews to identify where in Congress’s work they find OTA expertise most useful. Nearly all (32 of 35) respond that OTA is most useful early in the legislative process.\(^{20}\) These staff are virtually unanimous in the opinion that OTA is most influential in the initial stages of legislating. A representative response is, "OTA falls out of the process pre-drafting. Once a bill is drafted they’re not part of the process." Another staffer explains, "[OTA is most useful] before there’s a bill; it’s too late once you have a bill. You want to know: How big a problem is [the issue]? What are the consequences? A report can also give credibility to an issue at an early stage." Another says, "[OTA is most useful] when you start to get into an issue, in framing it and asking, 'Is there a problem? What’s the problem? Are we going in the right direction?'"

Some staff focus on hearings when talking about how they use OTA, stating that the

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\(^{20}\) Two respond that OTA is useful early in the process, but then add that it is also useful "on the floor" or for "selling" policy, and one responds that agency expertise is useful throughout.
agency's expertise is most useful in "framing the scope of hearings" or "when designing hearings and picking witnesses," or for simply participating in hearings.

These interviews suggest that staff use OTA chiefly in the process of first developing an understanding of issues about which there is uncertainty, in selecting issues for the attention of committees, and in framing the way that those issues are cast. Staff are not aware of using OTA information in helping members decide how to vote, in preparing statements and justifying positions to constituents, or in assisting members in persuading one another of their positions. In short, OTA expertise shapes the process of agenda setting by informing judgements about what should be the subject of congressional politics and how those subjects will be cast for the members who will eventually vote on them.\(^{21}\)

According to these staff, OTA's influence on later stages of the legislative process is usually strikingly small. Only two of thirty-five staff mention that OTA typically has the potential for informing judgements about votes or for persuading members to change their minds once they have taken positions.

How do staff explain this pattern of influence? Several acknowledge that political determinants of positions and votes generally seem to take precedence over expert information. Where political determinants are present, little "room" is left for considering the views of experts, so the influence of expert information must come before various political actors become mobilized on an issue. One staffer explains, "By the end things are set in concrete." Another says that OTA is useful "at the very beginning before positions

\(^{21}\) The strength of this finding does not appear to be an artifact of the roles of the staff participating in interviews. One-third (12) were personal staff, and of these 83% (10) answered that OTA expertise is useful chiefly early in the legislative process. Two-thirds (23) were committee staff, and of these 96% (22) answered this way. Under a difference of proportions test, the hypothesis that the answers of both groups are the same can not be rejected at the .05 level. See the Appendix.
are arrived at. Once positions are determined, it’s too late." Yet another summarizes this view, by stating that OTA is useful chiefly early on, in hearings and setting out legislative options, and "after that they’re useful for rhetorical points but they don’t change the way you think."

These staff are describing are informative uses of OTA’s work, occurring early in the legislative process. That is, expert OTA claims are being used by staff in learning about issues that may become important in Congress’s work and in informing the formulation of legislative options regarding those issues. OTA is providing the background information on which legislative proposals are based. If OTA expertise is being regularly used to inform members’ choices and positions on those proposals, these staff are not aware of it. Similarly if members are using OTA information to persuade one another how to vote, these staff do not know about it. On the contrary, their comments suggest that the capacity of information from OTA to inform in later stages in the legislative process is limited, because preferences are generally formed on the basis of political determinants that are not information-related. According to these staff, purely informative uses of OTA information occur earlier, when the agenda is being formed. In the next chapter, I will draw on developments from information theory to explain this finding and to develop a model of the value of information.

The high level of agreement among these staff about how OTA is used is fairly convincing. There is essentially no disagreement among them about the above portrait OTA’s participation in the legislative process. But, of course, interviews with even a well-chosen set of political actors can not provide a complete picture. What other independent evidence might shed light on the results of these interviews, building a more complete
picture?

One way in which historical records can be used as a quantitative check on these interview findings is by examining the frequency with which OTA expertise and information is cited in the Congressional Record, using Library of Congress Scorpio files. Members’ statements on the floor and their revisions and insertions in the Record reveal how they argue publicly for their positions in the later stages of the congressional process. Were OTA expertise, identified as such, to be a useful tool of persuasion and informing for members on the floor, one should expect to find members alluding to OTA information and studies in their public statements, where they explain, defend, or rationalize their positions. And as OTA’s activities and the volume of its information "output" have grown over time, one should anticipate seeing an increase in the degree to which members cite the agency’s work. But if, as the staff interviews indicate, "OTA falls out of the process" after bills are prepared, one would expect to find public references to OTA in the Record to be rare. Although there are certain limitations to what can be inferred in this way, which I will discuss below, references in the Record can provide an independent check on staff claims obtained in interviews.

Before examining the data on references to OTA, consider first several measures of the historical growth in the volume of OTA’s activities to provide a context. One way to understand growth in OTA’s activities is by measuring requests to the agency by committees. Since major studies at OTA require a letter of request from one or more committees, the volume of such written requests gives an easily measured indication of

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22 The Scorpio system allows for searches of references to OTA by name in the abstracted pages of the Congressional Record. I have included House and Senate pages and Extensions of Remarks in my searches. Excluded are Daily Digest pages, which contain non-substantive references to OTA, such as announcements of meetings of the agency’s board of directors.
demand for the agency's expertise. As Chart 4 indicates, requests for OTA studies grew during the 1970s and 1980s.\textsuperscript{23}

\begin{figure}[h]
\centering
\includegraphics[width=0.7\textwidth]{chart4}
\caption{Committee Requests to OTA
Total, by Congress}
\end{figure}

\textit{Note: multiple requests counted separately; endorsements, statements of support not counted.}


\textbf{Chart 4.}

Another measure of OTA activity is the volume of reports that it issues during each Congress. This volume is, of course, related to the number of requests that it receives, but has several independent determinants. First, more than one committee may request the same study, so an increasing number of requests would not necessarily produce growth in

\textsuperscript{23} Data for 1979 are not available, making tabulation for the 96th Congress impossible.
number of reports issued. It is possible that increased requests merely reflect duplicates. More importantly, OTA has discretion over whether it undertakes requests, so the ratio of requests to studies performed varies.\textsuperscript{24} For these reasons, volume of completed studies provides a related but partly independent measure of OTA's activities. As Chart 5 shows, the volume of studies at OTA has grown steadily, especially during the 1970s.

![Chart 5](chart5.png)

**Chart 5.**

Total volume increased over 300\% between the 94th and 100th Congresses. The size of OTA's staff and its appropriations also expanded accordingly in this period. The budget

\textsuperscript{24} Infrequently, Congress will pass bills containing language that mandates OTA to undertake a study. OTA's 1987-1988 study on the Strategic Defense Initiative, for example, resulted from such a mandate. (See Chapter VI.) Only in these uncommon instances does OTA not exercise discretion over which requests for studies it undertakes.
grew from approximately $4 million in 1974 to about $20 million in 1990, a roughly 120% real increase.

While there are several facets of these data that I will examine later, when considering other aspects of Congress’s demand for OTA expertise, the primary feature of interest here is the overall growth in demand for OTA information and in the agency’s "output" of studies. The question then is whether these steady increases are reflected in references to OTA by members of Congress in their statements in the Record. Does it appear that members rely on OTA as a tool of persuasion or of informing? Is there a connection between the volume of agency activity and uses of this activity in congressional rhetoric?

Data on references to OTA in the Record provide a clear "no" for answers to these questions, as Chart 6 shows.
During the 1980s, OTA was mentioned by members in the Record an average of less than five times per year in each chamber. This is a strikingly low number of references given the number of committees requesting OTA work and the number of reports issued. And not only have references to the agency not grown over OTA's history when its activities were expanding, the figure has actually dropped. These data suggest that OTA expertise indeed does not play a visible role in congressional rhetoric.

References to OTA can be placed in perspective by comparing them with references to other agencies, which are mentioned more frequently. For the 97th through 101st Congress, members of Congress referred to the General Accounting Office an average of 347 times per Congress, and the Congressional Budget Office 78 times per Congress.
These figures are substantially higher that OTA’s 17 references.\textsuperscript{25}

Admittedly this analysis does not capture instances where a member may use a figure or number from OTA without acknowledging or even knowing its source. It is possible then that members do use OTA information in their statements in the \textit{Congressional Record} more frequently than this method of measurement indicates. But it is clear that they are not publicly acknowledging OTA as a source of information or using the agency’s reputation directly to persuade others.

In an environment where experts do frequently disagree, and where experts often have a stake in outcomes, acknowledging one’s own sources and identifying the sources of others’ information is frequently important. As I will show in Chapter V, OTA was developing a reputation for credible, non-partisan, and authoritative research during the 1980s, just as references to the agency by name were declining. By the mid-80s, OTA could provide members with the opportunity to cite in their statements an expert source that was generally acknowledged to be unbiased and disinterested. As one staffer explains, "on the floor you know you have more credibility if you are citing OTA than the National Hospital Association on Medicare changes."\textsuperscript{26}

Yet it seems that members and their staff do not find utility in citing OTA in this way. It is unlikely that OTA expertise could be playing an important role in members’ strategies of persuasion, debate, and public rhetoric, and be mentioned by name so very rarely. While this analysis of references to OTA could itself hardly build a complete portrait of OTA’s usefulness in Congress, the data certainly support the assertions of staff

\footnote{25 See the appendix for caveats on interpreting these data.}

\footnote{26 This staffer was apparently referring to the American Hospital Association.}
in interviews about OTA typically not being a factor in the legislative process after bills are drafted.

A third piece of evidence can be added to that of interviews and Record citations. The Congressional Information Service database, an electronic record of congressional publications, laws, and hearings, provides data on the frequency with which OTA participates in hearings. What can be learned about OTA’s involvement in the legislative process at the hearing stage? Is OTA’s participation in hearings also quite rare, or, as staff indicate, is OTA used more frequently in hearings? As Chart 7 indicates, OTA participation as expert witnesses in congressional hearings grew rapidly in the 1970s, followed by slower growth during most of the 1980s. In the 100th Congress, OTA contributed to about 110 hearings.
Chart 7.

Unfortunately no authoritative means is available for comparing the number of hearings in which OTA actually participated to the number of hearings in which OTA might have contributed, by virtue of having relevant expertise, but did not. Nor does any valid method exist for determining the degree to which OTA assertions and claims in hearings were heeded. Furthermore, hearings are chiefly staged events, and do not necessarily reflect a broad or "objective" search or witnesses and information. Like examining trends in Record mentions, this method also has its limitations and certain questions can not be answered. But what these data do indicate is a growing level of hearing activity that is commensurate with increases in requests to OTA and in volume of agency studies. The net growth in
OTA hearing participation has actually exceeded net expansion of requests and reports issued.

For example, during the 1980s OTA received an average of 40 committee requests per year, participated in an average of 39 hearings, issued 15 reports per year, and was mentioned in the Congressional Record just 9 times. These figures from the Record and congressional hearings support the nearly unanimous view of staff that OTA is used primarily early in the legislative process, where greater possibilities exist for informing as opposed to persuading.

These sources of evidence paint a portrait of declining OTA influence as the legislative process proceeds, as well as a shift from information to persuasive uses as issues develop. OTA’s capacity to inform at later stages of the congressional process appears limited; and where the capacity to inform is limited so must the capacity to persuade be limited. Once the political agenda has been formed, the influence of "political" factors aside from expert information seems dominant in shaping the formation of preferences and determining the course of political debates and actions. In later stages of legislating, the "electoral connection" and the demands of satisfying mobilized political groups seem to provide the primary incentives and logic of congressional decisions, leaving little opportunity for independent judgements based on the claims of experts. In this sense, the common view that information and expertise is not generally used in substantive ways is correct.

The fact that OTA’s primarily political influence appears restricted to the early stages of legislating does not necessarily mean that the agency’s influence is unimportant or marginal. After all, an important dimension of the exercise of power is the shaping of the political agenda (Bachrach and Baratz 1962; Gaventa 1980). In his book on agenda setting
in the policy process, Kingdon argues that the "accumulation of knowledge" by policy specialists is one of three contributors to the formulation of agendas and policy alternatives (Kingdon 1984, 18). OTA's experience supports Kingdon's view. The agency's studies help members recognize policy problems and help them formulate feasible policy solutions.

In next chapter, I consider in more depth the reasons why OTA's influence declines in later stages of policy making. These considerations lead to a model of the political utility of information to individuals that then serves as a conceptual guidepost for the main research on institutional politics.
CHAPTER IV.

UNCERTAINTY AND THE UTILITY OF EXPERT INFORMATION:
A THEORETICAL FRAMEWORK

A relatively rich set of theoretical developments regarding information is available to those studying politics, but with the exception of a few formal models, analysis of the politics of expertise has not taken advantage of this intellectual resource. By and large, literature on information and expertise in politics has favored the case study and the specific policy question over the search for first principles or patterns connecting causes and effects.

The chief result has been a failure to specify with any measure of generality or reliability the circumstances under which political actors derive utility from expert information. The tension between the Baconian and non-Baconian interpretations of information discussed above illustrates the problems with an atheoretical approach to the politics of expertise.

In the case of the legislature, obviously members of Congress have many opportunities to refer to policy analysis, academic studies, and other forms of expertise, whether they are developing legislation, deciding how to cast their votes, or publicly stating their positions. Indeed, it is not uncommon on Capitol Hill to hear of "information overload." Yet the

\footnote{27 For some noteworthy exceptions, see: Fischer 1990; Jasanoff 1990; Ezrahi 1990.}

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literature on expertise and information tells us little more than that politicians sometimes do and sometimes do not use expert information, depending on the circumstances and the political context of the decisions that they face. Few inroads have been made in synthesizing a general description of the factors that might shape the value of information to political actors.

How can we better understand why information from OTA appears more useful early in the legislative process? The key lies in the capacity of information to shape members policy preferences. Where information can change or help form policy preferences, it can affect political outcomes. There is a common obstacle to understanding how information shapes preferences, and it involves the fact that such a great number of other factors affect political preferences as well. Entire sub-fields in the study of Congress have been dedicated to showing how members form their policy preferences and how they subsequently act on those preferences. Studies of roll-call voting and decision making in Congress (e.g. Kingdon 1981) have provided an elaborate portrait of the influences -- from colleagues to constituents -- on members’ expressed preferences. Studies of constituency representation (e.g. Miller and Stokes 1963) have attempted to trace connections between constituent preferences, members’ personal preferences, party-derived preferences, and the preferences finally expressed in members’ floor votes. And recently the growing literature on campaign finance has attempted to trace the influence of money on members’ behavior and revealed preferences (e.g. Hall and Wayman 1990).

Those studying expertise in politics have often been hard pressed to show how expert information can ever take precedence over these important, visible, and well-studied determinants of political actors’ preferences. The public and even some congressional staff I interviewed sometimes express a cynical view of whether members ever "pay attention to
the experts" rather than acting for "political" reasons.

For example, in a July 1987 meeting of OTA's Board of Directors at which plans for a study of the environmental effects of drilling for oil in the Alaska National Wildlife Refuge were discussed, Senator Ted Stevens of Alaska illustrated this point well. Stevens's primary constituent concern was the health of his state's oil industry, an overwhelmingly powerful commercial interest in Alaska. That industry favored opening the wildlife refuge to drilling, as did Stevens, and neither were interested in the claims of expert environmentalists. At the meeting, Senator Stevens objected to the proposal for an OTA study (OTA Transcript 1987). A report from OTA had little value to Stevens, who had little question about how to serve this important constituency. He had no informative use to which a report could be put. On the other hand, an OTA study might hurt him by giving persuasive ammunition to his opponents.

In this case, the member's preferences on the policy question were clear and well established; expert information had little capacity to change his preferences. One must only look to congressional districts where the tobacco lobby is powerful or where coal mining interests dominate to find similar cases. The policy preferences of members from these districts are not likely to be changed by expert information about the adverse health effects of smoking or studies of acid deposition in the environment caused by fossil fuel power plants.

But to frame questions about the value of information in terms of expert claims taking precedence over constituency interests or other political forces can be very misleading, although the role of expertise is often thought of in this way. Members of Congress are obviously not elected to be policy analysts, as several observers have noted (Jones 1976; Weiss 1980); they are sent to Capitol Hill to make political judgements as representatives
of the interests and concerns of their districts and states. As an institution, Congress is itself not designed to facilitate the making of expert judgements in the way that an administrative bureaucracy might be. Instead, Congress’s comparative advantage is in the representation of public concerns and the reaching of consensus and compromise (Mann 1990). To look for instances where members ignore "political influences" and base decisions on what experts recommend is to ask something of Congress that it is not institutionally capable of delivering.

If we are to understand the utility of expert information in the legislature, we must avoid the fallacy of casting expertise as a factor that somehow competes with constituency, party, or organized interest for influence with members. A more conceptually helpful approach is to characterize the value of information on the basis of how it facilitates members’ formation of preferences given the combination of other political influences to which they respond. That is, information should be interpreted as a resource members may use to identify and act on the relevant public or private interests that they seek to represent. This relatively simple distinction between a) decisions based directly on the recommendations of experts, and b) decisions in which expert information is used to understand and act on the interests of constituents has generally been missed in dialogue about expertise in politics.

This view of information opens the door to two observations with theoretical origins in information theory and game theory, respectively. These observations then lead to a basic conceptual model of the utility of information in politics.
OBSERVATION 1: The defining feature of information is the reduction of uncertainty.

Immediately after World War II a group of engineers and mathematicians developed a method for quantifying information that remains the basis for nearly all technical analyses of the subject in fields from computer science to economics and game theory. The practical problem that motivated this research at the end of the war was the development of electronic communication systems. Communication theorists realized that a method was needed for specifying how much information was to be transmitted over a wire or through the air in a given time, for identifying the ratio of true information in a signal to "noise" that had been picked up along the way, and so on.

These developments were significant not only because of the immense commercial application they would eventually have, but because they brought a quantitative, analytic approach to the study of a topic previously treated only qualitatively. The work of Shannon (1948), Wiener (1948), and others established the field of information theory, making information a measurable quantity as well as something about which people could speak of informally or loosely.

Information theory is based on the notion that information is simply that which reduces uncertainty (Arrow 1990; Tavel 1989). The defining feature of information is that it reduces uncertainty in the person who receives or acquires it. The elegance of this principle lies in the fact that it allows the quantification of information, since uncertainty is often a measurable entity. Where an agent has some level of uncertainty about a subject or question, information that he or she receives may reduce that uncertainty. Information theory equates the reduction in uncertainty with the quantity of information perceived.

Information theorists chose to measure uncertainty in terms of the number of possible messages about a subject that could be sent and received (Tavel 1990). In other words,
the amount of information is a function of the number of possible "states of nature" that may obtain. For example, a message about whether it is currently raining in San Francisco has two possible answers; a message about which card has been drawn from a deck of cards has 52 possible answers. The relative importance of these states-of-nature to the recipient notwithstanding, a message that says "it is raining" conveys less information than one that says "three of clubs." An interested party has a pretty good chance (50%) of guessing the right answer about the San Francisco weather, but a very low chance (1.9%) of guessing the correct card. Each message produces a different reduction in uncertainty.

The universally accepted unit of measure in this scheme is the yes/no question. Reductions in uncertainty are measured in terms of the number of yes/no questions that must be asked in order to arrive at an equivalent level of knowledge. Therefore, the rain question involves one such unit, since only one yes/no question must be asked to produce the same level of knowledge deriving from a message about whether or not it is raining. The question about a deck of cards contains about six such units, since a minimum of six carefully crafted yes/no questions are required to guess a single card drawn from a deck.28

This simple approach to quantifying information works elegantly in engineering, but is probably more difficult to apply with a similar degree of precision to social or political

28 A logarithmic scale is used to arrive at units of information, known as "bits." The quantity of information, H, in a message is given by H=\log_2N, where N is the number of (equally likely) possible messages. Therefore the rain message contains 1 bit of information, the card message \log_252=5.7 bits of information. (Probability factors are added where all messages are not equally likely to be received. Note, for example, that the probability of "yes" and "no" answers about rain in San Francisco are actually not always equal, varying with the season. On the other hand, in a fair deck of cards, all are equally likely to be drawn.) See Campbell 1982; Mackay 1969; and Tavel 1989 for an introductory discussion of information theory.
choices. Developing a measure for quantifying information in a political environment is beyond the scope of this project. But understanding the conceptual basis that such a measure would most likely take -- reduction in uncertainty -- is very useful. I will frame questions about the utility of information in terms of members' uncertainties about policy problems, as reflected in differently valued questions about policy.

Consider what this approach can immediately tell us about the information in a report from OTA. It must be true that understanding the value of such information to a specific member requires an assessment of the extent to which it reduces his or her uncertainty about the subject. The uncertainty of each member is key here. Several observations can be made about this uncertainty. First, different members are likely to have different levels of initial uncertainty about a topic, so the real information content of a report from OTA -- its capacity to reduce uncertainty -- will vary from member to member. As a message between expert and politician, an OTA report does not contain a fixed quantity of information, because I am requiring information to be referenced to individuals' specific levels of knowledge (uncertainty) before receiving the message.

A second and more important observation is that members will have different kinds of uncertainty, or rather, they will be uncertain about different aspects of an issue, both politically and technically. And different kinds of uncertainty will have varying degrees of importance to members. For example, a member considering a vote on the MX missile may be uncertain about the cost of each missile and also about whether the missile basing system will require tracts of land in her district. Obviously these two categories of uncertainty are likely to be of different significance to her. Reducing uncertainty about the per-missile cost of MX is probably not nearly important as knowing whether MX is to be located in her part of the state, although an OTA report might contain data on both.
Another member, say from an urban district in the northeast and who sits on the Foreign Relations Committee, may place a greater value yet on reducing uncertainty about the treaty implications of an MX missile program.

Members will place different value on answers to different questions, depending on their personal interests, committee positions, district concerns, and ideology. Reductions in some kinds of uncertainty will be more valuable to some members than others. A working model of the value of information will require identifying those types of uncertainty that are amenable to changes through expert information.

*OBSERVATION 2: The defining feature of expert information in a political context is that it reduces uncertainty about the connection between policy choices and their public consequences.*

If members of Congress face uncertainty of many sorts, which are most important? Members may be uncertain about which issues will be coming up on the political agenda, about how colleagues are likely to vote on a question, or about what type of rule they will receive in the House for a bill they have sponsored.

Some types of uncertainty that might be quite important to members can nonetheless be eliminated from further consideration here. These are uncertainties about strategic or political problems. OTA studies are technical documents; they do not propose to tell members about the actions or positions of colleagues, about bill schedules, or other aspects of political procedure. To use terminology sometimes employed in the literature, OTA reports provide "technical" rather than "strategic" information (Bimber 1991). OTA reports give information about the "state of nature," whereas whip reports, calendars, and "Dear Colleague" letters provide information about the "rules of the game" and about other "players" in the game.
What about the capacity of technical information from OTA to reduce uncertainty about the state of nature? How can this process of uncertainty reduction be described more precisely, and of what utility is it to members?

Members react to the state of affairs beyond the Washington Beltway primarily through their electoral coalitions -- constituents, organized groups, and financial supporters. Members of these coalitions are affected by the state of the economy, by social conditions, federal laws, and so forth. These conditions are in part the product of Congress’s policy choices, and so members must concern themselves with how these various states of affairs affect the electoral coalitions whom they represent. This is to say that members must often be concerned with the consequences of their policy choices (Austen-Smith and Riker 1987; 1990; Gilligan and Krehbiel 1987; 1988b; 1989). Members must pay attention to whether legislation decreases unemployment and inflation, reduces the budget deficit, increases transfer payments to low-income families and the elderly, reduces poverty, or enhances U.S. industrial competitiveness.

For the rest of this chapter, I will focus on members’ concerns with the real-world consequences of their decisions. I assume that when members vote for a bill, an important motivation is to actually produce social changes, rather than to merely record a position about the desirability of change (Arnold 1990). I am interested in understanding how members behave when they are concerned with the consequences of policy decisions.

To be concerned with consequences means that members must make judgements about how the public will respond to both their policy positions and to the policy effects that are a consequence of congressional action. Note that this approach distinguishes between members’ preferences over policy choices -- what is on the legislative agenda -- and preferences over consequences -- the effects of Congress’s legislation. Members have
preferences about specific bills and also about the effects that policy choices are intended to produce. How do members get these preferences?

These preferences on the part of members come primarily from the preferences of their electoral coalitions, either directly or indirectly. As Arnold points out, focused, "attentive" public groups tend to express their preferences over policy choices directly to members. Especially on high-salience issues, members are likely to receive mail and phone calls from constituents and visits from lobbyists who urge members to make specific policy choices. In these cases, members' own preferences over come directly from the expressed policy preferences of the public. Sometimes members are "compelled to support certain policy options because the intended effects are popular, irrespective of whether the proposed means will really achieve the ends" (Arnold 1990, 77). Some policy choices are so attractive, or repugnant, on the basis of electoral coalitions' expressed preferences for policy that members need not concern themselves with longer-term expected consequences. As I will discuss further later, in these cases expert information has little utility.

But members often do not know directly what policy choices are favored by their electoral supporters. In some circumstances, where the public is less attentive to the machinations and voting on Capitol Hill, members must estimate how the consequences of various policy options are likely to affect constituents. That is, they anticipate retrospective voting (Arnold 1990) Will a particular bill have a salutary effect on the local economy? Will funding for a new power plant mean a safe source of energy that reduces electric bills for constituents? Will a crime bill really reduce urban violence in the district?

As Arnold reminds us, Kingdon (1981) found that members constantly attempt to judge how policies will affect their constituents. Far from being satisfied with only staking out positions, members seek to guess the consequences of bills. Where electoral coalitions
have not expressed a preference for a policy choice, Arnold refers to their "potential preferences." Members guess how these latent, potential preferences of the public may or may not be satisfied by the consequences of their choices in Congress. This process of estimating the consequences of policy choices in order to satisfy the potential preferences of constituents is key to the value of expert information in politics.

When members make choices in order to satisfy their electoral coalitions, they are estimating the causal connection between policy choices and real-world consequences. Sometimes these assessments of causal connections are easy. For example, a hold on cost-of-living-adjustments for Social Security recipients (as opposed to a sizeable increase), will have a readily predictable effect on constituents, as will a tax increase. Even though constituents may not have expressly stated their preferences to members on a specific COLA or tax vote, members can readily estimate how the vote will affect those constituents.

On the other hand, the connection between policy choices and consequences for constituents is sometimes quite unclear. For example, in the case of a crime bill, should the member choose gun control, more funding for federal prisons and courts, or better drug interdiction and enforcement? How these options might affect their own electoral coalitions might be quite unpredictable. Similarly, the effects of a law mandating wheelchair accessibility in public transportation may be uncertain for members. Will it be costly enough to drain resources and disrupt public transportation service altogether, or will it provide a basic right to persons with disabilities at a reasonable cost?\(^{29}\)

In cases such as these, members must make their policy choices under a specific type

\(^{29}\) The Americans with Disabilities Act of 1990 posed this problem for many members. Congress included a provision in the statute itself for a study of the problem by OTA.
of uncertainty: uncertainty about the connection between policy choices and public consequences. It is just this type of uncertainty that may be reduced by the acquisition of expert information. Where expert claims from OTA or some other source provide information about this connection, it may reduce members' uncertainty, thereby facilitating members' acting on the potential preferences of their electoral coalitions. In this way, expert information shapes members' preferences over policy by informing them about how policy choices will produce public consequences.

To understand this process by which expert information shapes preferences, I rely on the formulation of Gilligan and Krehbiel (1987, 1988b, 1989) and Austen-Smith and Riker (1987, 1990). Both sets of authors differentiate between members' fixed and constituency-given preferences for consequences, such as a healthy dairy industry in an agricultural district, and their "induced" preferences for policy, such as dairy price supports in a farm bill. When members acquire expert information about the connection between policies and consequences, such as one might find in a study of farm finance, capital investment, or anti-trust regulation in the agricultural sector, their induced preferences for policy change as they learn about that connection. Under this type of uncertainty, expert information helps members choose policies with the greatest likelihood of serving their electoral coalitions.

Austen-Smith and Riker (1987, 1990) offer an example in the form of a model of asymmetric information. They analyze a water fluoridation policy choice, where members are faced with choosing a policy to fluoridate drinking water. Austen-Smith and Riker assume that members have a fixed preference for the final level of fluoride in water, perhaps given by constituents' preferences for a safe but effective level. In Arnold's terminology, members are ready to estimate the potential preferences of constituents over consequences.
The decision problem lies in the fact that the final level of fluoride in water will be the sum of a) that added by the policy decision, and b) the naturally occurring background fluoride. This background level is known only with some probability. In the face of this uncertainty, members may choose to acquire technical information about background fluoride. Gaining information reduces a member’s uncertainty and changes his or her expected utility from the decision. For instance, if a legislator is initially 50% certain that naturally occurring fluoride is insufficient, a water fluoridation policy offers less value than it would if she were 95% certain that it is insufficient. If technical information can reduce members’ uncertainty -- or, in this formulation, increase their certainty from 50% to 95% -- then that information has value to the member. A member’s induced preferences for policy are changed by the capacity of information to reduce uncertainty about the policy-consequences connection.

A MODEL OF PREFERENCE FORMATION UNDER TECHNICAL UNCERTAINTY

These two observations about the nature of information and the often uncertain connection between policy choices and their consequences provide the basis for a conceptual model for understanding when expert information will have utility to members of Congress. This model can lead us to predictions about when members might acquire information from OTA and when they might find it irrelevant.

To summarize the preceding discussion, this model of preferences and uncertainty has several components. The first is a distinction between position-taking on the part of members and their desire to produce specific consequences. The importance of this distinction is that where members have preferences over consequences, they need substantive information. The second components is a distinction between constituents’
expressed preferences over policy and their potential preferences based on consequences. Finally, this model assumes that members derive their own preferences over policy either a) directly from constituents’ and others’ expressed preferences, or b) inductively from their knowledge of constituents’ potential preferences over consequences combined with their estimates of the connection between policy choices and consequences.

This model allows for three types of decisions by members of Congress. In the first kind of decision, which I call Type I, the member’s policy preferences are derived directly from the expressed policy preferences of the electoral coalition. The member prefers the policy preferred by the coalition, and he or she need not be concerned with connections between policy and consequences. Expert information therefore plays no role in this type of decision.

In the Type II decision, the electoral coalition does not express a preference for a specific policy, so the member must choose a policy that produces consequences expected to be beneficial for the coalition. In this case, the connection between the policy choice and subsequent consequences is clear, as in the case of a tax increase or change in Social Security payments. Because there is little or no uncertainty about this connection, expert information again has little bearing in this case.

The last case, a Type III decision, is much like the previous one, except that the connection between policy and consequences is uncertain. In this situation, the member must choose a policy that is likely to produce beneficial consequences, but must do so under uncertainty. Here expert information can help the member choose a policy that serves the electoral coalition. Only in this case can information shape the members’ preferences over policy.

These three cases need not be distinct. Members may sometimes face more than one
or even all three types in a given choice. In that case, the member's own judgement, experience, intuition, and resources will shape how he or she prioritizes among the criteria and finally arrives at a decision.

For example, in the case of health care reform in the 102nd Congress, groups such as the American Medical Association have been active in developing legislative alternatives and in making clear which policy choices they want members to support. On health care, members generally have access to the expressed preferences over policy of insurance companies, unions, and others (Type I).

On the other hand, constituent pressure for change has been somewhat more diffuse, albeit strong. As a general rule, the public does not follow closely the various health policy proposals under discussion. Members generally know that constituents want change, whether it is less expensive health care for currently insurance subscribers or coverage for the uninsured, but members have to estimate for themselves which policy choices to support in order to produce the desired change (Type II or III). In this situation, members have to contend both with expressed policy preferences of active political groups and the potential preferences of constituents who will be affected by the consequences of their policy choice.

While decisions may or may not involve more than one of these three decision cases, the important point for understanding expertise is that only in the third case, where relevant uncertainty exists about the connection between policies and consequences, could members derive informative utility from expert information. Only where members want to assess how the consequences of policy choices will affect constituents and satisfy their potential preferences will members have an incentive to acquire expert information. Where electoral coalitions persuasively express policy preferences directly to members, or where the
connection between choices and consequences is plain to members, expert information can offer little utility.

Furthermore, members may have many ways to reduce uncertainty about the policy-consequences connection. They need not each acquire expert information. As Kingdon (1981) found, for example, members commonly rely on each other to help learn how to anticipate the effects of legislation. Members may ask a trusted colleague about the effects of a bill, or may take cues from members of his or her party who sit on the committee reporting a bill. The committee itself is more likely to have acquired directly expert information, through hearings, individual consultations with experts, or perhaps through a study such as OTA produces.

This typology of policy decisions helps readily identify those cases where expert information can be expected to offer value to members of Congress. This model of induced formation of preferences on the basis of expert information about consequences supports the following proposition:

**UNCERTAINTY PROPOSITION:** Expert information has value to members of Congress when it has the capacity to reduce uncertainty about how to satisfy the preferences or potential preferences of the constituents they seek to represent.

This proposition suggests that members are likely to derive little value from expert information where they have low uncertainty about the preferences of their electoral coalitions. Members are also likely to have little use for information where they are able to infer with low uncertainty what policy choices to make in order to produce desirable consequences for their constituents, as was the case when Senator Stevens opposed the study by OTA of oil development in the Alaska National Wildlife Refuge.
How does this proposition conform with what I have already found regarding the political use of OTA? In the previous chapter, I introduced the distinction between informative and persuasive uses of information. This model now gives a more specific meaning to these definitions. Information has an informative use when it reduces members’ uncertainty, thereby changing their policy preferences. Information has a persuasive use where members employ it to reduce others’ uncertainty and thereby induce changes in others’ preferences.

In the previous chapter I also found that information is used chiefly early on in the legislative process, especially in the case of informative uses. Conversely, I found that OTA information is less relevant after the early stages of legislating. As one staffer told me, "OTA is most helpful early on," that is, "before things get cast in concrete." When staff describe how they use OTA in early stages, identifying issues, framing questions, preparing bills, and so on, they are describing a period of when the policy preferences of electoral coalitions are least likely to be known, and when uncertainty about the connection between policies and their consequences is likely to be greatest. Early in the agenda-setting stage, members are least likely to have heard how interest groups want them to vote or in what way constituents might be affected by an issue. Then as OTA "drops out of the process" after drafting, members are more likely to have been pressed by interested groups. The "casting in concrete" that the staffer refers to means that members are having their own policy preferences directly shaped by mobilized political groups who urge them to take specific positions on issues. The importance to members of reducing uncertainty about the policy-consequences nexus is likely to decline as forces pressuring them to make specific policy choices increases.

This uncertainty proposition provides a conceptual connection between the properties of
information as a political resource and the logic of legislators' election incentives and institutional prerogatives. With this proposition as the basis for understanding why individuals could be expected to acquire information about policy, we can turn to the problem of how institutional structure shapes aggregate effects of members' pursuit of information.
CHAPTER V.

MANY MASTERS:
THE COMMITTEE AND PARTY STRUCTURE IN CONGRESS

In 1973, even before the Office of Technology Assessment had begun its formal operations, critics began assailing the agency. OTA was charged in the press with politicization and bias in favor of liberals (Shapley 1973; Wanniski; 1973). Conservatives claimed the new agency would end up serving as a political weapon for Senator Ted Kennedy and others to use against the Nixon administration, rather than as a neutral, long-range forecasting and analysis service for all members. As 1974 arrived and OTA opened its doors for business, its reputation seemed to worsen. By 1979 many people felt the agency was in its death throes, having been rent internally by divisions on its board and having been pummeled externally in the press (Safire 1977; Holden 1977; Southwick 1977).

Yet by the late 1980s, just ten years later, OTA would be praised for providing neutral and non-partisan competence to Congress. In a story carried by the Associated Press, OTA would receive credit for being a "dispassionate, nonpartisan player" (Reppert 1988). The New York Times would cite OTA for having earned "widespread trust" on Capitol Hill (Hershey 1989). In the decade following OTA's near-death at the end of the 1970s, a dramatic set of changes brought about this reversal of fortune. In this chapter, I explore
the forces that precipitated this stunning political stabilization, examining what these reveal about Congress's demands for policy resources and information.

The forces that acted on OTA as it escaped its highly politicized origins and eventually achieved a secure status in Congress arose from Congress' internal structure. The legislature's decentralized committee system and its two-party organizations -- its most distinctive institutional features -- are responsible for shaping OTA's development in remarkable ways. The influence of the committee and party system on Congress's demand on OTA and the agency's subsequent response arises from the dispersed policy preferences that are represented in Congress. The legislature is organized non-hierarchically, where relatively independent structural units enjoy autonomy over subsets of the policy domain (Smith and Deering 1990). Power is dispersed widely, two parties contend for influence, and many divergent interests are represented. These features of Congress present OTA with many political masters who have differing preferences for policy and for information.

Consider that in the 100th Congress, 132 members of the House and 47 members of the Senate could claim the title "Mr. Chairman" (Ornstein, Mann and Malbin 1987). Although the "democratizing" reforms of the 1970s removed some of the authority of the committee chairs, they still wield significant influence over policy falling within their jurisdictions. The post-reform committee system has provided an increased number of members with resources for pursuing their own particular interests (Smith and Deering 1990).

These many masters bring different kinds of uncertainty to the legislative process,

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30 In the House, 51.2% of majority party members held at least one chair in the 100th Congress. In the Senate, 87% of the majority party held at least one chair, and averaged 1.8 chairs (Ornstein, Mann and Malbin 1989).
shaped by their many constituencies and policy interests. Collectively, they demand a very heterogeneous mix of information from OTA in order to reduce their uncertainties about connections between policy and consequences. Simultaneously satisfying the needs of so many different political masters has forced OTA to adopt strategies of neutrality, of providing something for everyone, in order to ensure its survival.

The logic of this interaction between institutional structure, demands for information, and bureaucratic adaptation can be highlighted by a brief comparison to the executive branch, which, unlike Congress, is organized hierarchically and enjoys greater unity of political purpose. Terry Moe’s analysis of the U.S. presidency offers a useful point of comparison (Moe 1985). Moe interprets the development of the presidency in terms of " politicization" and "centralization" of bureaucratic service, claiming that the prerogatives of the presidency drive advisory organizations and expert agencies in the executive branch away from neutrality and toward responsiveness to the President’s preferences for policy. The President’s authority over appointments and ability to draw control over decision making into the White House shape organizations designed to provide "neutral competence," such as the Bureau of the Budget (now OMB) and the Council of Economic Advisors, into politicized advisors who offer "responsive competence."

Moe’s description of the original mission of the Bureau of the Budget, which would eventually become the politicized Stockman OMB in the Reagan administration, could just as accurately describe OTA’s original mission: "[It] was to be an impartial, expert, professional organization.... It was to have nothing to do with politics or policymaking." (Moe 1985). But especially during the Reagan Administration, ostensibly neutral organizations became politicized, increasing their loyalty and utility to the President at the
expense of objectivity, expertise, and other elements of professionalism.\textsuperscript{31}

Yet just as the more homogeneous preferences for policy in the White House have been responsible for driving the Bureau of the Budget and other executive agencies away from neutrality, the heterogeneous congressional environment has placed just the opposite demands for information on OTA. In this chapter, I examine these demands for information from OTA, showing a distinct connection between institutional structure and the politics of expertise. My findings suggest that Moe's argument about the executive branch can be made richer my adding the dynamics of congressional bureaucratic politics. Congress provides a complementary institutional setting for examining how organizational structure shapes the demands placed on expert agencies. Moe's work examines hierarchy and politicization, whereas my study of OTA examines decentralization and depoliticization. Congress provides the obverse set of political dynamics from the White House for the provision of expert advice.

I also consider what the record of OTA's interaction with the committee and party systems reveals about the nature of uncertainty and the utility of information. I find support for the uncertainty proposition from Chapter IV in the heterogeneous demands for information in Congress. Members' disparate constituencies, and especially committees'

\textsuperscript{31} For the purposes of a comparison, OTA has no precise analog in the executive branch. The closest organization in form and purpose has been the president's science advising apparatus, originally called the President's Science Advisory Committee (PSAC). Created in 1957 to provide expert advice, PSAC enjoyed several years of respect and accolade as an effective, neutral advisory office. But its stature declined under Johnson, and then when it differed with Nixon over the SST and the Safeguard ABM system, he abolished it in 1973. Congress legislatively re-established the office (under the name Office of Science and Technology Policy) as well as the position of "Science Advisor to the President" in 1976, but these never achieved their previous level of respect. Under Reagan, science advice was sublimated to the functions of promoting Presidential policies, especially the Strategic Defense Initiative. During the 1980's the office was generally viewed as a lobbyist for administration policy rather than as an expert advisor. This pattern of change fits Moe's description closely.
often contentious claims to political turf, reflect very disparate uncertainties about the connection between policy and consequences. OTA’s history in Congress, particularly before 1980, also shows how the problem of credibility affects the utility of information. This theme, that information must be credible to be informative or persuasive, arises again and again in Congress’s use of OTA.

CONGRESS AND OTA FROM 1972 TO 1982

When Public Law 92-484, which established OTA, was approved in October of 1972, many inside and outside Congress hoped that the new agency would provide the kind of objective advice that Moe describes as the common mission of new expert organizations. The act itself gave as one of OTA’s purposes the equipping of Congress with the means for obtaining "competent, unbiased information." (PL92-484). Harvey Brooks, who chaired the 1968 study by the National Academy of Sciences that had encouraged the creation of an office like OTA, commented later that OTA had been "designed to emphasize both the appearance and reality of non-partisan, neutral competence" (Brooks 1983, 52).

Yet despite these high hopes at the outset, in its first decade OTA encountered substantial problems with both its appearances and the reality of its existence. As one Senate staffer who participated in the agency’s creation remarks, OTA was "born in fertile political soil." The goal of non-partisanship and neutrality was initially an unobtainable one.

The first steps toward organizing OTA after passage of the Technology Assessment Act were the selection of its Director and congressional Board, and the design of the organization itself.32 Politicization and suspicions about whether OTA would really provide

32 PL92-484 gives authority to the Speaker of the House and President pro tempore of

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"neutral competence" became apparent even at this early stage. The first Board, named by the leadership of each chamber on October 17, 1972, consisted of Senators Edward Kennedy, Ernest Hollings, Hubert Humphrey, Gordon Allott, Richard Schweiker, and Peter Dominick, and Representatives Charles Mosher, John Davis, Earle Cabell, James Harvey, and Mike McCormack (U.S House of Representatives 1980; U.S Senate 1972c).33

The Technology Assessment Act specifies that in even-numbered Congresses the position of chair is to be held by a House Board member, but according to one of his staff, Senator Kennedy sought the position for himself. When Representative Davis, the ranking House member and probable first chair, attempted to convene the Board in late 1972, Kennedy’s office was in no hurry to find a time when the Senator would be available for the meeting. The effect was that the first meeting was stalled through the end of 1972, and the initial meeting therefore had to take place in new 93rd Congress, when the chair would go to a Senator.

This tactic succeeded; Senate members of the Board chose Kennedy as chair, and he gavelled open the first meeting of the OTA Board on April 10, 1973 (OTA 1973a).34 Not the Senate to appoint six members each to the OTA board. In practice, the majority and minority leaders of each chamber make the selections.


34 According to the same staffer, as soon as it received word that President Nixon had signed the OTA legislation, Kennedy’s office also worked with staff to Senate Majority Leader Mike Mansfield to ensure that Kennedy would be the most senior of the Senate Democrats named to the Board (Warren Magnuson was a possible rival). Kennedy staff also encouraged several "liberal Republicans" to request appointment to the OTA Board in order to ensure at least one Republican vote for Kennedy as chair, to go along with the three Democrats. Four votes constituted a majority vote for chair.
only did this move provide Kennedy with the distinction, however slight, of acting as the first chair of the new agency, but it gave him the potential for greater influence over the organization of the new office. Ellis Mottur, Kennedy’s chief aide for science and technological issues and a person who would play one of the most significant roles at OTA for several years, drafted rules of procedure for OTA, which Kennedy introduced at the first Board meeting\(^5\) (OTA 1973a). Kennedy and Mottur also pushed for the selection of Emilio Daddario, who had originated the OTA legislation in the House, as the agency’s first director.\(^6\) The Board unanimously approved Daddario on November 1 (OTA 1973b).

These initial steps in OTA’s establishment brought criticism on the new agency. The Kennedy and Daddario appointments exacerbated the fears of some people inside and outside Congress that the new agency would be anti-technology or anti-growth.\(^7\) While in Congress, Daddario had voted against the ABM missile defense system and the SST, prominent technological projects favored by the Nixon administration. With Kennedy taking the lead role in setting up the new agency, through Mottur, some conservatives were concerned about the effects OTA might have on national politics (Shapley, 1973). In the Wall Street Journal, columnist Jude Wanniski charged Kennedy with setting up a "shadow government" (Wanniski 1973). The National Review (1973, 454) ran an article on OTA in April of 1973 entitled "Teddy at Work," citing concern in the Nixon administration that

\(^5\) Interview with Ellis Mottur, March 7, 1991.

\(^6\) Daddario had given up his House seat in an unsuccessful Connecticut gubernatorial bid in 1970, which he lost to Thomas Meskill. He was employed by Gulf & Western Precision Engineering Co. at the time of his selection as OTA Director.

\(^7\) Since discussions of the office first received public attention, parts of the business community had been wary of the idea of an office for assessing technology. See coverage of OTA in Business Week on April 8, 1972 and January 13, 1973.
Kennedy would shape OTA into a "political weapon to be used against the administration."

According to a Senate staffer, this wariness toward the new agency by conservatives almost derailed OTA's initial appropriations, which could well have killed the agency altogether. The issue came down to a conference committee fight over the Legislative Branch supplemental bill in which the Senate had placed $2 million as start-up funding. An adamant Representative Elford Cederberg objected to the OTA funds, calling the agency a Kennedy boondoggle. Cederberg was the ranking minority member of the House Appropriations Committee and the Committee on the Reduction of Federal Expenditures. His objection was sufficient to kill the appropriation, and according to the Senate staffer I spoke with, some supporters of OTA gave up on the agency as lost.

A number of federal agencies exist only on paper, having been authorized but never funded, and it appeared that Cederberg would cast this fate on OTA. But Kennedy's staff went to work, looking for a means for persuading Cederberg to change his position. They found that means in Dow Chemical, a very influential firm in Cederberg's Michigan district. According to this staffer, Kennedy's office arranged for the nomination of a Dow corporate officer, J.M Leathers, to the OTA advisory council. Dow wrote to Cederberg in support of the nomination and endorsing OTA. Cederberg backed off, OTA received its $2 million, and Leathers was approved as a council member in December (OTA Minutes 1973c; U.S. Congress 1976).

So OTA was off to a difficult start. Even before it had attempted to provide any of the neutral, objective advice specified in its charter, the agency had become the subject of mistrust on Capitol Hill and elsewhere, chiefly on the part of Republicans. When OTA finally began operations in January of 1974 with the start of the 2nd session of the 93rd Congress, problems with the agency's image worsened.
At the suggestion of Senator Peter Dominick, the Board sent out letters to all committee and subcommittee chairs to "look for work," announcing that the agency was ready to begin assisting them (OTA Minutes 1973c). Several Board members themselves also pressed issues for study by OTA, and their interests played the primary role in shaping the agency's early agenda. For example, Senator Hollings, chair of the Senate National Ocean Policy Study, had a strong interest in oceans policy, which he pushed at OTA. One of Hollings's first requests to OTA, in January of 1974, was for a study of an international fishing limit in coastal waters. The project was completed in 1977 and released with the title Establishing a 200-Mile Fisheries Zone (OTA 1974a). The "Oceans" program at OTA became an active unit, releasing five reports by the end of 1977.

Like Hollings, OTA Board member Hubert Humphrey also urged OTA to pursue an issue of personal interest to him. At the November, 1973 Board meeting and again in January of 1974, Humphrey encouraged the Board to provide OTA with a focus on agriculture and food resources (OTA Minutes 1973b; 1974a). In response a "Food" program was informally set up, and it released its first report, Food Information Systems, in February of 1976.

With Hollings and Humphrey proposing studies at the first opportunity in January of 1974, by the second Board meeting, in February, more members had prepared study requests for issues related to their committee work or to their district interests. Representatives Olin Teague and Charles Mosher proposed a study of materials resources, and, with Senator Hollings, a study of a national energy plan. Senator Kennedy, who chaired the Health subcommittee of Labor and Public Welfare, proposed a study of drug safety and efficacy (OTA Minutes 1974b). The report was released in July with the title Drug Bioequivalence as OTA’s first completed study.
During 1974, its first year, OTA's Board treated the agency much like the staff of a joint committee on science and technology, using it to investigate issues of interest to the "committee." This did not square with the agency's mandate to provide neutral advice to all of Congress in the minds of some. One critic of OTA writes that OTA's oceans program simply functioned like an extension of Senator Hollings's staff (Caspar 1981). The heavy involvement of the Board in OTA's agenda brought more criticism on the agency by creating the impression that OTA would end up serving as a "job shop" or personal resource for its Board.

Board members could make the argument that they were only attempting to get the new agency going by providing it a research agenda. Indeed as interest in OTA grew among committees and its clientele grew, this issue of board dominance became less visible. Impressions faded slowly nonetheless, especially since some studies initiated by the Board took several years to complete. A visible example was Enhanced Oil Recovery Potential in the U.S, an early OTA project requested by Senator Stevens of Alaska and not released until 1978.

In OTA's first few years, Emilio Daddario's style as director contributed to the impression that the agency tended to cater to the particular interests of Board members at the expense of wider interests in Congress. As an ex-member, Daddario had a collegial relationship with the Board, especially those from the House, and according to a number of OTA employees and Hill staff, he was more attuned to meeting the political needs of the members than to establishing an environment of political independence for OTA.38 For

38 Also see Carson 1989; Caspar 1981.
example, one OTA employee says that Daddario's chief demand on him and others as analysts at OTA was to keep specific Board members happy and "out of his hair."

Underlying the appearance that OTA was failing to isolate itself enough from the interests of specific members to achieve neutrality was an institutional mechanism that clearly provided the potential for political influence at the agency. What was known as Rule 12 of OTA's governing procedures gave control over the agency's staff to the Board of Directors. The rule gave the Board approval authority over staff hired by the agency director, and importantly, stipulated that the director was specifically to appoint staff designated by the Board chair, vice chair, as well as the two ranking members of the other party from the chair and vice chair, and "such other personnel as the Board may deem necessary" (OTA 1973).

In practice, Rule 12 meant that Board members placed one or more of their own staff at OTA, presenting these employees with a problem of divided loyalties and possibly conflicting responsibilities. These staff were to serve Congress as a whole by contributing toward the ostensibly neutral and non-partisan activities of the agency, while maintaining ties to members with specific interests in policy outcomes.

While some Board members, namely Representatives Udall and Mosher, had reservations about the practice of political appointments at OTA, the majority found nothing to object to in Rule 12. Senator Kennedy stated that he felt that any "special responsibilities" staff might have to individual Board members "would not be inconsistent with their principal role" as OTA employees (OTA Minutes 1974c). Senator Humphrey indicated that he was willing to have the person he selected "have responsibilities under Director Daddario with the understanding that he would be available to [me] whenever he is needed." Humphrey referred to a food expert whom he had in mind for OTA. In
February of 1974 Udall and Mosher urged "restraint" on their colleagues with respect to staffing because of the impression that the appointments would give. Their instincts were correct, but it would take several years before the restraint that they spoke of would be exercised.

The expert that Senator Humphrey had in mind was J.B. Cordaro, whom he appointed to OTA and who directed the food information systems study which Humphrey himself had proposed. Another appointment under Rule 12 was William Davis, selected by Senator Stevens of Alaska. Davis worked as technical staff on a study released in 1979 entitled *Analysis of Laws Governing Access Across Federal Lands: Options for Alaska.*

The extent to which this staffing practice actually did or did not compromise the quality and objectivity of OTA studies is difficult to establish with any authority. At least one OTA employee who worked at the agency in this period claims that he never personally felt pressure to reach any conclusion but his own in conducting his research. But the presence of members' staff at OTA did not send a signal that OTA was serious about performing dispassionate, neutral and independent analysis for Congress. An agency claiming to be outside of politics and to have no vested interests in outcomes was employing personnel who were staff of members with quite specific interests in the findings of studies. One House staffer whom I interviewed and who worked on the Hill at the time refers to the relationship between these staff, their members, and the director as "circus." Rule 12 did not contribute toward establishing trust in the agency on the part of many of the rest of the 523 members of Congress not sitting on its Board.

The problem with the staffing rule was recognized by some members of the Board. In 1976, Representative Olin Teague, chair for the 94th Congress, conducted a state-of-the-agency assessment which he reported to the Board and Director in December. In his
report, Teague criticized staff hiring practices and Rule 12, saying that "some staff and consultants are recruited on the basis of paper or political qualifications." Teague claimed that he could think of no reasonable rationale for involving the Board in personnel matters, and he called for the elimination of Rule 12. He argued that the rule was inequitable, obsolete, and dangerous (Teague 1976; OTA Annual Report 1977).

The House Commission on Information and Facilities also released a review of OTA in the same year, sidestepping the issue (U.S. House of Representatives 1976). The Commission strongly criticized the agency for poor administrative services and lack of organizational control and order. It commented that Rule 12 contributed to this problem by introducing into OTA a haphazard variety of staff not under central control, but the Commission did not link the staffing practice to politicization or conflict of interest on the part of OTA employees. Neither Teague's report nor the Commission study produced immediate changes in what Board members saw as a typical staffing practice, in the tradition of the joint committee.

The OTA employee who by far drew the most political criticism was Ellis Mottur, the Kennedy staffer who had been instrumental in setting up the agency, and who served as Assistant Director of the agency under Daddario. Mottur was highly influential at the agency for several reasons. He had a long-standing interest in the politics of technical issues and in having an agency to provide independent expert advice to Congress. He had worked on scientific and technological issues in John Kennedy's 1960 campaign, and had been affiliated with the Kennedy family ever since. Mottur was also unusually effective at pulling the strings in Congress that produce results, whether lining up coalitions, choosing the best timing for an action, or helping Senator Kennedy outmaneuver rivals. This ability,
combined with his Kennedy affiliation, made him a powerful Hill staffer.

These assets also made Mottur highly visible at OTA, and he became the target of much criticism, some of it from the Democratic side of the aisle, but chiefly from Republicans. With Kennedy as the original chair of the OTA Board and Mottur serving as a very influential insider, conservatives found much they could mistrust and dislike in OTA. In some people’s minds, predictions from 1973 that Kennedy would control OTA for his own purposes appeared to be coming true.

Criticisms of Mottur and Kennedy broke into the open in May of 1977, six months after Teague’s report criticizing OTA staffing, when Emilio Daddario announced his surprise resignation as director of the agency. The only reason Daddario cited publicly for his departure was that he had never intended to serve a full six-year term, having only wanted to stay long enough to get the agency off the ground.39

But the abrupt nature of Daddario’s resignation seemed inconsistent with his public rationale, and the event sparked charges of political manipulation behind the scenes at OTA. It was not clear who would replace Daddario, or by what process.

What might have remained a limited crisis developed into a larger controversy when Representative Marjory Holt, a conservative Republican serving as vice-chair of OTA’s Board, announced her resignation from the Board a week later. Holt publicly claimed that she could no longer function on the Board because of Kennedy’s control over the agency. Holt charged that Kennedy had taken over OTA for his own personal purposes, saying "Kennedy dominates the entire thing" (Southwick 1977). She also claimed that Kennedy had forced Daddario’s resignation so that Mottur could take over the position of Director.

39 In my December 19, 1990 interview with him, Daddario maintained that he had resigned only because his work was accomplished and not in light of political problems.
(Safire 1977; Holden 1977). The press reported similar criticisms by Olin Teague, saying he was also considering resigning from the OTA Board because of Kennedy’s use of the agency "for his personal political purposes" (Holden 1977).

The most strident of these criticisms of OTA and Kennedy found a voice in an essay by William Safire in the New York Times, entitled "The Charles River Gang Returns" (Safire, 1977). Safire claimed that Kennedy had "begun a campaign for a far more impressive role in the play of American power," using "OTA as his vehicle." (Safire 1977). Safire charged that "[W]e can expect a flow of reports from the politicized Office of Technology Assessment in the future that show how right Senator Kennedy is on everything from medical research to mass transit, with the scientific community’s seal of approval on everything that puts consumerism over the fight against inflation, environmentalism over capitalism." In his words, OTA had become a "happy hunting ground of Kennedy apparatchiks" and "liberal technocrats."

Kennedy and Mottur denied these charges, but they recognized that the agency’s credibility was suffering greatly, at best. According to Mottur, he and Kennedy realized that OTA "needed to correct the perception that OTA was politicized." Mottur claims that Kennedy had wanted to act as a "statesman" regarding the OTA enterprise, that he indeed wanted only to create a useful resource for the entire Congress, and that both were frustrated by the media’s interpretation of Kennedy’s every move as a power grab. As a presidential contender, there is was nothing surprising about the kind of scrutiny Kennedy received, and there is certainly no doubt that Kennedy and Mottur were highly influential.

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40 Safire’s "Charles River Gang" consisted of Senator Kennedy, his staffer Mottur, and Jerome Wiesner of MIT, ex-science advisor to President John Kennedy.

41 Interviews with Ellis Mottur: November 5 and 20, 1990; March 7, 1991.
in leading OTA during its first five years, so some of the claims about politicization were probably reasonable.

But to Kennedy’s credit, he had argued in November of 1973, before OTA had begun operations, that the Board should use an outside agency such as the National Science Foundation or the National Academy of Sciences to screen potential OTA employees. Kennedy wanted independent "evaluation and grading" of applicants, recognizing that many of them had "some form of political backing" (OTA Minutes 1973b). At the insistence of Senators Hollings and Humphrey, Kennedy had backed down in 1973, leading the way to some of the later criticisms of OTA’s staffing procedures.

Whatever Kennedy’s motives, the search for a new Director to replace Daddario in 1977 provided an opportunity to win back some conservative support for the agency and attempt to build its credibility. Mottur, who assisted Kennedy in conducting the search, publicly removed his own name from consideration in a letter to Kennedy, a move aimed at responding to Holt’s charges and the "erroneous perception of partisanship that has filled the press in recent weeks through rumors, innuendos, and inaccuracy" (Mottur 1977).\textsuperscript{42} The search produced many other names as candidates, but members of the Board had difficulty agreeing on one. According to a Kennedy staffer and OTA employees who were present at the time, Kennedy sought a sympathetic Republican for the job. One OTA employee says that "word came down that they were looking for a liberal Republican." Kennedy’s strategy was to win political credibility by appointing a Republican, without allowing the

\textsuperscript{42} According to one OTA employee, Mottur removed his name only after a period of jockeying for control with Daniel DeSimone, the agency’s deputy director, when it became clear that an outsider would be needed to boost the agency’s credibility.
agency to swing in a conservative direction. This approach produced as a candidate Russell Peterson, ex-Governor of Delaware, and the Board offered him the position in a 7-5 vote on October 22, 1977.\textsuperscript{43}

Peterson’s acceptance seemed as if it might provide Kennedy with the opportunity to have his cake and eat it too. As a Ph.D. physical chemist with a career at Dupont, Peterson had scientific credibility. He had Republican credentials as well, having served as a Republican Governor of Delaware and as Director of the President’s Council on Environmental Quality under Nixon. Yet Peterson was no conservative. He was an environmentalist, given to the use of the word "holistic," and was generally viewed as a moderate or liberal. Peterson claims to have endorsed Carter in the 1980 election and to have often considered switching party affiliations\textsuperscript{44}.

While Peterson appeared to be the kind of choice for Director who would maintain the agenda set for the agency under Daddario, he arrived at OTA in January of 1978 with a new issue at the top of his list of priorities: reform of political influence at OTA. In my interview with him, Peterson says he had been informed about politicization at OTA before starting, and that he would not have accepted the position had he not thought changes could be made.

His first effort was an attempt to take control of staff away from Board members, through the elimination of Rule 12. According to Peterson, a round of meetings with all twelve members produced ten supporters of his initiative and two vociferous opponents in Senators Hollings and Stevens. Hollings and Stevens were very resistant to relinquishing

\textsuperscript{43} Interview with Peterson, December 3, 1990.

\textsuperscript{44} Ibid.
control over staff; Hollings claimed that Peterson was attacking his personal integrity through the argument that Rule 12 allowed for political influence at OTA.

According to Peterson, Stevens and Hollings, who served on the Senate Appropriations Committee, went so far as to threaten to resign from the OTA Board and cut the agency’s appropriation in half if Peterson persisted in his efforts. They told Peterson that they would not have voted for his appointment had they known of his intentions.45

Peterson himself finally threatened to resign if the rule change was blocked, and on March 1 Stevens acquiesced, joining ten other members in an 11-1 vote for eliminating Rule 12.46 Having won the rule change, Peterson initiated an internal reorganization at OTA. He created three assistant directorships in order to add a layer of managerial control over the agency’s project staff, a great number of whom had reported directly to Daddario (U.S House of Representatives 1976). This move precipitated Ellis Mottur’s immediate resignation.47

Peterson also sought to develop a research agenda for OTA that would be independent of the parochial interests of members. To do so, OTA sent out about 5000 survey letters to universities, publications, and private firms, as well as to Hill staff and members, asking about which technical issues people judged to be of the greatest importance in the future. About one-third of the surveys were returned, and OTA compiled the results in a document entitled OTA Priorities 1979.

45 Peterson claims he had warned Senators Kennedy and Case prior to his appointment that a condition of his accepting the position would be a change in the rule, so apparently Kennedy and Case had not informed their colleagues of Peterson’s reformist agenda.

46 Ibid.

47 Peterson claims to have asked for Mottur’s resignation.
This priority list met with substantial scorn on the part of Board members, who refused to be told the political issues with which they should concern themselves. They viewed Peterson's move as an inappropriate attempt to tell Congress which issues should be on its agenda. Senators Stevens and Orrin Hatch were especially critical of Peterson's priority list, according to Peterson, and both eventually mounted personal attacks, charging him with cost overruns and financial indiscretion over office decorations (Holden 1979).

The Board's resistance to allowing OTA the independence of a priority list for its research scuttled plans for future such lists, and in March 1979, led to Peterson's resignation.48 His unsuccessful fight over the OTA agenda served as the final strain on an already troubled relationship with the Board. In the short run, Peterson's sixteen-month tenure at OTA contributed to the air of controversy and mistrust in OTA.

Peterson's successor as OTA director was John Gibbons, a physicist from Oak Ridge National Laboratory with a background in energy and no visible party affiliation. His appointment was rapid, unlike the drawn out and political search for Peterson had been less than two years earlier. In an interview, Gibbons told me that the Board was not interested in his ideology and seemed more concerned with his commitment to harmonious and non-political administration of the agency.49 Gibbons says that the Board asked him what he would do if he found politics being played at the agency. Gibbons responded, "I would fire the person."50 This was the right answer for a Board tired of criticism of the agency

48 Peterson left to assume the presidency of the Audubon Society, an financially attractive and personally appealing position that he had sought before coming to OTA.

49 Gibbons claims that the Board did not know to which party he belonged. "The Democrats thought I was a Republican, and the Republicans thought I was a Democrat." (Interview with John Gibbons, March 18, 1991.)


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and displeased with the fights that occurred between Peterson and some of its members.\textsuperscript{51}

But when Gibbons was sworn in on June 20, 1979, OTA's very existence was in jeopardy. As an experiment in technical advice for Congress, OTA was judged by many as nearly a failure. After five years the agency had been unable to win trust from the many influential players in Congress. Gibbons says that Rep. John Dingell commented to him at the time, "You're the last chance for OTA." Gibbons knew that a great deal of "divisiveness" existed at the agency from the previous years, and that Russell Peterson had "left a lot of blood on the floor."\textsuperscript{52} Still, the problems were even greater than he had expected.

Gibbons was committed to establishing a culture of neutrality at OTA, since that had been the original goal of the agency and because it was clear by 1979 that the lack of neutrality was jeopardizing the agency's existence. Providing universal service and assistance to all of the many influential players in Congress seemed the only way to make this "last chance for OTA" play out, and Gibbons moved rapidly to demonstrate his commitment.

In what Gibbons calls "the Fourth of July Massacre," he fired about 15% of the OTA staff, including some "favorite sons" of Board members that had remained at OTA but severed their official ties to the their members after Rule 12 was eliminated. To smooth feathers, Gibbons worked to find new jobs for these people. Gibbons says he is thankful

\textsuperscript{51} In 1979 the Board was somewhat reconstituted from its earlier days. Representative Morris Udall chaired the Board. Representative John Dingell replaced Olin Teague, and Senator Charles McC. Mathias replaced Clifford Case. These changes, plus the weight of five years of criticism contributed to the Board's less politicized approach to the Gibbons appointment.

\textsuperscript{52} Interviews with John Gibbens, op cit.
for Peterson’s having taken control of staff away from the Board, because he would have had to do it himself had Peterson not.

Within his first year, Gibbons also instituted quarterly reports to the Board and a voluntary bi-annual independent audit. He says that with the new reporting he aimed to provide a "careful focus on the clients" which had been lacking at OTA previously. This meant, above all, trying to meet the needs of all committee chairs and their ranking minority members.

By late in 1980, Gibbons’s tactics seems to be proving successful. OTA was now staying clear of the kinds of conflicts that emerged when one set of actors in Congress felt slighted by the agency, as committee chairs had the they had perceived OTA was serving only its Board members, and as conservatives had when they perceived that OTA was acting on behalf of Senator Kennedy and other liberals. Gibbons was effective in his efforts at convincing those around OTA of his commitment to political neutrality and to serving Congress’s broader interests.

Perhaps of equal importance was the fact that old sources of politicization at OTA were gone. The problem of political appointments was eliminated, thanks to Peterson and his own Fourth of July purge. Ellis Mottur, who had functioned as a lightning rod for suspicions about Kennedy’s influence, was gone. Kennedy himself remained on OTA’s Board, but was no longer the chair, as he had been in the 93rd and 95th Congresses. The new chair was Representative Morris Udall, who had a national standing after his 1976 presidential bid, and who was well liked in the House. Udall’s vice-chair was Republican Whip Ted Stevens. OTA was enjoying more credibility and stability than ever before. In 1980 its budget reached $11 million, about a 50% real increase since 1975, and the size of its permanent staff was 120, up from 56 in 1975.
Then November brought a new and final challenge to OTA's future viability in the two-party Congress. The 1980 election and subsequent change in control of the Senate presented OTA with a test of its relationship with Republicans. 1980 was a year in which the Senate claimed the agency's Board chair, and in which, by convention, the position would go to a Republican. Senators on the Board selected as chair Ted Stevens, now the Majority Whip, to the consternation of some OTA employees who knew Stevens as an occasional critic of the agency's initiatives. One OTA employee observes that Stevens had been a "naysayer" on the Board, and to some the change in Senate control and Board chair seemed ominous given OTA's poor track record with Republicans.

The election also brought to Washington Senator Mack Mattingly of Georgia, one of the new conservatives with a government-reducing agenda, who had taken Herman Talmadge's seat. Mattingly chose OTA as a target for trimming "excess" government spending, and he received two subcommittee chairs in the Senate that put him in a position to pursue this agenda: the Legislative Branch subcommittee of Appropriations and the Congressional Operations and Oversight subcommittee of Governmental Affairs. Mattingly let it be known that he viewed OTA as duplicative and irrelevant and that he sought to zero-out its appropriation. Gibbons says that Mattingly claimed Congress needed "action rather than research." Mattingly was aided in this crusade by the attention given to Donald Lambro's book Fat City, a 1980 hit list of "superfluous" and "wasteful" government agencies -- among them OTA -- that Ronald Reagan reportedly had issued to each cabinet member.

This attack on OTA by a freshman Senator with no experience in the agency's operations served to rally the OTA Board, especially Senator Stevens, who one OTA employee says was "pissed off" at Mattingly. Rather than acquiesce in his new colleague's
plan, Stevens took the lead in defending OTA, on whose Board he had then sat for six years. At the April 7, 1981, OTA Board meeting, Stevens raised the Mattingly problem, saying "we do have on our side, unfortunately, a group that seems to be dedicated to just literally zeroing out OTA's appropriations" (OTA Transcript 1981a). Stevens called the problem "very acute," confirming that, in Senator Charles McC. Mathias's words, OTA was "in the gun sight." At this meeting, Director Gibbons commented that "it is difficult to overcome old perceptions about an institution." Representative George Brown commented on the old perceptions, laying part of the blame for the trouble at Senator Kennedy's feet. He remarked that some of the opposition "is based on the perception that Ted is still chairman and Daddario still the executive director" (OTA Transcript 1981a).

Stevens, who also sat on the Legislative Branch subcommittee with Mattingly, formulated plans for defending OTA, suggesting a campaign of letter writing to OTA "clients," calling on them to support the agency. Rather than claiming Congress needed OTA on purely intellectual grounds, Stevens argued that as "shared staff" OTA actually saved Congress money (OTA Transcript 1981a). Each study by OTA meant that several committees could forgo the costs of their own, often redundant, hearings and studies, and that the House and Senate could avoid duplicative research by jointly relying on OTA. Rather than being duplicative and wasteful, as Mattingly claimed, Stevens argued that OTA prevented duplication and waste.

Gibbons and the Board agreed that in order to produce concrete evidence of OTA's value as a "shared" resource, OTA staff would solicit letters of request and support from the new Republican committee chairs in the Senate for studies already underway at the request of their Democratic predecessors. The effort produced 10 "re-affirmation" letters
for OTA from the Republican chairs.\textsuperscript{53}

Although Mattingly's position as chair of the Legislative subcommittee made him potentially threatening to some OTA employees, Senators Hatfield, Hollings, and Stevens, all Board members, also sat on the subcommittee. As one OTA employee put it, "There was no way they would let Mattingly kill OTA's budget." It was a subcommittee of five, so the three OTA Board members constituted a majority. But the full committee was another matter. By the time of the full committee mark-up of the appropriation bill in late July, OTA's funding faced what Stevens described as a "substantial battle" (OTA Transcript 1981b). Hollings and Stevens had managed to keep OTA's budget alive in the subcommittee, but only at a level of $8.6 million, which was $4.5 million less than OTA's budget request. In a full committee fight, Stevens and Hollings finally prevailed, and OTA received a final appropriation of $12.0 million (OTA Transcript 1981b; OTA 1974-1990).

Yet Mattingly did not give up. The next year, he tried a different tack, attempting to set up oversight hearings on OTA through his Governmental Affairs subcommittee. Although Public Law 92-484 provided OTA with a permanent authorization and had been reported out of the Rules Committee in 1972, Mattingly tried to take jurisdiction over the agency away from Rules. By setting up oversight hearings in Governmental Affairs, Mattingly felt would be in a position to quietly acquire jurisdiction and subsequently push legislation eliminating the agency.

\textsuperscript{53} The letters came from six full committee chairs and four subcommittee chairs, with several endorsing more than one study. The contributing Republicans were: Bob Packwood (Commerce Committee); Jesse Helms (Agriculture Committee); Strom Thurmond (Judiciary Committee); Orrin Hatch (Labor Committee); Charles Percy (Foreign Relations Committee); Robert Stafford (Environment Committee); Pete Domenici (Energy Research and Development subcommittee); Thad Cochran (Agriculture, Rural Development and Related Agencies subcommittee); Malcolm Wallop (Energy and Agricultural Taxation subcommittee); James Abdnor (Water Resources subcommittee).
This time Senator Mathias, chair of the Rules Committee, came to the rescue as OTA’s Republican defender. Mathias pre-empted Mattingly by holding his own oversight hearings in the Rules Committee on February 5, 1982, calling a series of friendly witnesses. One OTA employee described the hearings as a "love fest" for the agency (U.S. Senate 1982). Mathias’s move was successful at re-establishing jurisdiction over OTA for Senate Rules. Mattingly backed off, and the crisis passed.

Stevens’s and Mathias’s successful responses to Mattingly’s attacks marked a major turning point for OTA. After nearly a decade of suspiciousness of OTA by conservatives, the Republican Whip in the Senate had led a defense of the agency involving the endorsement of prominent Republican committee chairs. Mattingly’s failure indicated a new level of political credibility for OTA, and largely ended partisan attacks on the agency.54 At the same time, the Republicans’ response to Mattingly’s attacks ushered in a new era of politics at the agency, one in which the politics of jurisdiction would be more prominent than the politics of party.

CONGRESS AND OTA FROM 1982-1990

By the early 1980s, a noticeable shift in the political dynamics of OTA’s

54 OTA reports have been subsequently attacked for revealing "bias" of one sort or another. The most prominent example was the agency’s work on the Strategic Defense Initiative, which was roundly denounced by conservatives as biased and technically flawed. See Chapter VI for more on this controversy. Another example is OTA’s 1990 work on alternative cancer therapy, which was the subject of much criticism before it was released by proponents of alternatives to traditional medical treatments of cancer. These critics argued that OTA would be "biased" in favor of the medical establishment, although OTA’s final report was more favorable toward alternative therapy than many critics had suspected.

Criticisms such as these have varied in an important way from criticisms of OTA in the 1970’s; they have focused on OTA’s treatment of a specific issues, and have not been systematic or organized. Criticisms of OTA’s politicization in the 1970’s were steady and were at the nature of the agency itself, rather than at its work on a specific issue.

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relationship to Congress occurred. The agency had won acceptance by both parties, as represented by the Republican support for OTA during the Mattingly crisis. It was experiencing greater recognition in Congress than ever before. A number of its studies had been quite visible, including its work on MX missile basing and a range of energy issues such as synthetic fuel. More committees were placing requests with OTA.

The growth in demand for OTA information and in the size of its committee clientele began to draw the agency in different directions. It increasingly found itself handling political issues that involved more than one committee, and, often, contested congressional turf. The problem was that committees with differing perspectives and different collective preferences for outcomes were attempting to co-sponsor OTA’s projects. OTA began to find itself caught between committees with different views about what ought to be studied and how. Just as balancing the interests of both parties had provided the chief organizing principle for OTA in its first decade, balancing the interests of multiple committees grew to become a primary occupation for it in the 1980s.

The potential for jurisdictional conflict arises from the ways in which OTA responds to requests for information and research. Written requests to OTA generally take the form of a very general introductory statement of the importance of the issue at hand, followed by often quite specific questions that the proposed study is to answer. In the framing of these questions, which is almost always done through prior negotiations with OTA, a committee has a substantial opportunity to shape not just what is studied but how it is studied. How the committee and OTA determine the objectives of a study, what is to be included, and what is to be excluded can greatly affect the political impact of the final report.

Given this fact, the fragmented jurisdiction system in Congress provides the structure for conflicts. This system could mean, for example, that a committee primarily concerned
with commerce and economic activities would seek to share responsibility with a committee chiefly oriented toward environmental conservation for directing OTA to study an energy issue, knowing that OTA's conclusions may reach the New York Times or the Washington Post.

Is a study of energy sources to focus on the costs and technical feasibility of alternative means for resource extraction, or is it to focus on the environmental effects of the alternative technologies? Or, will a study of the efficacy of medical technologies focus strictly on promising new areas for scientific research, or will it look at the role of medical technology in the rising costs of health care and the state of the private medical insurance system? To the extent that OTA research has the capacity to influence bills and their outcomes, committees have an incentive to make sure that their interests are reflected in the design of OTA studies.

In the 1980s cases where committees have competed over sponsorship of OTA research increased, as committees became involved in each other's work with OTA and attempted to control how OTA studied issues that cut across jurisdictions. Committees' behavior toward OTA in these situations has taken several forms. The simplest merely involves a second or third committee issuing a letter of endorsement for another committee's request, stating support for the objectives of the research and an interest in the findings. Committees commonly go through the motions of this exercise, although such letters do not affect the content of the OTA project and do not confer sponsor status on the committee. What this does accomplish is to alert OTA and other committees that they are interested and may in the future make a larger claim to participation in the policy-making.

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55 From OTA's point of view, such letters can help demonstrate interest in a study to the agency's board when it reviews the proposal for approval.
The stronger and more important committee action takes the form of an additional letter of request, a co-request, that may attempt to reshape OTA's study, directing it toward or away from certain issues of concern to the joining committee. When a second or third committee issues a co-request for a study initially requested by another committee, it becomes a co-sponsor of the study, with equal rights to defining its scope, previewing findings, and releasing the report and claiming credit publicly.

OTA's correspondence files are filled with letters from committees taking one of these tacks toward an OTA project on an issue involving shared or contested turf. For example, after the June, 1988, Convention on the Regulation of Antarctic Mineral Resource Activities was signed, Congress prepared to enact implementing legislation for the treaty. In late July, the Senate Commerce Committee wrote to OTA, asserting jurisdiction over the activities of the National Science Foundation and the National Oceanographic and Atmospheric Administration in the antarctic, and requesting an OTA study. The committee asked OTA to determine whether the treaty would limit the activities of the two agencies, whether it would provide adequate environmental protection for the antarctic, and whether firms that might wish to develop resources there would be adversely affected (U.S. Senate 1988).

On August 1, the House Foreign Affairs Committee also wrote OTA, stating its jurisdiction over activities of the State Department, and requesting an OTA assessment of the effects of the treaty on U.S. "national interests" in the region (U.S. House of Representatives 1988a). The next day OTA received a third letter, from the House Merchant Marine Committee, stating that it "expects to be involved in the development of implementing legislation." In its more detailed letter, Merchant Marine provided a list of specific questions about, among other things, the feasibility of developing resources in the
antarctic, the probability of an oil spill, and how various federal institutions would be involved in meeting the obligations of the study.

The close timing of these three letters is a signal of OTA’s involvement in helping the committees prepare them. Staff from OTA probably assisted the committees in drafting their statements and questions. The amicable tone of these letters, as well as the lack of explicit acknowledgement of each other’s requests meant an easy solution for OTA. The agency needed only expand the scope of the study to include the concerns of all the committees, and all three clients could be satisfied at once.

More commonly, committees more directly acknowledge each other’s requests and explicitly state their own interest in the subject, even if they do not attempt to shape the scope of the project. Here are Senators Patrick Leahy and Richard Lugar of the Senate Agriculture Committee writing to OTA on a study of pesticides in food: "We understand that Congressman John Dingell requested that the Office of Technology Assessment [perform a study of this issue, and] we would like to join in requesting this study and would appreciate being kept informed of its progress" (U.S. Senate 1987).

Not all such requests are so friendly. Where one committee feels excluded from a project on which it claims jurisdiction, the process of requesting a study can become heated. For example, on July 7, 1987, the Senate Energy Committee requested a study from OTA on the development of natural resources (oil) in the Alaska National Wildlife Refuge (ANWR). The committee had begun a set of hearings on ANWR, and was faced with "differences in the perceived importance attached to the area’s wilderness, wildlife and mineral resources" (U.S. Senate 1987). Wrapped up in these differences were technical disagreements about the nature of the physical impacts of alternative development proposals.
In his request letter to OTA, Energy Committee chair Bennett Johnston asked OTA to study the "environmental and economic impacts of oil development on the North Slope," and the "relevance of these impacts to ANWR." Johnston directed OTA to take into account the "potential evolution of oilfield development technology and practices over time" (U.S. Senate 1987). Johnston was interested in knowing if OTA felt that experience with oil production at Prudhoe Bay in Alaska and new developments in technology could promise safer development in ANWR.

Three days after Johnston's letter, Rep. Walter Jones, chair of the House Merchant Marine Committee, sent his own letter to OTA, in an angry tone. Jones said he was "disturbed to learn in the eleventh hour" of the Senate request (U.S. House of Representatives 1987). Jones stated, "The Committee on Merchant Marine and Fisheries, which I chair, has jurisdiction over activities within the units of the National Wildlife Refuge System." Jones asserted that his committee would be a requester and asked that the proposed study "not be implemented without further modification and input from my staff."

Referring to the tussle at a Board meeting later in July, Director Gibbons used this case as an example of the jurisdictional pressures OTA faces. He said, "This is an example, gentlemen, of one of the problems we get into when we try to work for all the committees of Congress. The number of committees of interest expanded, and so did the seeming scope of the work, and as time went on, we began to understand that some committees had an interest in a very broad study that would take a considerable amount of time. Others felt that a much more narrowly focused study would be best" (OTA Transcript 1987). Ironically, the Board discussion of the ANWR study prompted further problems when Senator Stevens of Alaska joined the fray, objecting to the study out of
concern that the findings that would be harmful to oil revenues in his state.

These letters provide documentation about how committees facing jurisdictional overlap express their preferences and demands for information in writing to OTA. But what about the negotiations and activities that occur behind the scenes and that result in these letters? In order to learn more about the logic that underlies this jurisdictional posturing, I asked congressional staff to discuss how their committees become involved in these conflicts. Hill staff explain that there are several incentives driving their competitive demand for OTA's work. The first of these simply involves the desire to shape how OTA conducts its studies. A staffer on the Senate Environment committee explains that when her committee learns of other requests on topics relevant to Environment's interests, it generally attempts to provide its own request "in order to frame the questions." She says, "We've sought to be in on clean air work where [Rep. John] Dingell is involved, because his committee's view of clean air and ours is different."

Another staffer from a House committee explains that when he learns of another committee's request, he calls OTA in order "to determine if there is a jurisdictional problem." If there is, he says his committee may issue its own request, "in order to re-shape or re-focus the proposed study to meet our needs." An example of this occurred when another House committee requested an assessment of Superfund site clean-up progress. The staffer claims, "They have a tenuous jurisdictional interest in this.... We looked at their letter [of request] and felt it impinged on our turf, so we issued our own request trying to change the focus."

On a different issue, this staffer explains that the chair of his committee had an idea for a study on which the committee had "a more tenuous jurisdictional claim," so he
convinced the chair of another committee with a stronger claim, House Merchant Marine, to request the study. Where his committee does not object to a study as framed by another committee, this staffer explains that he and his chair issue a "compatible request" anyway in order to stay involved. He says "OTA's job is to assist committees, and so jurisdiction is important in that you have to have the ability to shape the study to fit the needs of the committee. Framing the nature of the report is the issue."

Another staffer from the same committee offers similar comments. "We would not, for example, want OTA to work with Armed Services on hazardous waste at military sites. The results would be tailored to them. We would want to be involved to broaden the scope and have OTA pronounce on general standards [for hazardous waste disposal]." He explains that there are two reasons why his committee requests studies from OTA. The first is where it "truly needs some help" and is "genuinely seeking technical assistance;" here the committee issues a request where none exists from other committees. The second reason is "where other committees are involved, and you don't want to be left out." He says, "The thing you don't want is another committee working with OTA on an issue in your jurisdiction."

But not all committees are as overtly protective of turf as are these. There are other incentives for co-requesting, and a common one involves a more subtle form of claim-staking or signalling. Some committees issue follow-on requests in order to maintain some claim to jurisdiction without directly attempting to re-shape a study in the face of the interests of other committees. A staffer on the House Science committee explains that the committee issues co-requests because "we don't want to give the impression that we've ceded jurisdiction on an issue." An analyst on the Budget committee observes that on authorizing committees, "some people use OTA in jurisdictional ways, at times." He says,
"They use OTA to create an ownership stake." A Senate Energy committee staffer says "committees like Government Operations don’t have jurisdiction, so OTA helps them get into issues. For example, [using OTA] we can get into environmental legislation which we don’t have natural jurisdiction on."

Another Senate staffer says that an add-on request to OTA is "just a signal to the other committee that we are going to be involved." When his committee learned that John Glenn, chair of Government Operations, had issued a request to OTA on Superfund, the committee issued its own request because they "didn’t want it to look like [Government Operations] were out ahead." The committee was signalling that "we want to be players." The same staffer says "Do we request studies just to show we’re interested? You would have to be pretty frivolous to request a $600,000 study just for this reason. We are genuinely interested when we make a request, but when another committee goes first it reinforces the need to signal that we’re going to be players."

A House staffer uses similar language to describe this process of signalling, saying "the thing is you don’t want someone else out in front of you." Another says, "turf is perception; you don’t want to be perceived as being left out of something that turns out to be big."

So committees often pay careful attention to each other’s requests for information from OTA. But these comments by staff should not be construed to over-emphasize the effect of signalling or claim-staking through OTA on the outcome of the major turf fights that occur in Congress. It is clear that committees often view requests to OTA as subtle statements about jurisdictional interests, as means for informing each other of their intentions to "be players." Yet some committees, such as the Veterans’ Affairs or Judiciary Committees, have expressed a steady demand for OTA information while
infrequently becoming involved in jurisdictional squabbles. Because of their less contentious turf, their need for signalling intentions, staking claims, or jumping on OTA project bandwagons has typically been much less than it has for other committees, such as House Energy and Commerce.

And when major turf fights occur, such as those for which Energy and Commerce Chair John Dingell has become famous, they are settled for reasons that have nothing to do with OTA requests, as a number of staff pointed out in my interviews. One mentioned that there are more visible means, such as conducting hearings, for staking claims in issues. When the parliamentarian, speaker, or majority leader decide on turf disputes, they do not look to OTA requests as a factor in a committee’s favor. The agency is simply not a player in these inner power circles in Congress.

What then of the signalling and messages that staff claim are inherent in co-requests to OTA? Their effect is more subtle and tends to occur before turf becomes contested. This signalling typically occurs early on, while committees are asserting their interests and learning of the interests of their competitors. The signalling is a form of message-sending, as committees learn about and prepare for possible turf fights, not a weapon to be used in winning them. It is later, in instances where those interests clash, that the battles over jurisdiction coalesce. A House Science Committee staffer summarizes this effect. "You can’t expand your jurisdiction or change it by requesting an OTA report. But what [you] can do is say that within your jurisdiction -- which may overlap with others -- you are a player.... An OTA request can function as a signal to other committees that the requester intends to be active on an issue." Once these signals have been sent and received, committees may then engage in contests over jurisdiction, or, on the other hand, decide to forgo the costs of a fight and acquiesce.
There is a third reason staff give for co-requesting studies from OTA, and it has to do with credit-claiming and publicity upon release of the study. As a staffer on the Transportation subcommittee of the House Science committee explains, "if we send a letter, we get consulted on the release, and this is important because timing is everything in Congress." This subcommittee wants to be sure it is aware of the timing of the public announcement of OTA reports, because this awareness can help it claim credit or issue prompt disavowals, as the case may be. Being a requester of the study provides the subcommittee with this option.

Another House Science staffer says that being able to release a report because one is a co-requester "shows the committee has an interest and will be pressing it. If it's a super report, we'll do a hearing. It gives a little publicity for members."

A House Agriculture Committee staffer says that being in on the release of a report "allows you to control an issue's spin some, allows you to posture to the press, to the public, the rest of Congress." Another House staffer says that when you have the right to release a report you can use a hearing "to grill OTA on a finding you disagree with" in order to "spin the release of the report your way."

These interviews show that co-requesting a study -- becoming involved in each others work with OTA -- offers committees several forms of utility beyond merely acquiring information "to inform." It allows them to shape the content of studies, to send signals about jurisdictional interests, and to claim credit or spin findings. These interviews explain the incentives that lie behind the letters to OTA examined above.

Another way to understand this multiple-committee interaction with OTA is to chart the average number of committees sponsoring or requesting each OTA study per unit time.
These data are readily available, since each OTA report indicates which committees requested it. This measure tells us how the level of co-requesting has changed over OTA’s history. As Chart 8 indicates, during the 1970s an average of about 1.25 committees requested each OTA report. Then sometime around 1980 and upward trend began, eventually reaching a high of nearly 3 by 1990.

![Chart showing average number of committee requests per OTA report](chart.png)

**Chart 8.**

Note that the x-axis indicates the date of release of each report, which typically follows the date of request by about two years.

To get a better fix on the beginning of this trend, given the yearly oscillations between 1979 and about 1984, the data may be aggregated using Congresses rather than years as the horizontal axis. This approach accumulates inter-session variations in congressional
activities. The result is a smoother trend that also indicates a beginning around the 97th and 98th Congresses. Subtracting two years to account for the typical lag between request and release of an OTA study indicates a beginning for the upswing between about 1979 and 1981.

![Committee Requests For OTA (By Congress)](chart)

Datafile: avrg2 Chartfile: wpavrg2
Chart shows the average number of committee requests per OTA Report by Congress. (Does not include Special Reports, Memoranda, Workshop Proceedings, Background Papers, etc. Source: QuOTAtion Database, OTA Information Center.

Chart 9.

Some of the change in 1981 is accounted for by Senator Stevens's campaign of soliciting re-requests for studies from the new Republican chairs, but following that event, the upward trend continues throughout the 1980s, confirming what one OTA employee in the agency's congressional liaison office told me. As the 1980s progressed, OTA more frequently confronted topics that seemed to cross-cut jurisdictions, to the point where it became "difficult to even tell which is the committee of primary jurisdiction."
So while the 1970s were relatively calm jurisdictionally for OTA as it struggled for political acceptance, the agency’s activities began to involve it more and more in turf politics during the 1980s. How has OTA reacted to these growing centrifugal forces? Interestingly, OTA has chosen not to attempt to resist the pull of competing committees or to insulate itself from turf battles. It has chosen not to try to maintain confidentiality about its communications with each committee and their interests or legislative intentions. Nor has OTA implemented some form of first-come, first-served policy of priority.\textsuperscript{56}

Instead OTA has explicitly attempted to accommodate itself to all these committee demands, by adopting policies that allow the incorporation of the interests of all parties in its studies, including those of the minority. OTA has acknowledged the overlapping jurisdictions of committees by explicitly attempting to include every relevant committee in both the framing and release of its projects. This strategy has been successful at heading off dissatisfaction with its work on the part of disgruntled committees who might otherwise have been excluded from a project.

According to John Gibbons, the agency’s policy of inclusion evolved over time as OTA faced larger numbers of stakeholders in each issue. He reports that after he took office, OTA’s Board gradually began asking him whether OTA had consulted with all

\textsuperscript{56} Note that OTA’s sister agency, GAO, which is charged with oversight, maintains a policy of privacy surrounding requests for studies. So strict is this policy that GAO reportedly once simultaneously undertook two investigations of the same problem for different members of Congress. Not only were the members unaware of each other’s requests, those within GAO were unaware of the duplication. (An internal reporting mechanism is apparently now in place to prevent a repeat of this problem.) GAO provides complete secrecy for its investigation requesters, if they seek it, for up to 30 days following completion. CRS has an even stricter policy of confidentiality, concealing not only the fact that a member has requested information, but the content as well, giving members complete control over the information.
committees of relevant jurisdiction when planning a study.\textsuperscript{57} This was not a new concept at OTA, according to the agency's congressional liaison office. OTA had sometimes conducted such consultations with multiple committees in the 1970s, but had done so only irregularly as the need did not seem great. The agency had previously found it acceptable to plan and undertake a study as requested by an individual committee or in some cases two.

But the need for jurisdictional balancing was growing by the late 1970s, and faced with increasing questions about whether everyone with a potential stake in a study had been consulted prior to the initiation of research, OTA began a practice of contacting all potentially interested committees, as well as ranking minority members and their staff, before initiating each study.\textsuperscript{58} This meant consulting with the Senate committee counterpart when given a request from a House committee, or for example, with House Energy and Commerce when given a request from House Science.

From OTA's point of view, the inclusiveness policy served to minimize the agency's potential for generating conflict. It helped OTA avoid situations where it might surprise a committee with a study commissioned and shaped by one of its rivals. And after the Mattingly affair, the policy meant that OTA could demonstrate to any potential critics, at least on paper, a larger clientele for each report, bolstering its claims as "shared staff."

According to Jim Jensen, OTA's Director of Congressional Affairs, OTA often contacts

\textsuperscript{57} Interview with John Gibbons, March 18, 1991.

\textsuperscript{58} This is a case where Board members' personal interests and their desire to have OTA serve all of Congress were consistent. In 1982, seven of the twelve Board members were also committee chairs or ranking minority members, so the policy of consulting provided their own committees with the opportunity to shape studies, make jurisdictional claims, or take credit for the agency's findings.
as many as four or five committees, notifying each when another requests research falling within its jurisdiction. Jensen reports that while he sometimes he never hears back from committees whom OTA notifies of a proposed study, the process of informing them is vital in order that they be given an opportunity to participate if they wish. Committee staff report that OTA is sometimes quite aggressive about covering its bases in this way. A House Science Committee staffer explains that OTA will come to his committee and say "Do you guys want to join in?" A Senate Environment Committee staffer says that OTA will say, "We thought you might be interested..." A House Agriculture staffer is more blunt, telling me "OTA says, 'Someone's nosing around in your turf -- do you care?'"

This practice by OTA means that the agency is partly responsible for the trend in increasing numbers of committees requesting each report. There is no doubt that without OTA's efforts at consulting committees, it would average fewer requests per study, although how many fewer is difficult to ascertain. While committees often have a strong incentive to co-sponsor reports, for the reasons discussed above, they often do not have a reliable way of learning about each other's activities at the very early stages of the legislative process, where OTA is most heavily involved. Formal mechanisms for communication often do not exist between staff of different committees and across chambers. Especially where committees are in a close rivalry or have a tradition of mistrust, their staff may be somewhat secretive toward one another. Without OTA's efforts at notifying all committees that it thinks might have a stake in an issue, many would not learn about OTA projects until they were well underway or even complete. That kind of surprise can lead to angry reactions such as Walter Jones's over the ANWR study. OTA's policy of inclusiveness facilitates committees acting on their jurisdictional incentives to participate in OTA projects. Avoiding surprised and angry committee chairs has become
nearly a raison d'être for OTA.

This practice of notifying interested committees of its research plans and even inviting them to participate in each others’ studies has been OTA’s chief tactic in an overall strategy of jurisdictional neutrality in the 1980s. OTA has attempted to provide something for everyone and to avoid the perception that it has been captured by one committee or interest. OTA has pursued other tactics also. The agency has taken great care to coordinate press releases of its reports so that all sponsoring committees have an opportunity to participate. In instances where more than one committee has demanded the right to release a report, OTA has arranged for separate simultaneous releases of the report, so that each committee could equally and individually claim credit. This has gone far to provide committees with the sense of control over information that they seek.

Another highly visible tactic is OTA’s practice of avoiding policy recommendations in its reports. OTA does not recommend congressional action on issues. In its report summaries, OTA identifies a list of policy options and presents arguments for each, explicitly avoiding an endorsement of any one over another. Such avoidance of recommendations and endorsements has always been an OTA policy, but it became institutionalized and more widely recognized under Gibbons, even to the point of near absurdity.

For example, the Director claims that in a study of cooperation with the Soviet Union in energy development that had a very evenly balanced set of congressional opponents and proponents, OTA avoided presenting an odd number of policy options for fear of inadvertently biasing the outcome. OTA feared that listing three options might imply to readers that OTA somehow endorsed the middle one. OTA added a fourth option, upon
review, in order to eliminate any temptation for members or staff to assume the middle option was being endorsed by the agency as superior (Gibbons 1988).

Another example of OTA's commitment to the appearance of neutrality comes from a 1981 hearing. OTA employee Peter Sharfman was testifying before an ad hoc House armed services panel on MX missile basing. He offered the standard OTA fare, consisting of a neutral list of policy options. After his summary, Rep. Beverly Byron pressed him for his personal recommendation, as an expert, from among the options. Sharfman resisted offering an endorsement for any alternative, following OTA practice, and asked the chair if it would be acceptable for him not to answer Byron. With the chair's approval, Sharfman refused to answer, and Byron eventually stood up and walked out of the hearing in frustration. In the short run this episode certainly engendered the hostility of a member of Congress, but in the long run it preserved OTA's reputation for neutrality.

OTA defends this kind of exercise with the argument that as unelected technical experts, the agency is not authorized to make value judgements; it provides judgement of a strictly technical nature to members of Congress who have the job of making political decisions. Of course the practice also keeps OTA out of much political hot water.

Another very effective practice for ensuring neutrality in its work is OTA's panel review system. For each study, OTA convenes a panel of fifteen to twenty reviewers who provide guidance and review of the project. The agency designs these public panels carefully, seeking to represent all interested parties and all perspectives.

A good example is OTA's study *Catching Our Breath: Next Steps for Reducing Urban Ozone*, which the Senate Environment Committee and House Energy and Commerce

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Committee used in preparing the Clean Air Act Amendments. The project's advisory panel for this highly contentious issue included representatives of the Natural Resources Defense Council, the American Lung Association, Ford Motor Company, Proctor & Gamble, regional regulatory agencies, and universities. In my interviews, staff indicate that panels such as this one give OTA work much greater credibility than it would otherwise have.

By allowing interested groups, like automobile companies, to participate, OTA panels incorporate important congressional constituents. Including interested parties as reviewers has been a very valuable practice for OTA. It provides substantive input from a variety of perspectives, and it draws potential critics into the research process as advisors. This boosts the standing of OTA reports in a congressional environment flooded with expert claims from experts with interests in outcomes. It also increases the number of members who can find a source of trust -- a constituent -- in OTA's findings.

These strategies of offering something for everyone have been very successful at winning widespread support for OTA from its congressional clients. There are several indicators of how congressional attitudes toward OTA have changed since the agency's first years, as a result of its efforts at neutrality. I have already shown how, as early as 1981, prominent Senate Republicans came to the agency's rescue when it was attacked by a newcomer to the institution. This kind of defense would have been unimaginable in the more partisan early years.

Another indicator of OTA's success is its changed reputation with the media. By the end of 1980s, articles on OTA reflected a new, positive reputation that contrasts sharply with accounts of bias and political influence or manipulation at OTA from the 1970s. In January of 1988, the Washington Post ran an article entitled, "OTA Emerges as
Nonpartisan Player," reporting that OTA had overcome suspicions by conservatives and "won a role as a dispassionate, nonpartisan player in the legislative process" (Reppert 1988). In 1989, the New York Times ran a similarly positive article, stating that the agency "earns widespread trust" (Hershey 1989).

Another potential indicator is the size of OTA's budget. Changes in an agency's budget can be a good measure of its political success, especially in its relationship with Congress, which is all that really matters for OTA. Unfortunately this measure is not a good indicator in OTA's case. OTA's budget has grown relatively steadily since its creation, as I showed in Chapter II. Its funding has been quite impervious to political winds, because OTA has enjoyed the benefits of having allies on the right appropriations panel. Members of OTA's board have commonly sat on the Legislative Branch subcommittee of Senate Appropriations, helping the agency receive modest but regular annual increases. As we saw in the case of the 1981 Mattingly affair, OTA could count on three of five subcommittee positions being held by members of its own board. Short of an outright attempt to eliminate it, OTA has been relatively insulated from pressures on its budget.

Perhaps the best indicator of changed attitudes toward OTA are the views of Hill staff toward the agency. In my interviews, staff rated the agency's neutrality, and most offered praise of OTA's political neutrality and technical credibility. I asked thirty-five staff in my initial round of interviews, "Are the conclusions generally technically sound in reports from OTA?" 85% answered "yes," 15% gave "qualified yes" as an answer, and none answered "no" or "qualified no."

When I asked "Are reports generally free of bias toward any particular point of view? (Are they neutral and non-partisan?)," 63% answered "yes," 25% answered "qualified yes,"
9% answered "qualified no," and 3% "no." Those who qualified their answers say that different programs within OTA achieve different levels of neutrality, or that the agency's neutrality can vary from issue to issue. These answers represent a remarkable endorsement of OTA's ability to be perceived as generally neutral on a wide variety of often contentious issues, especially given its history of politicization. A number of staff commented to me that they turn to OTA for information when they don't know whom else to believe, precisely because the agency is more neutral and credible than non-congressional sources such as private think tanks and lobbies or executive agencies.

MANY MASTERS AND THE STRATEGY OF NEUTRALITY

OTA's development has been marked by two phases, one in which it struggled to achieve credibility and one in which it developed methods for keeping its many committee clients satisfied simultaneously. Both phases mark for OTA what is a problem of serving many masters at once. OTA's adaptation to this problem, through a strategy of neutrality, provides a clear message about Congress itself. Decentralized structure, populated by members of two parties, produces heterogenous demands for policy resources. These demands collectively pressure OTA away from politicization, just as the hierarchical, single-party structure that Moe describes in the executive branch produce pressures for politicization. As OTA director John Gibbons has put it, "We work for both parties, and our survival depends on our being able to satisfy all the stakeholders in Congress" (Gibbons 1988).

This finding provides an important potential addition to Moe's argument about politicization in the executive. OTA's evolution can complete the picture, providing an obverse image of politics in executive bureaucracies. The history of this congressional
bureaucracy does not contradict Moe's claims about the executive branch, but only shows how a different institutional structure produces opposite political demands on an organization. The complement of hierarchical politicization appears to be decentralized depoliticization.

OTA's development also provides lessons about the utility of information and the uncertainty proposition developed in Chapter IV. OTA's second phase of development illustrates how different political decision-makers bring different perspectives to the problem of reducing uncertainty about the connection between policy and consequences. For a given policy problem, such as developing oil resources in the Alaska National Wildlife Refuge, different committees bring different kinds of uncertainty to the table because they are concerned with how policies will affect different electoral coalitions and interests. The relative importance of the many potential consequences of a policy vary from committee to committee, and so each presses OTA to study those aspects of the problem of greatest interest to it.

For example, in the case of oil development in the Alaska National Wildlife Refuge, the House Merchant Marine Committee was concerned most with consequences that might be adverse to the environment. This committee is charged with overseeing coastal zone management and wildlife. This committee wanted OTA to provide information that could help reduce uncertainty about these aspects of oil drilling in the Refuge.

On the other hand, members of the Senate Energy Committee, concerned most with developing energy resources and the health of the energy industry, were responding to a different electoral coalition, and so prioritized consequences and their uncertainties differently. This committee wanted an OTA report that could reduce uncertainty about which development proposals to pursue in order to produce the best oil development
returns.

Congress's heterogeneous demands for information from OTA show that not all information is equal to members, since not all electoral coalitions' demands and interests are the same. The uncertainty proposition from Chapter IV helps make sense of why committees take such heated interest in how OTA reports are framed.

The first phase of OTA's development, from 1972 to 1979, offers another lesson about information and uncertainty in Congress. Before OTA could become involved in turf struggles between committees over what the content of its research ought to be, the agency had to first develop credibility. In its early years, when OTA's work was suspect, its influence was limited. Conservatives did not trust OTA's expertise, and so were not informed by its reports. Information from OTA did not reduce uncertainty on their part, simply because it was not credible. Furthermore, with the agency's agenda in the hands of liberals, conservatives were obviously not in a position to use information from OTA persuasively. For Republicans, OTA offered neither form of utility -- informative or persuasive.

This meant that Democrats also derived less value from the agency. With strong conservatives dismissing OTA research out of hand, even Senator Kennedy found that OTA was of less persuasive value to him. The best that Kennedy could hope for was that OTA might persuade a few moderates of either party to support his positions. With its credibility limited, OTA's value to both sides was diminished.

The lesson is that the utility of information increases with its credibility. The capacity of information to reduce uncertainty is a function of how believable that information is. This observation about information should be added to the uncertainty proposition above, for as I will show later, the issue of credibility arises often in the politics of expertise in
Congress. In this chapter, we saw how Congress's internal structure pushed OTA toward strategies that increased its credibility on both sides of the aisle. This cross-pressure on the agency is just what Moe describes as lacking in the executive branch, leading to politicization. In Chapter VI, I explore how members' recognition of this politicization in the executive branch diminishes the credibility of its claims. We will see how a significant portion of Congress's demands on OTA arise from the executive branch's credibility problems in Congress.
CHAPTER VI

CONGRESS'S OWN LITTLE BAND:
OTA IN THE SYSTEM OF SEPARATION OF POWERS

When Senator Mattingly launched his unsuccessful attacks on OTA in 1981, he had used the argument that OTA was duplicative. According to the newly elected freshman, Congress had created in OTA just one more unnecessary expert voice in a vast system of existing agencies capable of rendering technical advice. On nearly any subject that OTA might choose to study, at least one federal agency, and often more, was already capable of providing all the research and information Congress could use, in his view. What could OTA, one of the smallest federal agencies, possibly add? Mattingly felt that Congress could not justify another agency for undertaking research when a virtually limitless amount was readily available through the immense capabilities of the Defense Department, the National Aeronautics and Space Administration, the Environmental Protection Agency, and other technical institutions. As Donald Lambro claimed at the time in his anti-government litany Fat City, congressional committees could easily contract out for studies or could rely on the resources of the executive branch and independent agencies (Lambro 1980). In light of these alternatives, OTA was a congressional waste of money.

It turns out that Mattingly and Lambro were only half right in these claims. In 1981,
as now in 1991, there was indeed no shortage in the quantity of experts residing in the federal government. Organizations such as the Defense Department and EPA surely could provide plenty of expertise to the legislative process, and at least in a superficial sense, OTA was "duplicative." The agency often investigated topics already addressed by the reports and studies of other federal agencies. Yet as I will show in this chapter, Congress is not always comfortable relying on its institutional rivals for information. For example, it was in December of 1982, not long after Mattingly's criticisms of Congress's need for another information source, that EPA Administrator Anne Gorsuch was cited for contempt of Congress because of her refusal to provide a committee with information it sought on hazardous waste clean up, on written orders from President Reagan (CQWR 1982). A year before that, Interior Secretary James Watt was nearly cited for contempt under similar circumstances.

And in September of 1974, several years before Mattingly's single Senate term, Secretary of Defense James Schlesinger had tried to sell a new nuclear weapons targeting program, called "counterforce," to the Senate Foreign Relations Committee. Under counterforce doctrine, the US and USSR would target only strategic sites rather than population centers. The result was to be that casualties in a nuclear exchange could be limited to a fraction of the 100 million estimated for an all-out nuclear war, according to a Defense Department analysis. But when an OTA panel reviewed the claims that Schlesinger presented, it found the estimate of "collateral damage" to be highly unrealistic. As a result, the Foreign Relations Committee requested that DOD rework its figures (U.S. Senate 1975).

These episodes suggest that providing for a well-informed legislature requires more than a large head-count of experts in Washington. The distribution of experts among
divided branches of government can matter greatly. In this chapter I consider how expertise is distributed between Congress and the executive branch. Extending the theme of credibility from the previous chapter, I find that the capacity of information to reduce members’ uncertainty depends in a visible way upon its credibility, and that credibility in turn depends upon the source of the information. In a system of separated branches pursuing different institutional prerogatives and responding to different constituencies, information from one branch may not have credibility with the other.

The executive branch has an overwhelming advantage in technical information, and Congress is routinely in a position of dependence on the executive branch for expert judgment and information. Members’ skepticism about this information drives them to seek their own competing sources of information. I find that contrary to Senator Mattingly’s protests, OTA has value to members of Congress precisely because it is "duplicative" and can provide the legislature with an alternative source of information and an independent check on the expert claims of the executive branch.

Information from OTA can reduce members’ uncertainty in a way that information from the executive branch sometimes can not, because OTA has developed institutional credibility. My chief empirical finding is that a substantial part of Congress’s demand for OTA information is driven by the separation of powers.

This claim contrasts with a more abstract conception of why OTA exists. Some observers have tended to view OTA as a policy resource whose utility is divorced from institutional prerogatives such as power sharing and power contests between branches. As I will show, this was especially true at the time the agency was established. In the first section of this chapter, I review the creation of OTA, demonstrating with congressional documents what a few observers have noted only in passing, namely that OTA grew out of
institutional contests between branches during the Nixon administration.

In the second section of this chapter, I show how committees have requested OTA assistance at all levels of interaction with the executive branch: in conducting oversight, in developing congressional policy proposals, and in responding to executive initiatives. I use several cases to demonstrate this point, drawing on interviews as well as some secondary sources. Again this record contrasts with an abstract view of OTA as a long-range technological forecasting agency, which some agency supporters had originally intended it to become. I find that members’ needs to identify immediate consequences of their policy choices drive them to solicit information from OTA that they can use to verify claims of the executive branch.

In the final section of this chapter, I consider the topic of divided government, assessing the possibility that divided party control rather than separation of powers alone is responsible for stimulating the demand for OTA which I have observed.

INFORMATION AND SEPARATION OF POWERS POLITICAL

Before turning to evidence about how Congress uses OTA to assist it in interacting with the executive branch, consider briefly some background considerations to the role of information in inter-branch politics. The problem of the asymmetric distribution of information between executive and legislative branches is fundamental to our system with its sharing of power between separated branches. Observers of inter-branch politics commonly note that the executive branch has an overwhelming advantage in expertise and substantive information, and that this asymmetry in the distribution of information can be an obstacle to Congress’s ability to assert itself effectively in policy making. On most policy questions, the executive branch can muster from within the White House, the
Pentagon, or elsewhere in the bureaucracy an imposing array of experts to support its initiatives or positions. Congress has no comparable institutional resources. Kingdon (1981) has remarked that this observation has become a commonplace in political science.

After the congressional reforms of the 1970s, observers interpreted some of the changes, such as the dramatic increases in staffs, as attempts to regain through more expertise power that had been lost to the executive (Sundquist 1981; Pfiffner 1991). For example, when Congress debated President Nixon’s plans for the ABM system, most members were at a loss to independently judge the administration’s claims, backed by Pentagon experts, about what was best for the country. By the time President Carter announced his plans for the MX missile system, or President Reagan the Strategic Defense Initiative, Congress was in a somewhat stronger position to challenge Pentagon experts.

During the 1980s scholars working in the principal-agent tradition have examined the problems that Congress faces in attempting to control the bureaucracy in light of an information asymmetry. Agencies have expertise as well as information about costs and performance that Congress has difficulty obtaining. The debate over congressional control of the bureaucracy can be seen in part as a debate about Congress’s success at overcoming its inherent information asymmetry. (McCubbins and Page 1987; McCubbins, Noll and Weingast 1987; McCubbins and Schwartz 1987; Moe 1984a). As Moe (1984a, 756) explains, "the economic analysis of organizations tends to center on questions having to do with the incidence and control of information asymmetry, why the asymmetry exists, what it implies for contractual outcomes, and how the asymmetry or its consequences can be mitigated."

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60 For a thorough principal-agent model of Congress-agency interaction, see Banks 1989, who models a game of budgeting between Congress and an agency, where the information
Congress's authority to obtain information from the executive branch has been a source of inter-branch conflict since at least 1792, when the House attempted to obtain papers from the Secretary of War concerning the defeat of General St. Clair (Harris 1964). Congress's struggles with President Nixon over executive privilege in the conduct of the war and later Watergate were only highly visible instances in a long history of attempts to define Congress's power in this arena.

Sundquist (1981) lists Congress's "right to information" as one of five areas of constitutional ambiguity that have stimulated executive-legislative conflict historically. Fisher (1987) identifies "access to information" as a common source of clashes between each branches institutional prerogatives. Harris (1964) describes Congress's power to acquire information from the executive branch in investigations as one of the fundamental tools available to the legislature for attempting to control administrative activity. Schick (1976) notes that Congress's independence from the executive branch is a source of demand for policy analysis on Capitol Hill.

Whether information concerns the activities of the executive branch, as in the St. Clair case, or involves substantive expertise about policy, as is the ABM case, Congress sometimes seems hamstrung by its inferior resources. Yet we know that members of Congress do rely on executive agencies routinely. It is difficult to imagine how Congress could operate without obtaining information from the executive branch. The phenomenon of "iron-triangles," which previously attracted attention in the literature, seems to be asymmetry involves the agency's knowledge of the true costs of its services, and where Congress must commit to a costly investigation to learn this information.

61 The others are the use of the veto, the scope and definition of executive power itself, the source of legislative leadership and initiative, and congressional control of administration (Sundquist 1981).
testimony to congressional committees' at least occasional affinity for relying on the executive branch for expertise. Consider what Congress's interaction with OTA can reveal about these issues.

THE ORIGINS OF OTA: POLICY CONTEXT VS. INSTITUTIONAL CONTEXT

As is usually the case in the legislature, supporters of the bill that created OTA labored across the span of several Congresses before the legislation was enacted. The primary sponsor of the OTA legislation was Rep. Emilio Daddario of Connecticut, who chaired the Subcommittee on Science, Research and Development of the House Science and Astronautics Committee, and who was to become OTA's initial director in 1973. Daddario's subcommittee issued its first report on creating an office for assessing technology in 1966, as a result of Daddario's personal interest in the subject. The Congressman envisioned an agency that would provide neutral, competent judgement about important issues that members themselves did not have the training or background to fully understand.\textsuperscript{62} The creation of OTA would give Congress a source of state-of-the-art expertise on a variety of issues.

Daddario's interest coincided with a groundswell of concern in the U.S. over technical issues -- the environment, militarization and the war in Vietnam, and the alienation felt by some from what appeared to the rising cultural hegemony of new technologies and technocratic thinking. Between Daddario's first report in 1966 and final passage of the

OTA act in 1972, debates in Congress over big-ticket technological items like the
Supersonic Transport (SST) and the Safeguard anti-ballistic missile (ABM) system
highlighted the need for expertise combined with political judgement (Gibbons and Gwin
1986; U.S. Senate 1972a). Many outside critics as well as some members themselves felt
Congress was insufficiently equipped to tackle complex policy problems. The National
Academy of Sciences viewed the problem in the broadest of terms, advocating the creation
of an agency for assessing technology so that the entire system of national decision making
could be improved.

Daddario’s plans for an office for evaluating technology seemed to offer a suitable
remedy for many of these concerns. The new OTA would provide early warning about the
negative effects of new technologies as well as advance indication of positive effects,
enabling policy-makers to make more well-informed decisions.

Witnesses at hearings on the establishment of OTA who came from academia, the
private sector, and especially scientific organizations tended to emphasize the need to
improve Congress’s analytic resources in order to strengthen the content of its policies.
Some witnesses used dramatic language to describe how important it was to the future of
the democracy to provide Congress with expert information (U.S. House of Representatives
1971; U.S. Senate 1972a).

The most noteworthy aspect of this dialogue was that it took place chiefly in the
context of policy questions. Proponents of OTA saw that policy problems were becoming
more challenging, and they argued that legislators therefore needed better expert
information. The benefit of establishing OTA would be better political-technical decisions.

It was true that policy problems seemed to be growing increasingly complex by the
early 1970s, yet this is an insufficient explanation for why members created OTA. After
all, a good deal of information was already available to members, in theory, from the executive branch. The problem was not a simple shortage of information. There was an institutional context to members’ information problem, in addition to the policy context emphasized by Daddario and the scientists.

The date of OTA’s creation -- late 1972 -- placed it midstream of the congressional reforms of the 1970s. A significant component of those reforms was the desire to rectify the recent shift in the balance of power toward the executive branch, as a number of observers have shown. And part of this shift was attributable to the executive branch’s superior expertise and access to information. This imbalance had developed primarily since the New Deal, with the growth of the bureaucracy and the extended reach of the executive branch into more spheres of activity. By the 1970s, Congress was feeling a growing incapacity to effectively assert itself, in part because of its inferior expert resources. The problem was that information was too often controlled by the executive branch.

In his history of inter-branch politics, Sundquist (1981, 406) observes, "... the clash with President Nixon heightened the demand for legislative self-sufficiency in information gathering and analysis to enable Congress to counter and combat the executive branch on something like equal terms." Commenting on Congress’s increased demand for information and analysis in the reform era, Thurber (1977, 101) notes, "the demand is for information that is independent of the traditional sources from the executive branch and interest groups." Rieselbach (1977) points out that members were at a disadvantage politically when opposing bureaucrats or the President because of Congress’s information dependence. Perhaps the most succinct summary of Congress’s troubles in this regard came from Representative Don Fuqua, who referred to the problem as a congressional "information
gap" (Fuqua 1973).  

Only against this background was the need for information sufficient to justify a new agency. This institutional motivation for the creation of OTA was just as important, if not more so, than the policy context emphasized by Daddario, the hearing witnesses, and the Academy. A number of OTA insiders have noted that the agency's creation grew from this balance-of-power dynamic (Carson 1989; Gibbons 1988b; Gibbons and Gwin 1985; Shevitz 1989), and a few political scientists and others have also alluded briefly to this point (Caspar 1981; Katz 1984; Mezey 1991; Pfiffner 1991). It is worthwhile considering here what members themselves said about the establishment of OTA. Their comments set the tone for a significant part of OTA's function since that time.

In House floor statements during the debate over the creation of OTA, at least a half-dozen proponents of the bill spoke of the need to lessen Congress's dependence on the executive branch, as well as to improve members' analytic resources in an objective sense. Representative Olin Teague complained that as the technical content of legislation increased during the 1950s and 1960s, congressional committees "had to depend more and more on experts from the executive branch or upon outside groups that have vested interests in the issues under consideration" (Teague 1972, 3200). Representative Esch claimed that because of its lack of resources, Congress "has in too many instances been unable to respond effectively to scientific issues, and it has too often fallen to the executive branch to evaluate the impact of a particular new technology and find solutions to any resulting problems" (Esch 1972, 3215). Representative Anderson reminded his

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63 This phrase gained currency in Washington during this period. Also see Cohen (1973).

64 See the statements of Representatives Mosher, McCormack, Teague, Esch, Brooks and Anderson in the Congressional Record, 92nd Congress, 2nd Session (February 8).

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colleagues of the SST decision, recalling how "some members surely felt they were too dependent on the justifications of the executive branch and [suffered from] the lack of countervailing information of their own" (Anderson 1972, 3210). Representative Charles Mosher was more blunt, using a military metaphor, "Let us face it, Mr. Chairman,\(^{65}\) we are constantly outmanned and outgunned by the expertise of the executive agencies" (Mosher 1972, 3202).\(^{66}\)

Several years later, Rep. John Wydler commented that OTA had been created because in congressional hearings on topics such as space policy, "the only real technical witnesses we heard from were administration witnesses whose bias was obvious." He went on to say, "everything they were telling us was why the administration's program was the right one, that decisions that had been made were correct and so on. This feeling was that what we needed was an independent group of scientific people in the Congress whom we could turn to as more or less our expert witnesses.... I really believe that was the motivating idea behind setting up the OTA" (U.S. House of Representatives 1979, 59).

In the Senate, the Rules and Administration subcommittee that reported the OTA legislation expressed the same sentiment, writing, "The executive branch has in the past been the chief promoter of proposals for new or expanding technologies, and the Congress has had no alternative but to accept these judgements for want of its own resources of comparable competence" (U.S. Senate 1972c).

\(^{65}\) The bill was considered in the Committee of the Whole House on the State of the Union, with Rep. Dominick Daniels as chair.

\(^{66}\) The majority of the debate and consideration of H.R.10243 took place in the House. In the Senate, the Rules Committee reported an amended version of the House bill H.R.10243, and it passed on the floor without debate or a vote. (Motions to consider and pass the legislation took place without objection.) For the comments of Senator Kennedy and Senator Everett Jordan, Chair of the Rules and Administration Committee, see U.S. Senate 1972.
So OTA was to be not simply a unique new authority capable of answering members' questions about policy, but Congress's own "expert witnesses," capable of helping members assert their will in the face of other witnesses for the executive branch. Members created OTA not just because they wanted more expertise, but because they wanted expertise that they could trust, from a source loyal to Congress itself. Without a trustworthy source of information, members would be disadvantaged in their attempts to make policy judgements. The importance of inter-branch contests over power in OTA's origins has not been lost on OTA director John Gibbons, who wrote succinctly in a 1988 essay that "Congress created OTA in response to executive power" (Gibbons 1988b).

OTA AS EXPERT WITNESS FOR CONGRESS SINCE 1972

The institutional credibility of experts, so important to understanding why Congress created OTA, is also crucial to understanding members' demand for the agency since that time. OTA was born out of the tumultuous reforms and inter-branch hostility of the early 1970s, yet clearly OTA's purpose was not to wholly replace executive information sources, for obviously committees would still turn to agencies for expertise and information of all sorts, from briefings and testimony to reports and audit findings. OTA merely gave committees an alternative resource. Consider the circumstances under which Congress has turned to this "expert witness" to assist it in interacting with the executive branch.

Oversight

The historical record of OTA's research includes a series of reviews and oversight-oriented analyses of agency programs, where OTA explicitly helped Congress overcome an asymmetry in expertise and information. OTA was not intended by advocates such as Rep.
Daddario and the NAS to become involved in oversight, yet a wide range of committees has asked OTA to pass judgement on agency plans and activities where these involve technical content. Following is a list of such reports from OTA and their committee requestors:

- **Assessment of the Veterans’s Administration’s Method of Analyzing its Hospital Mortality**, 1989 (Senate Veterans’ Affairs Committee)
- **Review of the US Environmental Protection Agency**, 1982 (House Science Committee)
- **Review of Selected Federal Vaccine and Immunization Policies**, 1979 (Senate Labor Committee; Senate Finance Committee)
- **Comparative Analysis of the 1976 ERDA Plan and Program**, 1976 (Senate Interior Committee; House Science Committee)

In each of these cases, committees responsible for reviewing or authorizing agency activities have employed OTA to examine and understand agency policy and programs that might otherwise remain obscure to members. OTA has helped committees judge the claims of agency experts, rather than simply providing early warning about the probable effects of developing new technologies.

**Congressional Policy Initiatives**

Committees have also used OTA to get around stonewalling, hostile, or otherwise suspect agencies where these agencies have expertise members need to produce legislation. During the 1980s, environmental legislation has produced notable examples in which Congress moved well ahead of the White House in pursuing new policies. With two
conservative presidents manifesting varying degrees of disinterest or hostility toward environmental policy, members of Congress developing new environmental laws sometimes had to look for assistance and expertise outside of its traditional sources such as EPA or the Interior Department. They have turned to OTA for studies of radioactive and medical waste, the Montreal Protocol on ozone depletion, acid rain and clean air, groundwater, Superfund site clean-up, and offshore oil and gas development.

In the case of the monumental Clean Air Act Amendments that passed in 1990, committees requested continual assistance from OTA, beginning in 1981 after the Reagan administration took office, and extending through the conference committee negotiations. OTA issued two major reports on clean air during this time, *Acid Rain and Transported Pollutants* (1984) and *Catching Our Breath: Next Steps for Reducing Urban Ozone* (1989). It also provided several interim reports and considerable consultations and briefings with staff and members. A Senate Environment Committee staffer who was involved with the Clean Air Act Amendments told me in an interview, "When the Reagan administration came in, we had less access to EPA, and we were concerned about [the validity of] the material we got. This was as major factor in our turning to OTA for analysis on clean air."

This staffer also described OTA’s assistance to the committee on other environmental issues. "On asbestos, we want someone [doing the research] who is disinterested from both the regulator standpoint and the regulated, plus they need to be technically competent. EPA is being sued over asbestos -- you can’t ask them [for information]." She also cited the case of congressional review of the effects of Agent Orange in Vietnam, saying, "OTA is filling an important role because they're not a federal agency that’s involved."

In another interview, a House Science subcommittee staff director also commented on
OTA’s role in environmental issues. He said, "[OTA’s] Biological Diversity report provided an overview of federal agency activities, showing some gaps. We wouldn’t have gotten that from the executive branch. [OTA’s] Superfund reports and most [of its studies] on the environment have identified shortcomings in implementation or the statuary base that the executive branch wouldn’t point out."

These staff cite OTA’s independence from the executive branch as a source of credibility. Because OTA has no vested interests in clean air legislation or the health effects of asbestos, unlike both regulatory agencies and many private organizations, staff can use OTA reports as checks on the claims of potentially biased experts. Furthermore, in these cases the executive branch agency involved, often EPA, had unique access to information that members wanted. Congress could not as readily turn to outside groups for independent information on an issue such as Superfund clean up as they might with another issue. Where Congress must otherwise rely strongly on one source for information, members have often tended to seek verification of executive branch claims from OTA.

Executive Branch Initiatives: Defense and Energy

This institutional use of OTA, especially in cases where the executive branch has a near-monopoly over information, has been especially obvious in Congress’s responses to major executive branch policy initiatives. Where the White House has announced a significant policy program with technical content or has attempted to justify a proposal with expert claims, committees in Congress have often turned to OTA for independent verification of the claims made by the executive branch, or for political ammunition members can use in attacking the proposal.

This type of "expert witness" role for OTA has tended to occur more in certain policy
areas than in others. Congress's disadvantage in expert resources is substantially greater in defense, space and foreign policy, than in areas such as health care or industrial policy (Holland and Hoover 1985; Mezey 1991). The large majority of military and space experts, for example, work in some way for the Defense Department or NASA, respectively, and are not likely to be in a position to render disinterested advice to Congress. On the other hand, there is no shortage of independent experts on business and trade -- without ties to executive branch largess -- who press their concerns on members of Congress and who offer advice and expertise.

Especially in the case of defense policy, where the executive branch's control over information is greatest, committees in Congress have repeatedly requested OTA responses to White House and Pentagon proposals. The first instance was the 1974 Counterforce program. Other highly visible OTA projects aimed at helping members respond to White House proposals followed. These included studies of President Carter's MX missile basing plans and President Reagan's 1983 Strategic Defense Initiative.\(^67\) Carter's 1977 announcement of a National Energy Plan also stimulated a request for an OTA review, under circumstances strikingly similar to those of the defense proposals. These four cases share several features.

Defense Secretary James Schlesinger's 1974 proposal for the development of a "Counterforce" program was in many ways a proto-typical case for OTA assisting a congressional committee in responding to a technical initiative from the executive branch.\(^68\)


\(^68\) In 1968, a subcommittee of the Senate Armed Services Committee had called for the development of a counterforce-type program, and in 1971 and 1972 unsuccessful floor amendments had been offered in the Senate which would have begun counterforce research and development. In 1974, $77 million in funds for counterforce weapons development had
A central question in the debate was the number of casualties that could be expected in a limited, "Counterforce" nuclear war. The higher this number, the less distinct Counterforce was from conventional mutual-assured-destruction doctrine. Schlesinger estimated from 1/2 million to 6 million casualties, significantly lower than the 100 million DOD believed would occur in an all-out war. Some members were suspicious of this claim. Senate Foreign Affairs Committee Chair John Sparkman, before whom Schlesinger had testified, requested that the new OTA undertake a technical review of the Pentagon's claims. In February of 1975 OTA released its report, criticizing the DOD casualty estimates as overly optimistic. The next month Sparkman wrote to Schlesinger asking him to revise the estimates using "more realistic" assumptions, on the basis of the OTA review (U.S. Senate 1975). Although the OTA study cast some doubt on the Pentagon claims, Schlesinger's office played down the report, withholding a response until after votes had been taken in both chambers and the funds narrowly approved (Congressional Quarterly 1978). Despite its failure to sway the outcome, OTA's study was important in setting a precedent for congressional review of Defense Department analysis using the agency's expertise.

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been included in the military procurement bill, having survived several attempts to remove them on the floors of both chambers. In September 1974, Schlesinger testified before the Senate Foreign Relations committee, which was balking at his request for funding. Schlesinger wanted $110 million for FY1976 in order to improve command and control systems and develop new missile technology. His initiative had the support of the chairs of both Armed Services committees.

69 In the debate, members responded to the proposal in a number of ways. Some critics believed these casualty figures were too low, dramatically underestimating the devastation of a "limited" war. Senator Walter Mondale and others believed the figures to be unacceptable even if accurate, and some members, such as Senators Edmund Muskie and Thomas McIntyre, worried that the belief in these relatively low figures would actually increase the likelihood of a war taking place.
Another major opportunity arose in June of 1979 with Carter's announcement of a decision to deploy 200 new MX missiles. Again the proposal had technical uncertainties that made some members uncomfortable. By the time of the Carter policy announcement, a number of basing alternatives for U.S. missiles had been considered at the Pentagon. The goal was to allow U.S. missiles to survive a preemptive attack in one or more ways: by hardening missile silos against attack, by concealing missiles, by making launchers mobile, by deceiving the Soviets about U.S. missiles with electronic countermeasures, or by providing anti-missile defenses (Holland and Hoover 1985). Which of these options was best, and what means ought to be used to achieve it was a matter of disagreement. In August of 1979, the Carter administration chose a mobile basing system for MX known as the "racetrack," in which the 200 missiles would each be moved about its own track among 23 hardened shelters.\footnote{70}

In Congress, members were especially active in debating MX, following a trend toward greater member participation in defense policy (Holland and Hoover 1985; Feld and Wildgen 1985).\footnote{71} In May of 1980, Representative Morris Udall and Senator Ted Stevens, writing as chair and vice-chair of OTA's board, requested that the agency review plans for

\footnote{70} The logic of this system went as follows. The hardened silos would be sufficiently far apart that destroying all the MX missiles would require the Soviet Union to target each of the 200x23 silos in order to be sure of destroying the 200 hidden missiles, a monumental task. In the long run, the U.S. could add more silos - more potential hiding places - if the Soviet Union built enough missiles to target all of them. The cost of more silos would be much lower for the U.S. than the cost of more missiles for the Soviets, so the U.S. could much more easily bear the burden of a Soviet missiles vs. MX silos race.

\footnote{71}Holland and Hoover (1985) note: "...what is interesting about MX is that members of Congress have been less likely to defer to the credibility of executive branch information. And by being more involved in generating and scrutinizing data, senators and representatives had made themselves better informed. This, in turn, has enhanced Congress's bargaining position, especially with the Pentagon."
basing MX. Udall and Stevens wrote that while "the case for a new strategic missile is understood, the missile basing system remains controversial" (Udall and Stevens 1980). They went on to say that Congress needed "the best obtainable information and analysis" and that there would be "particular value" in an assessment that was "independent of the Defense Department and the Administration."

OTA issued its report in 1981, presenting analyses of five possible basing schemes for MX. The agency pointed out that all involved serious risks, uncertainties, and high costs, and none would be likely to offer survivability for the MX before the end of the decade (OTA 1981). By this time, a wave of skepticism about the usefulness of the MX system had grown, and the new Reagan administration was averse to pursuing the plan as conceived by Carter. In October of 1981, Reagan proposed abandoning Carter's racetrack scheme and instead placing just 100 missiles temporarily in existing Minuteman and Titan II missile silos. In December, Congress further watered down the MX in the 1982 defense appropriations bill, limiting funds that could be used for development of "superhardened" silos.

Two years later, Ronald Reagan's SDI speech presented members with another major military project rife with technical and political uncertainties. Congress scrambled to respond to Reagan's dramatic proposal, by, among other things, initiating several studies of SDI by OTA. These were to become among the agency's most visible and controversial studies ever.

OTA's first report was a highly critical background paper, prepared by Ashton Carter, a contractor to OTA. Carter argued that the prospects of SDI actually functioning as advertised by the administration were remote, and his charges caught the attention of most
players in the SDI debate (OTA 1984).\textsuperscript{72} The Pentagon reacted strongly, formally requesting that OTA Director John Gibbons disavow Carter's paper. Gibbons responded by convening a prestigious panel of reviewers, who evaluated the paper and largely endorsed its claims. Peter Sharfman, Program Manager at OTA for the project, claims that the Carter paper put the Pentagon on the defensive in a way that it had not been before.\textsuperscript{73} The OTA analysis moved questions about the technical justifications for SDI out of the Defense Department and into the terms of public debate. With the basis for a workable SDI more clearly within the public purview, the media and members of Congress could more readily scrutinize Pentagon claims, forcing Defense Department officials to defend their explanations and justifications. OTA's Carter paper was an important early challenge to SDI, and has been credited with contributing to a loss of political momentum for the Pentagon (Nacht 1986).

In 1987, OTA finished a more comprehensive study of the plans for SDI "phased deployment," the survivability of SDI systems under attack in space, and the feasibility of producing the software necessary for controlling SDI.\textsuperscript{74} OTA released classified and non-

\textsuperscript{72} The study was requested by the House Armed Services Committee and the Senate Foreign Relations Committee.

\textsuperscript{73} Interview with Peter Sharfman, March 29, 1991.

\textsuperscript{74} The request came in the form of a statutory requirement for a study in the continuing appropriations for FY 1986, placed there by members of the House Appropriations committee who opposed SDI (U.S. Congress 1985). For the study, OTA convened a review panel of scholars and critics, as well as members of the defense establishment. The group included experts from defense contractors such as McDonnell Douglas, Hughes, Mitre, Honeywell and IBM. It also included Robert Clem, Director of Systems Science at Sandia National Laboratory; O'Dean Judd, Chief Scientist for Defense Research and Application at Los Alamos National Laboratory; and Michael May, Associate Director of Lawrence Livermore National Laboratory. OTA further expanded input into its study through workshops held in January of 1987; these included participants from the State Department, the Strategic Defense Initiative Organization, and the CIA. The panel and workshop participants contributed expertise to the
classified versions in October that were again critical of SDI. OTA questioned the feasibility of meeting program goals, predicting that the first phase of deployment would not be ready until 1995-2000, even using optimistic assumptions, and then would be able to destroy a modest fraction of Soviet warheads only. OTA argued that so much uncertainty surrounded later stages of SDI deployment that ten years would be required to even judge whether they would be feasible. The agency also challenged the dependability of the software required to control SDI, and noted that the capacity to produce and test such software does not exist.

This salvo drew another attack from the Pentagon, which denounced the report and tied up the public version by claiming that it revealed classified information.\textsuperscript{75} After a series of revisions and negotiations with the Defense Department, OTA finally released its report with modifications and deletions in May of 1988. In an uncharacteristically heated remark in the report, OTA charged "some in the Defense Department" with attempting to stifle rational public debate over the pros and cons of ballistic missile defense (OTA 1988).

By the time the contentious report was finally released, OTA's criticisms of SDI had become well known within the defense community and on Capitol Hill. The analysis helped shape what was becoming the prevailing view of SDI by late 1988: that it was viable only as a set of long-range research programs rather than as a short-term policy solution to a strategic problem.\textsuperscript{76} One senior Senate staffer I interviewed described the study, but perhaps just as importantly, they enabled OTA to make a reasonably strong claim to have attempted to solicit input in a balanced and thorough way.

\textsuperscript{75} According to OTA Director John Gibbons, the Pentagon would not identify any specific data, sentences, or sections which revealed classified information, but argued instead that as a whole the report provided too much useful analysis and information to the Soviet Union (Gibbons 1988a).

\textsuperscript{76} Peter Sharfman, formerly Program Manager at OTA, claims that despite the objections
OTA study as "key ammunition" for those opposed to SDI and noted that this type of ammunition would not have been available without OTA because of Pentagon control over defense-related information.

The SDI case, like MX and Counterforce, involved a high-profile initiative with substantial technical uncertainties. During the 1970s, as Congress struggled with energy policy, a similar set of circumstances stimulated congressional demand for OTA review of White House policy proposals. Between 1974 and the end of the Carter administration in late 1980, OTA issued fifteen major reports and a handful of memoranda and background papers on energy issues in response to congressional requests. This body of work represented over one-fifth of the agency’s total output of studies for the period 1974-1980.\textsuperscript{77}

One of the most notable cases involved Carter’s first National Energy Plan. Carter announced the plan in April of 1977, taking members of Congress and the energy establishment by surprise. Carter had placed the development of such a plan at the top of his list of priorities when he took office in January, and he had announced a commitment to produce a comprehensive energy policy within three months. Energy planning had proven a lingering morass for both of Carter’s predecessors, in large part because of the man conflicting interests that tended to fragment policy making. The group that had drafted the Carter plan, under the direction of James Schlesinger, had been highly secretive about its progress. The Schlesinger group met Carter’s 90-day deadline, but it did so

\textsuperscript{77} After 1980, energy studies dropped somewhat to about 13% of OTA’s output of reports.
without benefit of consultation with important energy players, including key committee chairs on the Hill (Cochrane 1981; Nivola 1986). The group’s plan was a massive, complex package of legislation that touched on nearly every aspect -- and nearly every entrenched interest -- in the energy arena.

The complexity, size, and secrecy of the energy plan presented Congress with the type of political surprise that politicians are known for disliking. The scope of the plan posed many political uncertainties for members who attempted to assess what its various components might mean in their districts and states. As members and the public scrutinized the plan, it became clear that the Schlesinger group had been hasty with some of the technical analysis and estimates. Questions arose as to whether the plan’s projections and assumptions could be substantiated. The White House’s rather clumsy lobbying effort on the Hill did not help the situation. When the Carter team handled poorly technical questions about the plan, members of Congress complained that they were receiving insufficient and incorrect information from the White House. Hill briefings and testimony left the impression with many members that White House staff themselves were confused and uninformed about their own initiative (Katz 1984).

In response to these uncertainties, Congress requested reviews of the National Energy Plan from all four of its support agencies. Rarely are CBO, GAO, CRS and OTA directed to examine a single issue concurrently; the fact that studies were requested of all four testifies to the overwhelming scope of the plan. OTA organized its project and got underway very rapidly, releasing a report on the Energy Plan within four months of the announcement. Some of the agency’s findings were critical, stating that the Plan’s actions would not be strong enough to solve the oil import problem and that its objectives for domestic energy production would not likely be met.
OTA's criticisms were consistent with the findings of the other congressional support agencies, and the combined voices of the four organizations represented a solid indictment of the energy plan. A number of observers credit research by OTA and its sibling agencies with undermining some members' confidence in the Carter plan. In the end, a major leadership initiative managed to push the plan though the House, but it was gutted in the Senate, surviving only half-intact (Cochrane 1980; Chubb 1983; Katz 1984).

In each of these cases -- Counterforce, MX, SDI, and the Energy Plan, Congress's use of OTA was stimulated by members' desire to verify independently the claims of the executive branch about a major administration-backed initiative. The acquisition of information from OTA helped some committees assert themselves politically in cases where the executive branch possessed an overwhelming advantage in information resources. In these cases OTA functioned less as a unique resource for forecasting beneficial and harmful effects of technology, as Rep. Daddario had envisioned in 1972, and more as the "expert witness" for Congress that Representative Wyden had hoped for. OTA director John Gibbons has commented on this point, explaining in a 1988 speech that a significant portion of OTA's efforts in the 1980s amounted to countering "executive branch advocacy" (Gibbons 1988c).

AN ALTERNATIVE EXPLANATION: DIVIDED GOVERNMENT

At this point, a question should arise: To what extent are the effects I have observed here the result of divided control of the two branches? Perhaps the demand for OTA that I attribute to institutional prerogatives is simply the result of Democrats mistrusting Republicans in the executive branch. Many explanations of inter-branch politics are subject
to the objection that what appears to be the result of separation of powers politics may simply be an artifact of divided control of the two institutions. If this objection were true in the present case, then if either party gained effective control of both branches, Congress's demand for "independence" through the expertise of internal sources such as OTA would diminish. To what extent is divided control rather than institutional prerogatives driving demand for OTA?

Political scientists often speak of the apparent permanence of divided control in U.S. national government in the contemporary period (Mayhew 1989; Thurber 1991). But it can be revealing to dis-aggregate the two chambers and consider their relationships with the executive branch independently. Since OTA's creation in 1972 and the end of the 101st Congress in 1990, the party of the President has controlled the Senate more often than not, for 10 of 17 years. In contrast, the House has enjoyed same-party control for only 4 of 17 years, during the Carter administration. Neither completely divided control, with a united Congress facing a President of the opposite party, nor completely unified control, has been the rule since President Nixon left office.

The period since OTA's creation is unfortunately brief for testing hypotheses about divided control, and the mixed nature of the history does not present an optimal package of evidence. Nonetheless, examining a) partisanship in OTA's creation, and b) data on demand for OTA services from each chamber during the various administrations offers some clues about the extent to which OTA might be used by members of one party as a weapon against a President of the other.

OTA was created amidst a climate of both partisan and institutional rivalry, yet during development of the OTA bill in 1972, a relatively bi-partisan record of support for the
agency developed. At the committee level, members of both parties responded in a harmonious way to Daddario’s OTA proposal. In the House, the Science and Astronautics Committee reported H.R. 10243 with strong Republican support. Congressman Marvin Esch, a committee Republican, stressed this point in a floor statement, saying, "let me emphasize that this proposal has the unanimous backing of the minority side of the House Science Committee" (Esch 1972). In the Senate, the Rules Committee also reported unanimously.

On the floor of the House, the OTA bill generated a somewhat stronger negative reaction from Republicans, who divided nearly evenly over the bill. In the roll call, Democrats voted 180-39 in favor, and Republicans 76-79 against. While this qualifies as a party unity vote, the 51% of the Republicans who voted against OTA were a mixed lot, and the most vocal opposed the bill on budget grounds rather than for any advantage OTA might give Democrats. Republicans such as John Rousselot and H.R. Gross felt the bill was a waste of money, favoring the conduct of research from within committees over the creation of a new federal agency.

On the other hand, a number of Republicans offered floor statements in favor of the bill. Eight of twelve Science Committee Republicans argued in support of the bill, and two non-committee members, John Anderson and Robert McClory, also spoke in favor. As did others, Anderson referred to the SST decision, lamenting the lack of an "independent, objective account" in the face of executive branch justifications. McClory spoke of the expansion of the executive branch’s capacity to handle technical policy and the need for a congressional response. In the Senate, the bill met no resistance and moved quickly through the chamber on a unanimous consent agreement.

In light of the legislative history of the OTA Act, it would be hard to make a case
that the agency’s origins were especially partisan. On the whole, OTA’s creation was relatively free of party conflict, and the same has been true of Congress’s use of the agency as an "expert witness" in interacting with the executive branch since that time.\textsuperscript{78} OTA has enjoyed its share of controversies in which members of one party have accused it of bias in a particular report -- the SDI case is the most prominent example. But in general such incidents has been remarkably uncommon, especially since 1980. Members’ use of OTA to critique executive branch proposals have been notably independent of party configurations between branches. Whether the party of the president controls the House or the Senate does not appear to have a consistent effect on overall demand for OTA from that chamber.

Consider trends in the number of requests to OTA for studies coming from House committees since 1974 as a measure of demand.\textsuperscript{79} As Chart 10 shows, during the Republican Nixon/Ford administration, Democratic House chairs issued an average of 8 requests for OTA studies per year. During Carter’s Democratic administration, the figure rose to about 13, apparently reflecting both growth in acceptance of the agency and conflicts over policy. Demand nearly doubled while Reagan was in office, suggesting either party, institutional-conflict, or both as a source of demand. Then during the Bush administration, with the same party configuration of Democratic committee chairs and a Republican White House, demand dropped back down to about 13, the same level as

\textsuperscript{78} Recall that OTA was the source of partisan conflict \textit{within} Congress almost as soon as the agency was established. For several years the agency fought to rid itself of the perception that it was controlled by liberals, especially Senator Edward Kennedy. By the early 1980’s, OTA had succeeding in shedding this criticism.

\textsuperscript{79} Although OTA was established in late 1972, the agency did not begin operations until 1974.
during the Carter years.

![House Requests to OTA by Administration](chart.png)

Data file: adreq2, Chart file: wpdreq2.

Chart shows requests to OTA for assessments from the House. Multiple requests counted separately. Endorsements and statements of support not counted.


**Chart 10.**

The fact that demand during the Carter and Bush administrations -- nearly a decade apart in time -- was nearly the same shows that for at least these two cases, the party of the president does not itself, above and beyond other factors, shape overall demand for OTA information. In the House, the hypothesis that divided control of the two branches will result in higher demand and unified control in lower demand for OTA predicts only 1
of 4 cases, when Reagan was in office.\(^{80}\) (It is difficult in this one instance to disassociate party and institutional effects, since both institutional change and conflict and partisanship were generally high.)

Data from the Senate can help fill out the picture. As Chart 11 shows, demand by the Senate for OTA information across the Nixon/Ford, Carter, Bush, and first six years of the Reagan administration (when Republicans held the Senate) was roughly flat, despite the fact that two of these periods saw single-party control and two saw divided control of the Senate and the presidency.

Again, the Reagan administration presents an exception here. The column labelled "Reagan-b" represents the years 1987-1988, when Democrats regained control of the Senate. Demand for OTA jumped during this period, but again dropped back to previous levels after Bush took office in 1989. In the Senate, the hypothesis that divided control will be associated with higher demand and unified control with lower demand predicts only 1 of 5 cases.\(^{81}\)

These data are suggestive of the following conclusion. Divided control can add to an underlying institutional motivation for Congress to seek information and advice that is independent of the executive branch, but whether it does depends in turn on who is in office. In this case, "party" is a very weak explanatory variable.

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\(^{80}\) Of the three instances of divided control, demand for OTA was higher than the overall mean for the period (17.4) in only 1 case (Reagan). For the single instance of same-party control (Carter), demand for OTA was below the overall mean, but still roughly equal to one period of divided control (Bush) and substantially higher than another (Nixon-Ford).

\(^{81}\) Two instances of divided control (Nixon-Ford and Bush) and two of unified (Carter and Reagan-a) are all roughly at the mean overall level of demand for the entire period (14.6). One instance of divided control (Reagan-b) is substantially above the overall mean.
Chart 11.

Since 1974, OTA has served to fulfill its reform-era institutional mandate of helping members of congressional committees achieve greater independence from the executive branch. Committees have used OTA in an oversight capacity as well as to help them avoid dependence on uncooperative agencies during the development of major congressional initiatives. Perhaps most importantly, committees have relied on OTA to help them judge the claims of White House and Pentagon experts promoting major executive branch policy proposals. Although committees routinely rely on executive experts, OTA appears to provide them with an alternative that is especially useful in policy areas where the executive branch has the greatest monopoly over information. In these cases members are
most concerned with executive branch credibility, and are most vulnerable to the withholding of information. In instances where members have the fewest external checks on executive claims, they appear to have the greatest incentive for acquiring expertise from OTA.

Again we see the importance of credibility in shaping the politics of expertise. While information can help reduce members uncertainty about the connections between policy choices and consequences, information must be credible in order to do so. Members are hesitant to rely on information sources that may be institutionally biased. In 1972, Representative Esch summarized the role that he hoped OTA would play in balance-of-power politics in the following way:

"The executive and legislative branches of our Government, through our constitutional system of checks and balances, are two distinct and separate entities and I believe that each branch should have access to its own group of scientific and technological experts -- experts objective in their technical analyses, but loyal to the role and vested governmental interests of whichever branch they serve." (Esch 1972).

John Gibbons, OTA Director throughout the 1980s, has recently described the agency's operations in terms that would undoubtedly please Congressman Esch. In a 1989 interview he described OTA as "Congress's own little band that helps keep administration claims honest" (Hershey 1989).
"If I let you write substance, and you let me write procedure, I'll screw you every time" (Barry 1989, 74) With this remark, one of the most powerful committee chairs in the House, Rep. John Dingell, has unforgettably described the importance of political process to the exercise of power. In the House of Representatives, as in any institution, process can become substance as rules of procedure shape how the preferences and interests of individual members are aggregated into collective outcomes.

In previous chapters, I examined how institutional arrangements in the form of committee and party systems and the separation of powers shape connections between information and political power. In this chapter, I examine structure at the level of House process, in the form of amendment rules.

The Special Rules that stipulate how amendments to bills may be offered are one of the most specific and negotiable forms of institutional structure. These rules govern the actions that members may take for the duration of a single bill only. The selection of amendment rules is often crucial to the outcome of bills and is frequently a battle ground over substance. One of the most well-known examples occurred during the civil rights debates of the mid-1950s. A series of unrestrictive rules from the Rules Committee, chaired by Howard Smith of Virginia, contributed to members' inability to pass school aid

More recently, amendment rule politics played an important role in shaping the outcome of the House vote on the Brady Handgun Control Act of 1991. The bill, providing for a seven day waiting period for handgun purchases, precipitated an interesting battle over amendment rules. The maneuvering over the rule illustrates the different roles played by members, the leadership, outside organizations, and the Rules Committee in selecting amendment rules.

When the Brady Bill was scheduled for a House vote in May of 1991, head counts showed that the measure was favored by a slim majority of members. Through an intense lobbying campaign, Handgun Control, Inc. had turned back opposition spearheaded by the National Rifle Association. The bill had won endorsements from prominent members who were previously opposed to gun control, such as Rep. Les Aspin, and from former Presidents Nixon, Ford, Carter, and Reagan (Ifill 1991b).

Yet despite the endorsements and positive soundings among members, supporters of the Brady Bill feared it might fail as a result of rules politics. While a majority of House members seemed ready to vote for the Brady Bill, a majority also appeared prepared to support an NRA-backed amendment known as the Staggers bill. Staggers would have substituted for the waiting period an instantaneous background check of gun purchasers. Brady supporters argued that such checks were not feasible and that the Staggers bill was merely a ruse to deflect support from the Brady Bill. The week before the vote, OTA released the draft of a study that supported that claim. Both the New York Times and the Washington Post ran editorials in favor of the Brady Bill, citing the OTA information as evidence.
Brady supporters wanted a "king-of-the-mountain" amendment rule from the Rules Committee, under which both bills would be voted on separately. If both passed, as it appeared they would, then the bill to have been voted on second would be declared the winner. Brady supporters hoped that a king-of-the-mountain procedure, with their bill going second, in "the advantaged position," would allow members who wanted to support the Brady Bill to also vote in favor of Staggers, hopefully deflecting some of the NRA's wrath. This seemed the best amendment strategy for circumventing the influence of the NRA.

According to Rules Committee staff I interviewed, some hard-line NRA supporters also wanted a king-of-the-mountain procedure, but with the Staggers amendment rather than Brady bill in the advantaged position. This would likely produce the opposite result, with members also supporting both Brady and Staggers.

Both sides were worried that members would be prevented from voting strategically. Many seemed to have one eye on the NRA and one on their constituents, feeling constrained to cast votes supportive of each, regardless of the outcome that would be produced. It seemed as if the rule choice might well determine the outcome of the vote.

Brady supporters feared an unfavorable rule because of the traditional influence of the Speaker over the Rules Committee and its chair. Speaker Foley was portrayed in the media as opposed to the Brady Bill, and he was blamed by its supporters for having kept the measure off the floor in the previous Congress. Committee Chair Joe Moakley of Massachusetts and his committee staff told me in interviews that Foley was openly against the Brady Bill, but that he was not willing to manipulate the process to win, because he

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82 Denzau, Riker and Shepsle (1986) argue that this was the case with the Powell amendment votes.
fearing an inconclusive result. Moakley explained to me, "[The Speaker] met with me and said 'I'm opposed to the bill, but that's just my vote; I want a clean, uncluttered...bill, so that whoever loses can't blame the process." Moakley says he personally favored a straight up or down vote on Brady, but that this wasn't possible because of the strength of the support for Staggers.

Moakley and Foley's solution was a "normal procedure," under which the Brady bill would go to the floor as main bill, with the Staggers alternative as a substitute amendment.

Rep. Edward Feighan, the chief sponsor of the Brady Bill, agreed to this strategy, abandoning his attempts to obtain a king-of-the-mountain procedure, and the House adopted the rule on May 7. But Feighan agreed to the speaker's rule only reluctantly. He remarked, "At the end of the day, we will either be hailed as geniuses for our strategy, or pilloried for our miscalculation" (Ifill 1991a). Others were less sanguine, viewing the rule as a serious setback to the Brady Bill. The Washington Post called the rule a "crucial obstacle" for the Brady bill (Ifill 1991a). If a majority of members voted for Staggers, as many believed would happen, then the Brady Bill would fail in spite of its potential support by a majority of members.

Yet when the floor votes came the next day, the outcome surprised nearly everyone. Members rejected the Staggers amendment, 193-234, clearing the way for the Brady Bill, which then passed 239-186. Few had expected a margin this large, and few had anticipated that the amendment rule would have such a strong effect on inducing pro-Brady members to stand their ground in the face of the pro-gun lobby. Had the leadership

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passed a king-of-the-mountain procedure with Staggers in the advantaged position, as some NRA supporters wanted, the Brady Bill would most likely have failed.

INTERPRETATIONS OF RULE POLITICS

The rule for the Brady Bill shows how important process can be in shaping political outcomes. Is there a connection to the politics of expertise as well? Do amendment rules shape the demand for information, just as do the committee system and the separation of powers?

Traditional interpretations of rules politics answer "no." The conventional wisdom about the contemporary Congress explains how rules are selected as either a game of distributional politics, of maintaining stability in the chamber, or control of political uncertainty by the House leadership. Bach and Smith (1988) see the Rules Committee as an instrument by which the leadership of the majority party manages controversial bills that are likely to generate minority or back-bench amendments. In many ways their account accurately describes the events leading up to the vote on the Brady Bill. Smith and Deering (1990, 187) argue that the bills most likely to receive restrictive rules are "controversial and perceived as vital to the interests of the majority party," and that these are typically bills from the "prestige" committees. They claim that the increased use of special rules in recent Congresses is attributable to a "partnership" between the majority leadership, authorizing committees, and Democrats on the Rules Committee. This view sees restrictive rules as the result of leadership control of politically contentious bills. The type of bill a rule receives is a function of strategies by the leadership to manage political uncertainty.

Formal theorists have taken other approaches in explaining the selection of rules.
Baron and Ferejohn (1989) explain restrictive rules as political logrolling devices. They view rule choice as part of a game of distributional politics, in which members agree to protect one another’s bills with restrictive rules, in order to facilitate "gains from trade." Shepsle (1986) sees restrictive rules as part of a larger system of institutionalization that provides stability in majority rule voting, helping avoid problems such as majority rule cycling.

The leadership control view, the distributional view, and the institutional view attribute the phenomenon of closed rules to different sources -- leadership influence in the former case and collective choice in the latter two cases. But none account for the politics of expert information. Traditional views of amendment rule choice have not incorporated theories of expertise and information.

Recently an innovative interpretation of rules politics has been developed that offers an alternative to these views. Krehbiel (1991) and Gilligan and Krehbiel (1987; 1989; 1990) argue that there is a connection between information, expertise and rules politics. They interpret restrictive amendment rules as a solution to an informational problem, rather than as the result of distributional politics or leadership concerns with political uncertainty. Their formal-theory based model focuses on members’ need to acquire expert information about policy, in order to reduce uncertainty about the connection between policies and consequences. Gilligan and Krehbiel hypothesize that a connection exists between the restrictiveness of amendment rules in the House and the information content of legislation, as represented in the specialization of committees. They suggest that members choose restrictive rules because these facilitate the acquisition and revelation of expert information by committees. Krehbiel argues that "restrictive amendment rules can offer an incentive to
committees to specialize and be informative" (Krehbiel 1991, 90).84

Committees are the legislature’s instruments of specialization-of-labor. Congress as a whole benefits when committees acquire and divulge information, and their willingness to do so is shaped by the types of amendment rules granted to them. This hypothesis represents a straightforward application of my uncertainty proposition in the context of House procedure. If it is correct, my own thesis that institutional arrangements shape the politics of expertise and information in Congress can be extended to include amendment rules in the House. Empirical support for this claim would suggest the need for revisions in the way that rules politics is viewed.

THE INFORMATIONAL HYPOTHESIS

Before looking for empirical evidence about this claim, consider its conceptual basis in more detail. Following Fenno (1973) and others, Krehbiel (1991) notes that committees possess the capacity to acquire specialized information about the connection between policy choices and their consequences. Committees can do this through the expertise of members themselves, through staff efforts, in hearings, or by formal or informal consultations with outside "experts" such as OTA. Committees are the chief organizational means by which the legislature can acquire and distribute expert information of use to all its members.

Where members of Congress have uncertainty about the connection between policies and their effects, and where this uncertainty is relevant to members’ attempts to meet the

84 I will refer hereafter primarily to Krehbiel’s Information and Legislative Organization (1991), which provides a synopsis of earlier articles by Krehbiel and Gilligan and Krehbiel. Krehbiel offers a general discussion of propositions and principles regarding information in the legislature, including some empirical tests, while Gilligan and Krehbiel (1987; 1989a; 1989b) offer descriptions of game theoretic models of asymmetric information underlying the more general propositions and empirical tests.
needs of their electoral coalitions, then expertise acquired by committees can have utility to them. Members have an interest in motivating committees to acquire and reveal information.

But specialization and the development of expertise are costly for a committee. Producing well-researched, well-informed legislation about a policy problem requires time and effort, political capital, as well as committee funds. In a congressional office, many pressing issues typically compete for such resources, and when a committee decides to "specialize" for a bill, it assesses the likely gains from the effort. The committee may choose not to invest in research and the development of expertise, or it may make this investment, producing a more well-informed bill. In Krehbiel's model, a bill may be informed or uninformed, depending upon the committee's efforts at specialization and its willingness to reveal the information it gathers.

The key to this model involves the committee's estimation of its likely gains from the development of expertise on an issue. Where a committee suspects that its bill will get "rolled" on the floor by amendments, it will be less likely to invest in specialization. Under an open rule, a well-informed bill that reflects committee research and acquisition of expert information will be subject to uninformed amendments on the floor. Committees obviously do not want to see their costly bills gutted on the floor. Where they expect this to happen, the committee would be wiser not to invest heavily in informing a bill. In this way, open rules are a disincentive for the acquisition of expert information.

On the other hand, a closed rule can protect a committee's investment in information by shielding the bill from uninformed amendments. As Krehbiel explains,

It is easier to entice people into exerting effort if they have reason to believe a greater payoff awaits them for a job well done. One way of creating such expectations in a legislature is to promise a potentially expert committee a restrictive rule (Krehbiel
According to this logic, majoritarian legislatures may find it attractive to offer closed or otherwise restrictive rules to committees, because these "reassure the committee that its specialization efforts will not be gutted via amendments" (Krehbiel 1991, 91). The legislature gains because the committee is induced to acquire and reveal expert information that members of the legislature would like to have. Krehbiel states this claim as the following testable hypothesis:

The greater is a committee’s level of specialization, the greater will be its probability of receiving restrictive rules for its bills (Krehbiel 1991, 165).

EMPIRICAL EVIDENCE ABOUT THE INFORMATIONAL HYPOTHESIS

What evidence exists to support or refute this hypothesis about institutional arrangements and information? Krehbiel offers his own empirical test of this hypothesis, using a probit analysis of several factors that might potentially be associated with restrictive rules. The results support his informational hypothesis, but they bear a review and an attempt at corroboration before they can be accepted.

Krehbiel examines ten variables that might shape rule choice. These include the urgency of the bill, the number of multiple referrals, the level of co-sponsorship, the degree to which the bill is distributive in content, and the level of expertise or committee "specialization" informing the bill. Drawing on data from the 98th and 99th Congresses, Krehbiel finds support for the hypothesis that the information content of bills is associated with restrictive rules from the Rules Committee. Krehbiel rejects claims that scope, degree of party conflict, or distributive nature of bills increase the likelihood of restrictive rules. He claims,
[R]ules are not distributional devices for facilitating logrolling within or across committees. Rather, they seem to be informational devices that are chosen by the House to get the most out of its committees (Krehbiel 1991, 91).

These provocative findings invite a closer look for several reasons. Numerical techniques are commonly subject to the charge that the operationalization of variables does not adequately capture the factors under study, the rigor and reliability of sampling and testing not withstanding. This problem may plague Krehbiel’s probit analysis in the following way.

Krehbiel defines "specialization" -- the informational variable -- in two ways, one of which is bill-specific and one of which is committee-specific. His bill-specific measure defines specialization as the number of previous laws cited in a bill. The greater the number of laws cited, the greater amount of expertise and specialization presumed to be present in the bill. Indeed, Krehbiel finds this variable to be the single most influential factor in determining rule type. His committee-specific measure is defined as the mean seniority of members on a committee, based on the assumption that more senior members are more highly specialized.

These two definitions may capture the level of a committee’s "specialization" behind its reporting of a bill, but the problem is that they are likely to also capture other influences on rule restrictiveness. Seniority, for example, measures the influence and prestige of members of a committee. More senior members could be expected to have greater sway over their colleagues and greater influence with the speaker and members of the Rules Committee. More senior members could be expected to be granted restrictive rules more often in any case, regardless of specialization. Furthermore, as Sinclair (1989) reports, seniority in the Senate may be less indicative of specialization now than it was two decades ago.
Similarly, the number of laws cited in a bill may capture the degree of vested interests in the bill on the part of members. A bill that touches on a greater deal of existing law may be expected to generate more strongly held positions by members; they may be more likely to attempt to amend a bill on the floor. This would be exactly the set of circumstances under which Bach and Smith predict restrictive rules from the House majority leadership. For these reasons, additional empirical evidence derived from other sources would be helpful in assessing the empirical validity of this informational hypothesis about rules.

The empirical plausibility of this hypothesis can be probed in several ways. I employ three sources of evidence, one of which is longitudinal and relies on a single committee, and two of which draw on interviews with actors involved in rule selection and committee specialization. Each of these probes has limitations, which I discuss below, but the consistency of the evidence from each means that they can stand together as a reasonable check on the plausibility of the informational hypothesis.

I base these probes on three questions derived from the hypothesis. These are:

1) Does the Rules Committee make an informational calculation about inducing committees to specialize when it considers special rules?

2) Do authorizing committees base their decisions to specialize on the type of amendment rule they expect to receive for their bills?

3) Has the Rules Committee historically offered closed rules to the House Science Committee, which deals with often arcane subject matter about which members can be expected to have substantial uncertainty?

I examine the first two questions with interviews at the Rules Committee and at authorizing committees, and I examine the last with data on rules for House Science Committee bills. In organizing this evidence, I found that examining the hypothesis authoritatively in the case of information and expertise in bills specifically from OTA is
unworkable. The chief problem is that isolating a) bills informed by only OTA information, from b) bills informed by other sources or by other sources in conjunction with OTA can not be accomplished reliably in any but a handful of cases. Furthermore, OTA's interaction with committees does not fit Gilligan and Krehbiel's idealized model of committee process, since once a committee requests an OTA study, it commits to the public revelation of the findings, regardless of the committees' action in reporting a bill. That is, the decision to acquire information from OTA is also a decision to reveal the information. For these reasons, I have modified my research design somewhat in this chapter; rather than providing a probe of OTA information and amendment rules, I offer a more general approach which includes any type of expert information.

**QUESTION 1) Does the rules committee make an informational calculation about inducing committees to specialize when it considers special rules?**

To answer this question, I draw on interviews with staff of the House Rules Committee and with its chair. I asked a series of questions aimed at uncovering whether or not the committee engages in considerations of the information content of legislation when it produces rules. This question requires some subtlety because by the time that the Rules Committee formally acts, the authorizing committee has already decided whether to specialize on a particular bill. Because of this sequence, Krehbiel's hypothesis must be understood in one of two ways. The Rules Committee may give indications to the authorizing committee about its intentions well in advance of the vote on the rule. This is not an unrealistic assumption, since the Rules Committee, the majority leadership, and the authorizing committee do often negotiate throughout the development of a bill. Or, absent such negotiation, both the Rules Committee and the authorizing committee may look to the
future when assessing their strategies. When Rules issues an open rule for a highly specialized bill, it may expect the reporting committee to be less likely to specialize next time. Expectations about future "plays of the game" may guide behavior in the present. In my interviews, I looked for either scenario.

The respondents in these interviews were two senior committee staff, one each from the majority and minority, a former senior majority staffer, two associate committee staff, and committee chair Joe Moakley.

I asked a variety of general and open-ended questions about the origins of restrictive rules, and I asked respondents directly to explain if the committee ever provides restrictive rules for bills involving a great deal of technical information or research on the part of the committee, in order to protect the bill from uninformed amendments. One staffer responds "No, I don’t really think so; it doesn’t sound right." He goes on to say that he is not aware of any way for the Rules Committee to shape the amount of expertise in bills. A former senior staffer with long experience negotiating rules with the committee and Democratic leadership says that "this is not really an issue." The senior Republican staffer I spoke with says, "This is conceivable, but I haven’t seen it happen."

Another majority staffer says that complex issues like banking overhaul and clean air get "structured" rules, but the reason is that these are politically "big" issues. He says that he does not believe that the expectation of a closed rule would provide an incentive to a committee to put together a more well-researched bill. He says, "I don’t think that a lot of committees have one eye on us when they’re putting together a bill." He says that for most legislation, going to the Rules Committee is just a way to get to the floor, rather than

85 Majority staff I spoke with prefer to use the term "structured" rather than restrictive when describing rules that limit amendments. Republicans, on the other hand, use "restrictive."
a factor in substantive decisions. Another majority staffer says that indeed complex bills do tend to receive restrictive rules, but she adds that this occurs where the committee has "done a lot of head banging" and where the committee bill is the result of real compromise and negotiation over a controversial issue.

None of the six respondents I interviewed give any support to the hypothesis. On the contrary, they explain why the committee provides restrictive rules in terms that are entirely consistent with Bach and Smith's view of special rules. Interestingly, none of the staff could provide an ordered list of factors shaping rule restrictiveness, but all mentioned a complex of shifting factors that together make for what they commonly call "big" issues; these issues receive the restrictive rules.

All describe "bigness" in terms of the likelihood of many amendments being offered. The senior Republican staffer I spoke with explains the primary reasons for restrictive rules this way. He says, "It's a combination of things. [The bills receiving restrictive rules are] the omnibus bills that touch on many areas, the bills where it is expected to have controversy or require a lot of time." He also adds, as did another, that members often seek to avoid certain votes that might prove embarrassing, and that this is an incentive for keeping unexpected amendments off of the floor. One staffer says that partisanship, multiple referrals, and jurisdictional problems all lead to restrictive rules. Another simply describes restrictive rules as a function of the level of "controversy" associated with a bill.

All of the staffers I spoke to, with the exception of the senior minority staffer, emphasized the importance of the majority leadership in determining what type of rule the committee offers. They report a recent increase in leadership interest in bills and an increase in the frequency of restrictive rules, and they agreed that on visible or "big" issues, the leadership plays an active role in monitoring the progress of bills and shaping
the action of the Rules Committee. The minority staffer I spoke with bemoaned the fact that most Rules Committee votes fall along party lines, and that Republicans' only chance to influence rules was to work through the minority leader who would take the case to the majority leader.

**QUESTION 2: Do authorizing committees ever base their decision to specialize on the type of amendment rule they expect?**

To answer this question, I draw on interviews with staff of several members and of several authorizing committees, including House Science and House Energy and Commerce. Respondents I spoke with again unanimously report that the process of amendment rule selection has no connection to the information content of legislation. They are quite emphatic about the reasons that the Rules Committee selects closed rules, and they agree that these reasons have nothing to do with expertise in bills. One simply states that the Rules committee "doesn't get into this." Another says, "It's not the role of the Rules Committee. It doesn't get into substantive judgements."

Staff of the House Science committee say that their expectation of amendment rules has no effect on their decision to specialize. A subcommittee staff director explains, "We would never ask for a closed rule." He says, "On bills reported solely by House Science, I can't think of any rules except open ones." Another says, "We certainly don't ask for a closed rule to avoid uninformed amendments. We deal directly with the people [who might offer them]." He says, "Very rarely is there any reason for Rules for give [House Science] anything but an open rule. There is no reason for us to ask for a closed rule."

Another House Science Committee staffer says, "Almost everything this committee does gets an open rule. They only possibility [for a closed rule] is a jurisdictional flap,
and this has to be worked out in advance of getting a rule. Most of our science stuff is not of a nature where you’d want a closed rule." A minority staffer for the committee says, "We always go for open rules. [Chair Robert] Roe doesn’t like closed rules; neither did [his predecessor, Don] Fuqua. I don’t think Rules would go for it. There’s just no reason. Plus, an open rule leaves you in a stronger position afterward, since no one can say, 'It wasn’t really a reflective vote.'" A staffer on the House Agriculture Committee says, "if it’s complicated, like the Farm Bill, then you get an open rule but get a notice requiring publication of amendments in the Record. Besides, you start getting 'Dear Colleague' letters [which serve to warn you of amendments]. These days closed rules are rare; usually it’s the leadership that want a closed rule on a budget."

I found these staff to be unaware of any considerations in their committees’ decision to specialize that take into account rule restrictiveness. On the contrary, they seem to expect and desire open rules as a matter of course. Furthermore, their explanations of why restrictive rules are occasionally granted are quite consistent with what I was told at the Rules Committee.

A staffer for one of the more powerful committee chairs in the House explains, "Rules are politics driven mainly. There is no time and expertise at Rules to examine the substance of bills." A staffer for a prominent Democratic legislator explains, "Closed rules are usually the result of the majority party trying to control minority amendments or the leadership trying to control amendments from their own party. There are also cases where they’re used for jurisdictional reasons, to control competing committees." A House Science subcommittee staff director explains, "closed and modified closed rules are used for political reasons, not to protect a well-informed bill." Another House Science staffer says, "It’s all political. [At Rules] they don’t care about the merits." Another says, "Its a
leadership issue on managing a bill."

**QUESTION 3:** Has the Rules Committee historically offered closed rules to the House Science Committee, which deals with often arcane subject matter about which members can be expected to have substantial uncertainty?

The House Science Committee is a good place to look for evidence of an historical record of restrictive rules for informational reasons. This committee has jurisdiction over issues about which members can be expected often to have uncertainty. It reauthorizes the National Science Foundation, the National Oceanographic and Atmospheric Administration, NASA, and the National Institute of Standards and Technology. In the last Congress, the committee reported bills on arctic research, indoor air quality, hydrogen research and development, earthquake hazards, biological diversity, and aviation research. House Science handles subject matter that is as arcane as that of any committee. Furthermore, House Science has a reputation for being one of the less partisan and less contentious committees in the House. It is a minor committee, generally not a participant in leadership battles or party fights over hot political issues. The committee is generally viewed as a "constituency committee" (Bach and Smith 1988; Smith and Deering 1990). If the informational hypothesis is to hold true anywhere, it should hold true in the case of House Science.

Data on the type of rules granted for House Science bills is available in the legislative calendars of the Rules Committee and House Science Committee, and from LegiSlate, the *Washington Post*’s computer index of bills. The record of amendment rules given to House Science since the mid-1970s indicate that it is actually one of the committees least likely to receive restrictive or closed rules. In the 94th - 101st Congresses, a period of sixteen years, House Science received no closed or restrictive rules at all in 5 of 8 Congresses, an extraordinary record. In the other three Congresses, it received no more
than three restrictive rules, and as I will discuss below, these were all attributable to factors apparently unconnected with expertise. The following table summarizes the amendment rule record of House Science and provides comparisons with the rest of the House.

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<td>13</td>
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<td>16</td>
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<td>Special Rules</td>
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<td>164 (84%)</td>
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<td>Policy Comm.’s.(^b)</td>
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<tr>
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<td>87</td>
<td>81</td>
<td>39</td>
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<td>57</td>
<td>-</td>
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<td>81</td>
<td>68</td>
<td>32</td>
<td>47</td>
<td>31</td>
<td>-</td>
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<td>6</td>
<td>12</td>
<td>7</td>
<td>16</td>
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<td>76 (17%)</td>
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<td>Constituency Comm.’s.(^c)</td>
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<td>Special Rules</td>
<td>71</td>
<td>80</td>
<td>61</td>
<td>48</td>
<td>50</td>
<td>51</td>
<td>-</td>
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<td>369</td>
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<tr>
<td>Unrestrictive Rules</td>
<td>68</td>
<td>74</td>
<td>55</td>
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<td>51</td>
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<td>320</td>
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<tr>
<td>Restrictive Rules</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>22</td>
<td>-</td>
<td>-</td>
<td>49 (13%)</td>
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Source: Legislative Calendars, House Rules Committee and House Committee on Science, Space and Technology for 100th and 101st Congresses; Bach and Smith (1989) for 94th-99th Congresses.

Whereas House Science received restrictive rules for just 8% of its bills since 1975, constituency committees averaged somewhat more with 13%, policy committees more yet 17%, and prestige committees the most with 84%. Consider what the few bills for which the committee did receive restrictive rules can tell us. Below are described the five such rules the committee has received during the last decade.
101st Congress
H.R. 5835 Revenue Reconciliation Act of 1990. (Special rule - H.Res. 509)

100th Congress
H.R. 2310 Airport and Airway Safety and Capacity Expansion Act of 1987; multiple referral. (Special Rule - H.Res. 275)
H.R. 3545 Technical and Miscellaneous Revenue Act of 1988; multiple referral. (Special rule - H.Res. 296)

Note that two of these five bills were budget reconciliation acts, of which just one section was referred to House Science. These are special cases. As Bach and Smith point out, budget bills are nearly always provided restrictive rules. The two defense authorization bills from the 101st Congress were immense legislative packages involving numerous separate bills referred to a variety of committees in addition to House Science (eg. Armed Services, Banking, Small Business, Government Operations, and Merchant Marine). While extensive and complex in nature, these bills did not involve special investments in expertise on the part of House Science that could plausibly explain their rules. On the contrary, they qualify better as distributive bills than as bills involving great substantive uncertainty about the connection between policy choices and consequences. Similarly, the airport authorization in the 100th Congress also involved a multiple referral to Ways and Means, Energy and Commerce, Public Works, and House Science, and also must be counted as a distributive measure. These few bills lend no credence to the claim that their rule types are marked by their special distinction as expertise-laden measures.

Comments of some of the staffers I interviewed are quite consistent with this finding. Two Rules Committee staffers mentioned -- without being prompted -- that House Science is one of the committees least likely to receive a restrictive rule. One said that the
committee doesn't receive restrictive rules because "their stuff isn't controversial." A senior Republican staffer says, "to my knowledge Science has never asked for a restrictive rule. Their bills aren't controversial. The members don’t have amendments to offer on Science bills."

CONCLUSION

I find no support for the informational hypothesis from any of these sources. Rules Committee staff say that informational considerations are not a part of rule decisions. Authorizing committee staff report that their decisions to acquire and reveal information are independent of expectations about rule types. And my single-committee longitudinal sample of data on special rules for House Science also suggests that restrictive rules are not likely to be associated with its expertise in scientific and technical matters.

The negative result of these probes constitutes my first indication that there may be limits on the extent to which institutional arrangements may shape the politics of expertise. Whereas evidence about separation of powers and internal structure in Congress reveal rather convincing connections between institutional arrangements and demand for information, this evidence on rules does support a similarly positive finding.

Admittedly, my probes of rules politics are far from exhaustive, and the findings are more suggestive than conclusive. My first two questions rely on the assumption that members' actions are guided by intentions, and that one can learn about these intentions in interviews. The objection might be raised that interview data can not test this type of hypothesis, that the actions of the Rules and authorizing committees may follow the logic of the hypothesis without members or staff being aware of it. That is, the hypothesis is correct, and the actors involved are behaving in a subconscious way.
But this argument is not entirely persuasive, because it is unclear how, in this particular formal model, rational actors could strategically pursue goals, making calculations about costs and benefits, and yet be unaware of their intentions and actions. Presumably such rational actors are sufficiently aware of their own goals and strategies to be able to give some verbal indication of them. This model does not propose a functional explanation or offer a theory of unintended consequences. The fact that both sets of "players" in the legislative game believe they are acting for reasons not explained by the informational hypothesis undermines that hypothesis.

My third question, based on rules data for House Science, may be more vulnerable to objections. After all this is but one of many committees, and the predicted phenomenon may be observable elsewhere in the House. The degree to which members have more uncertainty about issues falling within this committee's jurisdiction is not certain. The validity of House Science as a test case might therefore be disputed. Yet at the very least, this case suggests that the informational hypothesis does not explain this one committee's history of rules since 1975.

Clearly more exhaustive evidence would be necessary to conclusively reject Krehbiel's hypothesis. A larger number of cases would be necessary, as would more extensive interviews, and perhaps another probit analysis using new definitions of expertise. My examination suggests that the phenomenon Krehbiel seeks to explain is not readily observable in some of the places where one might expect it to turn up.

There are some potential problems with the theory that may need to be corrected. If further evidence also fails to support the model, these problems may explain why. To begin with, Krehbiel's model is a game between two actors, an authorizing committee with the potential to acquire and reveal information, and a majority-rule parent legislature, faced
with the calculation of what type of rule to offer. Yet the "parent legislature" in this model is in reality at least three entities: the Rules Committee, the floor, and the leadership. It is not at all clear that the Rules Committee actually functions as a direct agent of the floor, representing floor median voter preferences, as assumed in the model.

The traditional view of the Rules Committee, which is consistent with my findings, is that the committee is an agent of the majority leadership -- especially through the speaker -- rather than of the floor (Bach and Smith 1988). That is, the preferences reflected in the committee's choice of rules represent not the median voter of the entire body, but the preferences the leadership of the majority party or even those of only the speaker. Bach and Smith argue that special rules are produced by a few key Rules Committee Democrats, often at the direction of the Speaker. An anecdote about Speaker Jim Wright illustrates this claim.

In his brief tenure as speaker, Wright developed a notorious reputation for his influence over the Rules Committee. Upon taking over the speakership after the retirement of Tip O'Neill, Wright held a lunch for Rules Committee Democrats seeking reappointment to the committee. At the meeting, Wright announced that he intended to use the committee as a political tool and that he expected committee Democrats to obey when asked to support the leadership. He held the threat of not being reappointed over their heads (Barry 1989).

The prospect that a special rule reflects the amended choice of the floor is made more remote by the fact that floor votes on amendment rules do not easily facilitate manifestation of median voter preferences over rule choice. Rules themselves are not subject to a regular amendment process that would allow adjustment of the rule to reflect the position of the median voter. Rules are generally accepted or defeated as is. Only
when a vote to order the previous question fails does the majority leadership lose control
of the rule, and only then may a motion to amend the rule be offered (U.S. Congress
1988, 471).

Another potential problem with the hypothesis turns on a technical feature of the
formal model. Legislative signalling games assume that committees reveal expert
information strictly through the content of their bills. That is, the floor learns of
committees' expert information through inferences (updating of beliefs) made on the basis
of the content of a bill. But in reality, committees "signal" in many other ways. Public
hearings provide one means; in fact hearings are often little more than exercises in
signalling, as committees line up carefully chosen witnesses who publiccly reveal expert
claims known in advance by the committee. Members' conversations with one another on
the floor, in the cloakroom, and in caucuses and meetings also provide numerous means by
which committee expertise is diffused. It seems likely that information that is transmitted
out of committees is actually sent long before a bill is reported. This is certainly strictly
true in the case of OTA, where the agency's findings are made public at several stages in
its research process. These factors may explain why this formulation of a connection
between institutional structure in the form of amendment rules and demand for information
may be inadequate.

This evidence suggests that the marked influence of institutional arrangements that I
find to exist in the case of committees, parties, and separation of powers is, at the least,
more difficult to identify in the case of amendment rules. It may be that my brief probes,
drawing on interviews and House Science Committee data, are insufficient to uncover the

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86 See U.S. Congress. 1988. Rules of the House of Representatives, Rule XI, Clause 4,
Sect. 729b.
expected influence. On the other hand, questions about the theoretical formulation, problems with the existing empirical (probit) test, and the consistency of my findings with the more traditional view of amendment rules as resources for managing uncertainty suggest that no relationship may exist. Until more evidence can resolve these questions, I conclude that I have found a potential limit on my thesis.
CHAPTER VIII

CONCLUSION: CONGRESS, OTA, AND THEORIES OF INFORMATION

Congress' demand for information from the Office of Technology Assessment shows that knowledge and power are indeed connected in the U.S. Congress, but the links that join them are not always obvious. The nexus is certainly not as direct as Bacon’s famous maxim might suggest. At the level of the individual member of Congress, the politics of expertise is a function of relationships between information, uncertainty, political preferences, and the demands of electoral coalitions. At the level of Congress as a whole, the politics of expertise is shaped by institutional arrangements that affect how the interests and actions of individuals are aggregated into collective outcomes. The most important questions about the politics of expertise -- about when expert information can be influential in Congress and about what utility members derive from expert information -- must be understood in these terms.

The proposition that expert information has value to members of Congress when it has the capacity to reduce uncertainty about how to satisfy the preferences or potential preferences of constituents has guided this study. This proposition relies on the observation that where members of Congress have preferences over consequences -- rather than only an interest in position taking -- then they may find it useful to acquire expert information. This conceptual framework has proven helpful for interpreting Congress's interaction with
OTA in a variety of situations.

OTA has the greatest utility to members early in the legislative process, as agendas are being set, questions about policy problems are being framed, and legislative proposals developed. Committees use the agency's expertise much more frequently in this phase than later on, and they use the expertise in ways that are chiefly informative rather than persuasive. Information can shape members preferences for policy because early in the political process they tend to have the greatest uncertainty about how policy choices will affect constituents.

As the legislative process proceeds, more political actors and organizations join issues. Constituents express their views, and members discuss policy with one another and with representatives of the administration and executive agencies. Organized groups increasingly press their demands on members, and the leadership of parties formulate positions and strategies. As this activity proceeds, members' uncertainty about how to meet the demands of their electoral coalitions is likely to decrease markedly. Choices over policy alternatives typically become more politically constrained for members, and their questions about how to produce desired consequences for electoral coalitions are answered. As a result, the capacity of expertise about policy to reduce uncertainty diminishes. OTA's utility in Congress drops markedly as the legislative process moves toward the voting stage.

Congress's decentralized, two-party internal structure profoundly affects how members' individual interests in acquiring information produce collective pressures and demands. Members many divergent constituent interests produce very heterogeneous demands for the reduction of uncertainty. Not only do members seek information about a multitude of issues, but within a given issue, members bring different questions and different concerns to the process of acquiring information. These questions are represented through the
parties and committees in what amounts to the phenomenon of many masters for OTA.

As a provider of expertise, OTA has responded in a distinctive way to the problem of simultaneously satisfying the heterogeneous demands of many political masters. The agency has adopted strategies for achieving political neutrality in the face of conflicting or centrifugal demands, attempting to offer something for everyone. OTA grew from a highly politicized young agency in the mid 1970s, serving chiefly the interests of liberals, into a much more credible and non-partisan organization that can survive in a congressional environment.

The agency’s response to these demands represents the obverse of Moe’s portrait of politicization and centralization in the executive branch. Just as one-party control by a single political master and a hierarchical organization tend to drive executive agencies toward politicization, control by many masters in a decentralized organization has driven OTA away from politicization.

There is good reason to believe that the pressures to which OTA has responded are not unique in Congress; all three of its sister support agencies appear to have developed their own strategies of neutrality. While CRS offers partisan advice and support for individual members, it performs this work in confidence. This agency may write opposing speeches or produce conflicting briefing materials for members who are potential opponents. In this way, CRS avoids showing favoritism or bias, also offering something for everyone. Whereas OTA has pursued neutrality through openness, consensus, and the avoidance of support for any one position, CRS has pursued the same goal through confidentiality and a willingness to provide each member and staffer what they want.

CBO, the support agency most like OTA in age and size, has also evolved along a path similar to OTA’s. In its first few years under Director Alice Rivlin, CBO was
criticized for setting its own agenda and for being insufficiently attentive to the needs of the budget committees (Haveman 1978; Schick 1980). Some felt Rivlin was turning the new CBO into a liberal policy think tank, like the Brookings Institution, rather than a resource for meeting Congress's specific budget demands. The budget committees resented CBO's intrusion on their newly created turf, and Schick (1980) argues that Republicans on the House Appropriations Committee attacked CBO's staffing plans in an attempt to keep the agency from growing in size. CBO responded, like OTA, by more assiduously attempting to meet the expressed needs of its congressional clients, by adapting a stance of neutrality, and by organizationally separating its budget work from its policy analysis. Schick labels CBO's approach the "strategy of independence," a concept akin to OTA's strategy of neutrality (Schick 1980, 145).

More so than the other three support agencies, GAO is known for producing politically contentious studies, and might, on its face, appear to have avoided responding to the phenomenon of many masters. This agency's oversight role brings it directly into the heart of political and institutional conflicts, and GAO's reports often mince no words in critiquing agencies at the request of members of Congress. Yet it seems that even GAO attempts to offer something for everyone in Congress. In any interviews, a number of congressional staff told me that GAO is more likely than the other three support agencies to issue findings that are somehow "biased." But by and large these staff did not feel that GAO is systematically biased toward either party. On the contrary, several report feeling that GAO tends to favor "whoever is asking the question." That is, GAO will support the

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87 Although the Congressional Budget and Impoundment Control Act of 1974 established both the budget committees and CBO, the committees were organized before CBO came into existence.
cause of any member who asks. To the extent that this is true, then GAO has apparently achieved its own form of neutrality as a "hired gun" agency that offers its services to all congressional clients equally.

While further research would be necessary to confirm these observations, it appears that the logic of OTA’s organizational development bears similar markings to the development of the other congressional agencies.

Institutional structure in the form of separation of powers has also shaped Congress’s collective demand for information from OTA in crucial ways, and again the uncertainty proposition helps with the interpretation of this finding. The system of separation of powers provides an all-important context for members’ demand for expertise, because of the executive branch’s superiority of expert resources, especially in certain policy areas. OTA provides members with assistance in oversight, in developing legislation, and especially in responding to executive policy proposals. The uncertainties that members of Congress face are not necessarily reduced by information provided by the executive branch. Members want their own source of expertise, one that can respond to their specific constituency-driven questions. In this regard, the bonds of party between branches are not appropriate for satisfying members of the president’s party in Congress with executive branch expertise. Members of both parties value OTA because it provides a credible check on the veracity of information that comes from sources outside Congress, and it provides information tailored to their own questions about how to meet the needs of their electoral coalitions. Information from the Pentagon, the White House, or the bureaucracy often fails to serve this function.

The interplay between the effects of separation of powers structure and the effects of internal congressional organization is one of the most interesting features of OTA’s role in
the legislature. Members created OTA because they wanted their own advocates. They sought an agency loyal to the institution’s many interests. In another context, these prerogatives might have produced a politicized and partisan agency, as in fact OTA was in its initial years. Yet once in existence in the congressional environment, OTA evolved away from politicization and toward neutrality, under the collective pressure of members’ divergent demands. As a result, OTA became an expert ally for Congress, yet one with credibility on both sides of the aisle.

THE NEXT STEP IN THE THEORY OF INFORMATION: BIAS

One of the most important and unifying themes in Congress’s demand for information involves the problem of bias. Overcoming biased information is a problem that underlies much of the dynamics of Congress’s interaction with OTA. The concept of bias captures and unifies many of the issues raised in this study. Again and again in OTA’s evolution, the agency has been forced to respond to members’ concern about whether expert information is somehow biased toward one point of view or a single policy position. When the agency was created, conservatives feared OTA would serve the interests of liberals by providing studies tailored to support Democratic policies. After 1980, committees pressed OTA not to favor their jurisdictional rivals with reports that responded only to other committees’ interests. Much of OTA’s internal development has involved structuring itself in such a way as to demonstrate political neutrality.

Members’ use of OTA as a resource for interacting with the executive branch is also chiefly a story of their desire to overcome bias. OTA was established in large part because members did not trust the claims of the executive branch, not simply because members could not obtain information from the other branch. Since 1972, much of OTA’s
work has been taken up by verifying and clarifying the claims of inter-branch rivals and partners. Recall the comments of the Senate Environment Committee staffer talking about the development of the Clean Air Act Amendments of 1990: "When the Reagan administration came in, we had less access to EPA and we were concerned about [the validity of] what we got." In nearly every way, Congress's interaction with OTA reveals how the problem of informational bias is inextricably linked to the politics of expertise.

Yet the political science literature on information and game theory generally does not offer much insight into this problem. In game theory, for example, usually when actors acquire information, their uncertainty is eliminated. In most models, acquisition of expertise allows decision makers to act with complete information. "Games" either involve complete or incomplete information, rather than information that may be inaccurate or intended to mislead.

My findings show that while information is best understood as an entity that reduces uncertainty, it may not always reduce uncertainty to zero. Acquiring expert information about a problem -- for example from the executive branch -- does not necessarily mean that a member's uncertainty will subsequently be gone. Not all information is credible, and where it lacks credibility, its capacity to reduce uncertainty is diminished.

The way that bias affects the capacity of information to reduce uncertainty might be thought of in different ways. For example, members' initial uncertainty about how a policy will affect constituents may be represented as a distribution of possible outcomes along a single dimension. The median of this range of possibilities would represent the expected value for the outcome of the policy choice. Complete and credible information would eliminate uncertainty by reducing the distribution of possible outcomes to a single value, which would not necessarily be the same as the ex ante expected value. The utility
of this information would be given by the difference in utilities of the ex ante expected value and post factum outcome.

Information that is biased might reduce uncertainty only partially, in an asymmetric way. It could eliminate certain possible outcomes without providing any knowledge about others. By changing the shape of the distribution of expected outcomes, this biased information would produce a different expected value.

Another interpretation of bias would arise where information is simply incorrect. The recipient of the information, believing it to be true, derives a new expected value that is wrong, and makes a sub-optimal decision as a result. Information affected by this form of bias might be the result of fabrication or merely inadequate investigation.

A third interpretation of bias involves multiple dimensions of uncertainty. In this case, members are concerned with uncertainties about different aspects of a policy issue. On an energy bill, for example, members might variously be most interested in environmental implications, in costs of electricity for rate payers, in burdens on domestic energy producers, or in the implications for oil imports and dependency on unreliable foreign suppliers. Complete information would eliminate uncertainty along all these dimensions. Biased information would reduce uncertainty along only some, casting the benefits and costs of a bill in an uneven light. OTA’s attempts to satisfy simultaneously all its committee clients appears to demonstrate problems with this kind of bias. Committees take great interest in seeing that OTA reports do not favor other committees’ concerns through the inclusion or exclusion of certain questions. While it is beyond the scope of this study to develop methods for modelling the influence of bias on the politics of information, further work in game theory would benefit from attention to this problem.

Congress’s demand for information from OTA suggests other related avenues for
theoretical development also. For example, OTA information is free, as is information from some other sources, whereas information is generally modelled as costly. This fact may have large consequences for how we think about politicians' acquisition of expertise. Recall that committees who request studies from OTA pay no direct monetary cost. OTA's budget represents a sunk cost that is born in the appropriations process, so committees can request an OTA study without the need to spend funds.

On the other hand when a committee commissions a study from certain private experts or university researchers, it must bear financial costs. Given fixed resources of committees, an expenditure on information means that an expenditure on some other good may be foregone. Information economics and game theory generally assume that information is costly in just this way. Theoretical models provide tools for understanding how the expected returns from expenditures on information compare with costs, as the potential beneficiaries make these calculations. These methods allow one, in theory, to calculate the point of optimal information acquisition, on the basis of expected utility theory and cost functions for information.\(^88\)

OTA's services to Congress do not fit these assumptions, since a committee need only request a study and make a nominal investment in staff time to monitor and track the project. This would seem to suggest that as long as any benefit is expected, committees would always have an incentive to request a study from OTA. But clearly they do not. OTA's clientele is bounded, and the number of requests it receives is smaller than the number it might potential receive based on its relevant expertise. But why, if it is a free resource? Information theory is not helpful here.

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\(^{88}\) See Gilligan and Krehbiel (1990) and Banks (1988) for examples.
A staffer of the House Agriculture Committee has revealed a simple answer. He explains that for several years his committee avoided OTA studies because several key staffers felt OTA findings would be inimical to the committee’s interests. Recall also how Sen. Stevens of Alaska sought to avoid an OTA study of oil development in the Alaska National Wildlife Refuge. The key in both cases is that OTA’s findings would be public and available to political opponents. It is sometimes desirable that one’s opponents have uncertainties. Members may find it advantageous not to generate or even to suppress expert information that can serve others’ interests.

But OTA makes its findings known to all sides in Congress, and potential sponsors of research know that the agency’s results may reach the pages of the Washington Post or the New York Times. Once a committee requests a study from OTA, it must be prepared for the public revelation of the findings. This means that a committee may pay a strategic rather than monetary cost for the revelation of OTA information. This potential for political costs represents the debit side of the equation in a committee’s calculation of the benefits and costs of requesting OTA expertise.89

Note that OTA’s sister agencies are designed to handle the issue of the political control over information differently. CRS will maintain complete privacy for the members of Congress who request information, giving them control over information in a way they do not enjoy with OTA. GAO provides only nominal control to members. The agency provides a member of Congress who was requested a study 30 days to announce its

89 OTA can produce a limited number of reports each year, so committees can not have every potential study conducted by the agency. Given this limitation on OTA’s resources, committees may also calculate that some studies from OTA are more valuable to them than others. Rather than tie up the agency with studies likely to produce a small benefit, committees may wait and call on OTA only in instances where they expect the largest gain.
findings personally, after which the agency publicly reveals the report on its own.

These variations in the form of political control over information, especially OTA’s policy of openness, are not modelled by theories of information in politics. By and large these models are formulated as signalling games, in which politicians first make a decision to acquire information, at some cost, and then separately determine whether to reveal what they have learned, either in debate or in the content of proposals. In these models, advice is private.

The public nature of OTA’s provision of information to Congress is more typical in the legislature than the private advice commonly portrayed in signalling models. As an open and decentralized institution, access to information is often widespread, especially since the media play such an important role in transmitting information. Theories of the utility of information will have to include this feature if they are to provide a better empirical grasp of the politics of expertise in Congress.

CONGRESS AS A FORUM FOR EXPERT INFORMATION

One of the most noteworthy findings of my research is that the legislature is not so hostile an environment for expertise as is sometimes thought. Congress is often subject to the rather cynical view that it is inherently unreceptive to expert judgements and information about policy. Common stereotypes of politicians, especially those elected to Congress, often portray the knowledgeable and informed decision maker as the exception rather than the rule. Political scientists have noted that “Congress can’t do policy analysis” (Jones 1976, 251) and that members make better compromisers than they do policy experts (Mann 1990).

Congress’s interaction with OTA suggests that these views overlook one important way
in which the legislature is actually quite effective as a consumer of expertise. Congress appears very successful at achieving the normatively attractive goal of producing neutral competence in its advisors. Members’ heterogeneous demands for information, represented through the decentralized and diffuse committee system, have worked to evince neutral and credible policy expertise from OTA. My research suggests that Congress may be more successful at this goal than is the executive branch.

Naturally Congress could never match the capacities of a hierarchical, Weberian bureaucracy in organizing information and administering policy directly on the basis of specialized expertise. Nor could the legislature do so and still fully serve its legitimate function as a representative body. But as a forum for eliciting a multiplicity of expert views that can collectively tend toward objectivity and neutrality, Congress appears especially competent. This capacity of the institution appears to complement the tendency of the executive branch to provide more focused expert information in support of a narrower range of policy alternatives. As a partner and rival in policy making with the executive, Congress’s ability to establish a heterogeneous setting for the politics of expertise appears to serve the political process well.
APPENDIX

A. Notes on Documentary Sources
B. Congressional Staff Interviews
C. Interviews at OTA
D. Evidence on Political Appointees at OTA
E. References to OTA in the Congressional Record
F. Calculations
   - Difference of Proportions Test
   - Nominal-Real Budget Growth
G. Legislative Chronology: Office of Technology Assessment Act of 1972
PART A. NOTES ON DOCUMENTARY SOURCES

Congressional Correspondence.

All correspondence to OTA as an agency, including requests for studies, are received in the Director's office, where they are recorded in a "Mail Log," and then distributed to the appropriate parties. Copies of each letter are stored in at least two places. The original is kept in a chronological correspondence file, and a copy is kept, along with OTA's response to the sender, in a chronological outgoing mail file. During my research, these files were managed by Barbara Murphy in the office of the Director. I relied heavily on these files for documenting requests to OTA, and for cross-checking and verifying OTA's own reporting of requests in its Annual Justification of Estimates below. I have cited these by author's name.

OTA Archives.

The OTA Information Center, directed by Gail Kouril, maintains a well indexed file of miscellaneous documents, including memoranda, correspondence, congressional documents and prints, and an incomplete set of secondary source material. I relied only somewhat on this set of documents, making use of the occasional letter or memo. My references to material in this collection contain an "AC" number, which refers to the the file number.

Transcripts of OTA "TAB" Meetings.

Several types of sources are available on meetings of OTA's Board of Directors, which has met from as many as eight or nine times per year to as little as once each quarter. For some years, full transcripts of meetings are available, while for others only summary minutes exist. In one case, the meeting in which John Gibbons was sworn in as Director, audio cassettes of the meeting accompany the written transcripts. While a good deal of activity and discussion among Board members takes place outside of the board room, these meeting records provide a rich source of material when used in conjunction with other materials. I have relied heavily on them with one exception. The Board occasionally goes into 'executive session,' closing what are otherwise public meetings. These sessions typically involve personnel matters, such as the selection of a new director. Generally transcripts and summary minutes stop during executive session, but occasionally the text of these closed meetings is included in the files that were made available to me. In these cases, I have not revealed, reported on, or otherwise incorporated any material derived from the transcripts of closed TAB sessions. These files are maintained in OTA's Congressional and Public Affairs Office, and I have cited them as "OTA Transcripts" or "OTA Minutes."
OTA Quarterly and Annual Reports.

OTA's collection of quarterly and annual reports, also available in the Information Center, gives only the sketchiest outline of agency activities. By and large, these reports seem quite well sanitized. References to political problems, jurisdictional fights, problems within the agency's board, and so on are rare and vague. I used the annual reports chiefly for tracking employees at OTA.

Annual Justification of Estimates for the Office of Technology Assessment.

These annual documents are prepared by the agency for its appropriations hearings. They provide a fairly detailed account of OTA's activities, lists of requests, and so on. Some care must be used in interpreting the "JofE's," as they are called, because OTA makes an effort to put the best face possible on its activities, reporting the greatest possible influence on the greatest number of bills that it can. The agency tends to overstate its measureable impact on legislation. The chronological set of Jof E's is kept in OTA's Budget and Finance Office.

OTA Report Collection.

The OTA information center keeps two copies of each report issued by the agency. This complete collection is very useful. Also, a computer-searchable database allows one to analyze OTA's "output" in a variety of ways. This system, named "QuOTAtion Database," was helpful in my research in tracking work by individuals and programs, and in tabulating such figures as the average number of committees requesting each report against time.

Other Congressional Documents.

I drew on a variety of standard congressional documents, including committee prints, reports, hearing transcripts, and the Final Calendars of the House Committees on Energy and Commerce; Science, Space and Technology; and Rules, as well as Final Calendars for the whole House.
PART B. CONGRESSIONAL STAFF INTERVIEWS

Initial Interviews. (4/16/90 - 6/11/90)

Selection of Staff

I conducted these interviews with a sample of staff who are regularly involved in technical issues and who were familiar with OTA's activities and expertise. I identified about eighty staff who have primary responsibility for scientific and technical matters, on the basis of their assignments as indicated in the Congressional Yellow Book, on recommendations from OTA about staff with whom they have regular interaction, or from other recommendations, including from staff themselves. I drew names randomly from this list until thirty-five interviews were completed.

I sought a roughly equal balance between House and Senate staff, and a 2:1 ratio of committee to personal staff. Except for these conditions, I applied no other pre-selection criteria.

The set of interviews, therefore, does not comprise a random sample of congressional staff, nor is it large enough to allow statistical inference about the larger population of staff.

In this round of interviews, I guaranteed participants that their responses would not be attributed to them by name or by congressional office, unless they offered otherwise. The following list indicates the office represented and the dates of the interviews:

House Agriculture Committee / Subcommittee on Department Operations, Research, and Foreign Agriculture. 4/30/90.
House Appropriations Committee / Subcommittee on VA, HUD and Independent Agencies. 4/23/90.
House Armed Services Committee. 4/23/90.
House Armed Services Committee / Subcommittee on Research and Development. 6/11/90.
House Budget Committee. 4/16/90.
House Science, Space and Technology Committee / Subcommittee on Natural Resources, Agricultural Research & Environment. 4/20/90.
House Science, Space and Technology Committee / Subcommittee on Science, Research and Technology (2). 4/27/90; 4/23/90.
House Science, Space and Technology Committee / Subcommittee on Transportation, Aviation and Development. 6/9/90.
House Ways and Means Committee / Subcommittee on Health. 4/16/90.


Joint Economic Committee. 4/27/90.

Senate Appropriations Committee. 6/9/90.
Senate Armed Services Committee. 6/6/90.
Senate Armed Services Committee / Subcommittee on Defense Industry & Technology. 4/25/90.
Senate Commerce, Science, and Transportation Committee. 4/27/90.
Senate Environment and Public Works Committee. 4/27/90.
Senate Governmental Affairs Committee. 4/30/90.
Senate Labor and Human Resources Committee. 4/25/90.

Office of Sen. Daniel Inouye. 5/1/90.
Office of Sen. Terry Sanford. 6/6/90.
Office of Sen. Ted Stevens. 4/30/90.

Summary Data on Staff

66% of the participants are committee staff and 34% are personal staff. Also, 54% work in the House, 43% in the Senate, and one for a joint committee.

Participants in the survey are decidedly senior. The mean length of service on Capitol Hill among committee staff interviewed is 11.8 years overall, with 7.2 years in their current jobs. For personal staff, the figures are 6.5 years total on the Hill and 5.5 years in their current positions. The aggregate figures for the group as a whole are therefore:

Mean Length of Service on Capitol Hill: 10.1 years
Mean Length of Service in Current Position: 6.7 years

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90 The office of the Clerk of the House reports that no data are available on overall tenure and attrition of staff. Nonetheless it is reasonable to assume that the mean length of service of congressional staff in general is significantly lower than the value for this sample.
Nature of the Interviews

I asked staff 33 questions in face-to-face interviews lasting 30 to 50 minutes. About two-thirds of the questions required that they select answers from an ordinal scale of choices. About one-third of the questions prompted them for open-ended comments and discussion. Questions were very general in nature, designed to uncover a wide range of issues for further investigation. Questions addressed staff attitudes about the other three congressional support agencies also.

Final Interviews  (11/1/90 - 12/12/90)

These interviews were focused on specific issues of interest at the later stages of my research, and for the most part included staff who participated in the initial round of interviews. Therefore, most of these interviews represented second discussions with staff who had particularly useful experiences and comments to offer.

Participants were given the option of complete anonymity or attribution only to their member's office or their committee.

House Budget Committee: Senior Budget Analyst. 11/1/90.
House Energy & Commerce Committee / Chairman John Dingell: Legislative Director and Chief Counsel. 11/1/90.
House Energy & Commerce Committee: Staff Director. 11/8/90.
House Science, Space and Technology Committee: Chief of Staff. 11/1/90.
House Science, Space and Technology Committee: Study Director, Science Policy Task Force. 11/1/90, 3/15/91 (telephone).
House Science, Space and Technology Committee / Subcommittee on Transportation, Availation and Materials: Minority Science Consultant. 11/1/90.
House Science, Space and Technology Committee / Subcommittee on Natural Resources, Agricultural Rsh, and Environment: Staff Director. 11/7/90.
House Science, Space and Transportation Committee / Subcommittee on Science, Research and Technology: Staff Director. 11/14/90.
House Science, Space and Transportation Committee / Subcommittee on Science, Research and Technology: Professional Staff - Minority. 11/16/90.

Senate Commerce, Science and Transportation Committee / Subcommittee on Science,
Technology and Space. Staff Member. 12/11/90
Senate Energy and Natural Resources Committee: Prof. Staff Member - Minority. 11/7/90.
Senate Energy and Natural Resources Committee: Senior Counsel. 11/14/90.
Senate Environment and Public Works Committee: Minority Counsel. 11/16/90.
Senate Environment and Public Works Committee / Chairman Quentin Burdick: Senior Staff. 11/7/90.
Senate Labor and Human Resources Committee / Sen. Edward Kennedy: Senior Staff. 11/5/90, 11/20/90 (via telephone), 3/7/91.
Office of Senator Ted Stevens: Legislative Director. 11/29/90

Joint Economic Committee: Prof. Staff. 9/24/90

Number of interviews: 19

Average Service on Capitol Hill: 11.2 years

I also interviewed five staff of the House Committee on Rules, and the committee's chair, Rep. Joe Moakley of Massachusetts. I conducted these interviews during November and December of 1990.
PART C. INTERVIEWS AT OTA

Several OTA employees provided on-going information; I met with them repeatedly, sometimes asking just one or two specific questions, sometimes only informally discussing issues while I was in the process of looking at records, and occasionally asking a series of "interview" questions. These employees are:

Jim Jensen, Director of Congressional Affairs
Euginia Ufholz, Congressional Affairs Officer
Martha Dexter, Manger, Information Center

I met with other OTA staff in more structured interview settings as follows:

John Gibbons, Director 1/7/90; 12/11/90; 3/18/91
Skip Johns, Assistant Director 2/27/90; 12/14/90
John Andelin, Assistant Director 2/23/90
Claude Bowen, Dir. of Finance and Admin. 8/26/91 (telephone)
Nancy Carson, Program Manager 3/6/90
Daryl Chubin, Project Director 12/14/89
Bob Friedman, Project Director 3/12/91
Bill Keller, Senior Analyst 12/18/89
Tom McGurn, Retired Administrative Officer 3/12/91
Bob Niblock, Program Manager 2/20/91 (telephone), 3/5/91
Beth Robinson, Analyst 11/16/89
Peter Sharfman, Program Manager 3/29/91 (telephone); now employed at Mitre Corporation.
Bill Westermeyer, Senior Analyst 5/9/90

I contacted the following OTA staff in writing on 4/2/90, asking questions about the influence of OTA reports:

Peter Blair, Program Manager (Energy and Materials)
Jim Curlin, Program Manager (Comm. and Information Technologies)
Bob Niblock, Program Manager (Oceans and Environment)
Rosina Bierbaum, Project Director
Gretchen McCabe, Project Director
Nancy Carson, Program Manager (Science, Education, and Trans.)

I also interviewed the following former directors of OTA, as follows:

Russell Peterson. 12/3/90.
Emilio Daddario. 12/19/90.
PART D. EVIDENCE ON POLITICAL APPOINTEES AT OTA

The presence of political appointees of the House and Senate at OTA was widely recognized in the mid-1970s, but no one has documented who these staff were or for whom they worked. I have gathered the following evidence. In an anonymous interview, an OTA employee identified the following people as Board staff resident at OTA (members' appointees) in 1978:

1. Sen. Ted Stevens  William E. Davis
2. Sen. Clifford Case  William Mills
4. Sen. Ted Kennedy  Ellis Mottur
5. Sen. Hubert Humphrey  J.B. Cordaro
6. Sen. Fritz Hollings  Robert Daly (selected by Hollings but not appointed by him)
7. Sen. Orrin Hatch  Paul Brown

Documentary corroboration is available for only some of these employees. I examined OTA annual reports and project reports for evidence of employment at OTA. I then examined the following sources for evidence of previous or concurrent employment by a member of Congress or committee: the Report of the Secretary of the Senate (RSS), which is available in the Senate Library, the Congressional Staff Directory (CSD), the Report of the Clerk of the House (RCH), also available in the Senate Library, and the BiMonthly Directory of Key Congressional Aides (BDKCA), for the years between 1971 and the point at which the person is listed as an OTA employee.

William E. Davis is listed by OTA as "Technical Staff" for the agency in a 1979 study of access to federal lands in Alaska (OTA 1979a). His previous or concurrent employment by Sen. Stevens of Alaska can not be confirmed in RSS, CSD and BDKCA.


Benton Massell's employment at OTA is confirmed by the agency's March 15, 1975 Annual Report to Congress. No evidence of Massell's employment by Sen. Kennedy is available in the RSS, CSD and BDKCA.

Ellis Mottur was publicly recognized as an appointee of Sen. Kennedy at OTA. In my interviews with him, Mottur discussed the problems that his presence caused the agency. In 1973, Mottur was listed in the Report of the Secretary of the Senate 93rd Cong., 2nd Sess. Sen. Doc. 93-58. as an employee of the Senate Labor and Public Welfare Committee. In 1974 he was listed in OTA's Annual Report to Congress as an OTA employee.
J.B. Cordaro is listed as the project director for a 1976 study (OTA 1976). No evidence exists of his previous employment by Sen. Humphrey in RSS, CSD and BDKCA.

Robert Daly is listed as an OTA employee in the 1976 annual report to Congress. No evidence exists of Daly's employment by Sen. Hollings in RSS, CSD and BDKCA.

Dave Cahn is listed as an OTA employee in the 1977 annual report for Congress, but no verification of this employment by Rep. Wydler of New York is available in the RCH, the CSD, or the BCKCA.

PART E. REFERENCES TO OTA IN THE CONGRESSIONAL RECORD

The Library of Congress Scorpio system has files containing abstracts of the Congressional Record for the 95th - 101st Congresses (CR95 - CR99, r100, r101). These abstracts identify agencies such as OTA by their initials when cited by a member, when the source of insertions in the record, and occasionally when they release reports. I have limited my searches to the H, S, E pages in order to exclude administrative notices in the Daily Digest section.

Number of Citations in the Record

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<th>Congress</th>
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<th>CBO</th>
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Averages for 97th - 101st Congress (1981-1990)
OTA 17 (9/year)
OMB 176 (88/year)
CBO 78 (39/year)
GAO 347 (174/year)

Note that under clause 2 of House Rule XXIV, "Executive Communications" are reported in the Congressional Record, and among these are occasionally transmittals of agency reports. Not all reports release by congressional agencies show up there, so this is a very incomplete record. Nonetheless, because of the great difference in size and annual output between OTA and, say, GAO, some of the disparity in citations in the record is
attributable to report releases. But a review of these citations indicates that much of the
difference is accounted for by genuine differences in references to the agencies by
members in their statements and insertions.
PART F. CALCULATIONS

Difference of Proportions Test for Committee and Personal Staff Responses in Chapter III.

Data:  Number of Committee Staff $N_1 = 23$
       Percent Answering "Early" $P_{s1} = 96%$

Number of Personal Staff $N_2 = 12$
       Percent Answering "Early" $P_{s2} = 83%$

Hypothesis: Proportion answering "early" is the same in each group.
Test Statistic:

\[ Z = \frac{P_{s1} - P_{s2}}{\sqrt{\frac{P_{s1}(1 - P_{s1})}{N_1} + \frac{P_{s2}(1 - P_{s2})}{N_2}}} \]
\[ \sigma = \sqrt{\frac{P_{s1}Q_{s1}}{N_1} + \frac{P_{s2}Q_{s2}}{N_2}} \]  
\[ p_{s1} = \frac{N_1P_{s1} + N_2P_{s2}}{N_1 + N_2} = \frac{23(96) + 12(83)}{35} = .92 \]
\[ \sigma = \sqrt{(92)(1-.92)} = .27 \]

So, $\sigma_{P_{s1} - P_{s2}} = (36)(.27)$
\[ = 9.96 \]

Therefore,
\[ Z = \frac{.96 - .83}{.96} = 1.345 \]

Significance: Probability of $Z = 1.354$ if Hypothesis is correct $= 0.089$
Not Significant at .05 level: Hypothesis is correct.
(Note that this is significant at .10 level.)

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Nominal - Real OTA Budget Growth Conversion for Chapter V.

Source:


Change in Consumer Price Index for All Commodities:
Where 1980-1982 = 100:
1975 = 53.8%
1987 = 113.6%
1988 = 118.3%
estimate 1990 = 123%

DATA

OTA Budget 1974 in 1974 $: 4.0M
OTA Budget 1980 in 1980 $: 11.0M
OTA Budget 1990 in 1990 $: 20.0M

Convert 20M (1990$) into Base Dollars: 20M/1.23=$16.26M

Change: 16.26M/7.435M = 2.187 = 219% for '75-'90 (119% Growth)
11M/7.4M = 1.486 = 149% for '75-'80 (49% Growth)
16.26M /11M = 148% for '80-'90 (48% Growth)

Note average annual growth for 1980-1990 = 4%
\[(1.04)^{10} = 1.48\]
PART G. Legislative Chronology for the Office of Technology Assessment Act of 1972


Mar. 7 1967 H.R. 6698, a bill to create a technology assessment board is introduced in the House. Bill calls for a five-member board appointed by the President with Senate advice and consent, and a twelve-member advisory council also appointed by the President.

Sep. 21-22 Science, Research and Development Subcommittee hold seminar on technology assessment.

Aug. 1969 Three related to technology assessment, commissioned by the subcommittee, are completed. The studies are performed by the National Academy of Sciences (Technology: Processes of Assessment and Choice), the National Academy of Engineering (A Study of Technology Assessment), and CRS (Technical Information for Congress). The subcommittee holds a seminar on the studies in Andover, NH.

Nov. 18, 24 1969 Subcommittee hearings on technology assessment.

Dec. 2-4, 8, 12 1969 Subcommittee hearings on technology assessment.

Mar. 13, 14 16, 17 1970 Subcommittee hearings on technology assessment (San Francisco).

Apr. 16 1970 H.R. 17046 introduced. Bill calls for the creation of the "Office of Technology Assessment," with a thirteen-member board (2 Senators, 2 Representatives, Comptroller General, Director of CRS, and seven Presidential appointees) and a director.


Jun. 2, 3 1970 Subcommittee hearings on H.R. 17046 (Webster Groves, Missouri).

Jul. 15 1970 H.R. 18469 introduced to replace H.R. 17046. Presidential appointees reduced to six from seven, director made a board member, and specific functions assigned to GAO and CRS.

Jul. 19 1970 Senator Allott and five co-sponsors introduce S.4085, a companion to H.R. 18469. It is referred to the Rules committee, where no action is taken.

Sep. 16 1970 H.R. 18469 offered as amendment to Legislative Reorganization Act of 1970 and ruled not germane on a point of order.


Jun. 10 1971 Davis's subcommittee reports H.R. 3269. The full committee amends the bill and renumbers the "clean" version H.R. 10243.

Jul. 19 1971 S. 2302, identical to H.R. 10243 is introduced in the Senate.

Sep. 1970 House Committee on Science and Astronautics reports H.R. 18469.

Jul. 22 1971 House Science Committee reports H.R. 10243.

Feb. 8 1972 H.R. 10243 passes House with a floor amendment on a roll call vote: 256 yeas, 48 nays, 57 not voting. The amendment, by Representative Jack Brooks, calls for a board of ten members of Congress.

Mar. 2 1972 Senate subcommittee on Computer Services of Rules Committee holds hearings.
<table>
<thead>
<tr>
<th>Date</th>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep. 13</td>
<td>1972</td>
<td>Senate Rules Committee unanimously reports H.R. 10243, with an amendment in the nature of a substitute</td>
</tr>
<tr>
<td>Sep. 14</td>
<td>1972</td>
<td>H.R. 10243, as amended, passes the Senate on a motion.</td>
</tr>
<tr>
<td>Sep. 18</td>
<td>1972</td>
<td>House asks for a conference on the Senate-amended bill.</td>
</tr>
<tr>
<td>Sep. 19</td>
<td>1972</td>
<td>Senate agrees on the a conference.</td>
</tr>
<tr>
<td>Sep. 21</td>
<td>1972</td>
<td>The conference agrees on the Senate version of the bill, with minor changes.</td>
</tr>
<tr>
<td>Oct. 13</td>
<td>1972</td>
<td>President Nixon signs the bill.</td>
</tr>
<tr>
<td>Oct. 17</td>
<td>1972</td>
<td>OTA's board of directors named by the leadership of each chamber.</td>
</tr>
</tbody>
</table>


House.


Daddario, Emilio. 1975. Speech before Associates Program, UCLA School of Engineering, June 27. OTA Archive AC# 74.


Fuqua, Donald. 1972. Statement in the Congressional Record, 92nd Congress, 2nd Session (February 8):3209.


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