How Are Politicians Informed? Witnesses and Information Provision in Congress*

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Abstract

How are politicians informed and who do politicians seek information from? The role of information has been at the center for research on legislative organizations but there is a lack of systematic empirical work on the information that Congress seeks to acquire and consider. To examine the information flow between Congress and external groups, we construct the most comprehensive dataset to date on 74,082 congressional committee hearings and 755,540 witnesses spanning 1960-2018. We show descriptive patterns of how witness composition varies across time and committee, and how different types of witnesses provide varying levels of analytical information. We develop theoretical expectations for why committees may invite different types of witnesses based on committee intent, inter-branch relations, and congressional capacity. Our empirical evidence shows how certain institutional conditions can affect how much committees turn to outsiders for information and from whom they seek information.

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1 Introduction

How are politicians informed and who do politicians invite to provide information in the policymaking process? Members of Congress work in complex environments, are time constrained, make decisions that have important and potentially far-reaching consequences, and are constantly pressured to act (Baumgartner and Jones 2015; Curry 2015). In this environment, information is one of members' most important strategic needs and tools as they consider legislation (Krehbiel 1991). Members may need information about the importance of problems that they are asked to address (Baumgartner and Leech 1998; Kingdon 1981). Additionally, members may also require information about the likely impact, effectiveness, or unintended consequences of policy proposals on their constituents (Krehbiel 1991; Baumgartner and Jones 1993) and reelection chances (Hansen 1991; Arnold 1990).

Corporations, think tanks and other groups seek to influence legislators through the provision of information. Members' desire for information thus serves as an opportunity for external groups to enter and gain influence. Providing information as a form of lobbying has long been characterized in the formal theory literature (Austen-Smith 1993; Lohmann 1995; Schnakenberg 2017), and is also a key factor in understanding the strategic behaviors that Congress exhibits when it comes to controlling the bureaucracy and the issues of delegation (Banks and Weingast 1992; Gailmard and Patty 2012; Turner 2019).

Despite the vast theoretical attention paid to the role of information in legislative organization and interactions between legislators and external groups, there is a lack of systematic empirical work on the information that Congress seeks to acquire and consider. Who do members of Congress seek information from, and how does the content of the information vary by the identity of information providers? How do institutional conditions such as divided government and congressional capacity affect information acquisition? Exploring these questions empirically is essential to understanding the role of information in legislative institutions and how effectively members enact policies (Volden and Wiseman, 2014).

While there are various avenues through which Congress can collect information, committee hearings and the corresponding witness invitation process present a unique, observable setting that reveals the specific external individuals and information that members of Congress have selectively sought to consider and convey to other members, interest groups, the media, and voters during the committee process. We leverage these facts and use witness testimony to examine the information-seeking behavior of Congress.

In this paper, we present the most comprehensive analysis to date of the information flow between Congress and external groups by examining the types of witnesses that committees invite from 1960-2018 and the conditions under which committees turn to some types of witnesses more than others. First, we introduce our data and describe witness invitation patterns across 74,082 hearings and 755,540 witnesses who testified in Congress during the 58-year period of our data. We classify witnesses' organizational affiliation into 18 types (such as bureaucrats or labor unions) to capture who Congress invites. We provide descriptive patterns that track the variation in witness composition across time, by committee, and by party in the majority. In addition, we show descriptive patterns of how the content of witness testimonies can vary by their affiliations by using House hearing transcripts for a subset of our time period.

Given these patterns of how the witnesses who testify in front of committees can vary, understanding what can influence the invitation patterns of different types of witnesses is especially of interest. We focus on three categories of explanatory factors which can affect a committee's strategic behaviors in inviting external witnesses: committee intent, inter-branch relations, and congressional capacity. Committee intent—to hold a hearing to explore a potential legislation or consider a specific bill—captures the committee's need for particular types of information. Inter-branch relationships that are determined by whether the majority party in Congress differs from the party of the president captures the committee's incentive in how much information the committee seeks out from executive branch. Congressional capacity such as the size of the supporting congressional organizations cap-

tures the committee's ability to invite external witnesses. We develop theoretical arguments for why committees may invite different types of witnesses for legislative hearings based on these three categories of institutional conditions and use our comprehensive dataset to provide empirical evidence.

First, our results show that committees invite different types of witnesses at different rates based on committee's intent: committees turn to think tanks, universities, bureaucrats at higher rates for hearings without a bill—when committees are using hearings to learn about an issue area or to produce a potential legislation—and pivot to invite witnesses from mass-based groups such as labor unions, trade associations, and membership associations at higher rates for hearings on a specific bill—when committees are using hearings and witness testimonies to assess the likely impact of the legislation and build a case for the bill under consideration.

Second, committees' incentives in managing the inter-branch relationship also has a significant impact on witness invitation patterns. We find that during periods of divided government, committees invite relatively lower rates of bureaucrats to testify and instead invite relatively higher rates of witnesses from think tanks, universities, and from within Congress itself. Furthermore, we find that this result is particularly pronounced when hearings are held on issues that the president prioritizes, compared to when hearings are held on issues that the president does not prioritize. These results are substantively important especially considering how the existing literature has characterized bureaucrats' advantages in information and expertise on policy implementation vis-à-vis Congress (Gailmard and Patty, 2012). Our findings provide evidence for how committees limit the amount of expert information from an executive branch favorable to the opposing party's president and, instead, open a door to external groups such as think tanks and university researchers to compensate for the relative loss of information from bureaucrats (Banks and Weingast, 1992).

Third, to examine how congressional capacity influences witness invitation patterns, we examine how the 1995 reform by a new Republican majority in the House, which downsized

the internal resources of Congress, affected the information acquisition behavior of committees. Using a difference-in-differences design, we show how the elimination of the Office of Technology Assessment (OTA)—a supporting agency which provided advice to Congress on emerging technologies and other scientific matters—drove committees to change their behavior in how much and from whom they seek external information. We find that committees who relied most on internally-produced information within Congress suffered a drastic drop in the number of technical and scientific witnesses they could manage to invite in the wake of the OTA elimination.

Broadly, this article makes three notable contributions. We construct the most comprehensive database to date on congressional committee hearings and witnesses who appear before Congress; our data not only greatly expands the year coverage of hearings and witnesses, but also provides valuable data such as the individual affiliations and types of these witnesses. In addition, while there has been ample theoretical attention devoted to the role of information in legislative organization and behavior, our findings fill a gap by providing empirical evidence on how institutional conditions can affect how much legislatures turn to outsiders for information and who in particular they turn to. Lastly, and more generally, this paper pushes forward our understanding of how external groups seek to influence legislators through the provision of information at congressional hearings. By documenting which external groups get invited and whether the type of information varies by group affiliations, our research highlights the potential role of external groups in shaping legislative processes.

The next section provides a primer on congressional hearings and witnesses, followed by introducing our new dataset on witnesses for the period 1960-2018 and presenting key descriptive statistics on the witenss invitation patterns and the variation in the type of information they provide. We then present theoretical arguments for how certain institutional conditions—committee intent, inter-branch relations, and congressional capacity—affect who Congress decides to invite as witnesses and provide empirical evidene for our theoretical ex-

pectations. The final section discusses the implications of the findings and suggest future work.

2 A Primer on Congressional Hearings and Witnesses

The committee stage is a prime market for information. The importance of hearings during the committee stage has been noted by the congressional literature (Oleszek, 1989; Deering and Smith, 1997), and has been the setting of previous studies on communication and information flow among legislators, interest groups, and bureaucrats (e.g. Leyden 1995; McGrath 2013). Previous research and case studies have shown how legislative outcomes and the content of bills have been affected by the information that is aired and discussed at committee hearings (Burstein, 1999), and by conflicts among witnesses' testimonies about issue framing during committee hearings (Baumgartner and Jones, 1993). Furthermore, interest groups have been shown to be particularly interested in providing information at the committee stage (Leyden, 1995).

Congressional committees hold these hearings to carry out their work. Namely, committee hearings are held for one of four purposes: (1) to collect information and opinions on legislation, (2) to conduct oversight on executive agencies, (3) to investigate events, and, in Senate committees, (4) to consider presidential nominations as part of confirmation processes (Heitshusen 2017). In any type of committee hearing, members from both the majority and minority parties are given the chance to make statements, ask questions, debate opinions, invite outside witnesses to testify, and question outside witnesses about the topics at hand. In general, hearings provide an opportunity for committee members to engage with external witnesses as members collect information, discuss ideas, and formulate policy. Witnesses who appear in Congress only appear in front of congressional committees; there are no witnesses who testify on the floor.

Members during the committee stage are thus faced with the decision of who – which witnesses – to invite to testify and provide information. Committee members, with their committee staff, will identify potential witnesses for a hearing (Heitshusen, 2017; Davis, 2015). There is no limit to the number of witnesses that may be invited.[1] During the consideration of potential witnesses, the committee members of the majority party may weigh in on the selection of witnesses and provide recommendations to the chair, though the chair possesses the gatekeeping power over which witnesses ultimately get invited to testify. Since 1970, the minority party's committee members have been granted protection by chamber rules to call their own witnesses of choice on at least one day of each hearing.

In some cases, witnesses are selected to represent various reasonable points of view; in other cases, witnesses are selected to represent a specific point of view (Heitshusen, 2017; Davis, 2015). When choosing witnesses, committees are faced with making various choices, such as how many witnesses to invite, or what types of witnesses to invite. When thinking about what types of witnesses to invite, witnesses can vary by numerous characteristics, such as gender, ideological leaning, expertise in the issue area, etc. While there can be an unending list of characteristics that can describe witnesses, many salient characteristics may not be known for certain or available to a committee when they are inviting witnesses, such as precise knowledge of a witness' ideology.[2] However, one clear, salient, and easily accessible characteristic for committees to use is a witness' organizational affiliation (e.g., corporations, labor organizations). In the existing literature, organizational affiliations (e.g. business interests or membership organizations) have been used to characterize groups present and active in the political process (Yackee and Yackee 2006; Schlozman et al. 2015). Although there is

[1]Witnesses who receive invitations are often eager to testify, but if not, committees can exercise their congressional subpoena power to compel a specific witness to testify (Davis, 2015).

[2]The ideology of external groups has received vast theoretical attention in the literature of legislative organization and lobbying (e.g., Kollman 1997). While witness ideology may be of interest to scholars, the ideology of witnesses is difficult to determine accurately and systematically across our extensive dataset. Although the ideologies of witnesses could be extracted by using data based on campaign contributions (Bonica, 2016), not all witnesses or witnesses' organizational affiliations have made political donations that would be necessary to be ideologically scored. This limitation will result in significant missing data issues if we focus on the ideology as a key characteristic of witnesses.

variation in the resources and opinions within the same affiliation type, affiliation types can be a good proxy for the overall composition and diversity of the invited witnesses from the perspective of the committees.

Thus, while the process for inviting witnesses is rather straightforward, there can be a variety of factors that can affect which witnesses – from which types of affiliations – are ultimately invited to testify and appear before committees, which we expand upon in Section 4. In the next section, we describe our comprehensive dataset and start with descriptive patterns to illustrate what witness compositions in Congress have looked like.

3 New Data on Congressional Hearings and Witnesses

In order to investigate how institutional factors influence who committees invite to testify, we constructed a new dataset on congressional committee hearings and witnesses from 1960 to 2018. This data was collected from ProQuest Congressional through web-scraping techniques. The dataset includes full names of the 755,540 witnesses who appeared in 74,082 hearings of the House, Senate and Joint standing committee hearings during this period and their organizational affiliations. For each hearing, we extracted the following hearing-level information: title, date, the name of the committee that held a hearing, summary of hearing contents, and any bill numbers considered in each hearing.

Compared to the existing data on congressional hearings used by scholars, our database will be the most comprehensive in terms of both the year coverage and the breadth of information.[3] Although some extant literature has analyzed witnesses who testified in a small selection of hearings in a limited period of time (e.g., Leyden 1995; Flemming, MacLeod, and Talbert 1998), the congressional scholarship has never systematically built a complete, extensive dataset on witnesses who testified in committee hearings.

[3]For example, the data on congressional hearings as part of the Policy Agendas Project (PAP) start from 1970 and do not provide any information about witnesses. See more at https://www.comparativeagendas.net/

Based on the raw data we have collected, we further processed the data by constructing key variables that capture witnesses' characteristics. Our key interest is the witnesses' affiliations. As stated previously, affiliations have been used to characterize groups in the political process, and other characteristics such as ideology or expertise on issues are either difficult to measure or unavailable for an extensive set of witnesses. Therefore, we focus on the affiliation of witnesses, which provide a good approximation for the types of external groups that are invited to congressional hearings. We classified witnesses' affiliations into the 18 types. Table 1 presents the 18 types, percentage of each type in our dataset, one example of a witness affiliation (or title) in each type, and the 9 broader parent categories of the 18 different types that are used for graphical presentation of our data later.

This classification was a careful procedure: a) first, we constructed a list of affiliations of potential witnesses based on existing data from five different sources which we explain in more detail in the next paragraph, then b) assigned one of our predetermined categories to each organization or job category, and finally c) merged the list to our new dataset on witnesses by matching the affiliations from both sides of the data. This process involved both automated match and extensive manual cleaning. It results in a dataset that, for the first time, systematically catalogs the organizational affiliation of every witness who has testified in Congress from 1960-2018.[4]

There are five sources from which we retrieved the list of organizations, groups and federal bureaucratic agencies to use in the above procedure. First, we extracted names of clients and lobbying firms from the Lobbying Disclosure Act (LDA) data available at LobbyView.org (Kim 2018). Second, we retrieved a list of organizations or employers of political donors from the Database on Ideology, Money in Politics, and Elections by (Bonica 2016). Third, we collected a list of departments and agencies of the federal bureaucracy from the Office of Public Management (OPM). Fourth, we also utilize the Washington Representatives Di-

[4]There are 23,519 out of 755,540 witnesses (3.1%) who have missing affiliation information. These cases are when the witness information only includes names of witnesses without further information. There is no systematic patterns of missingness in the affiliation type by year or committee.

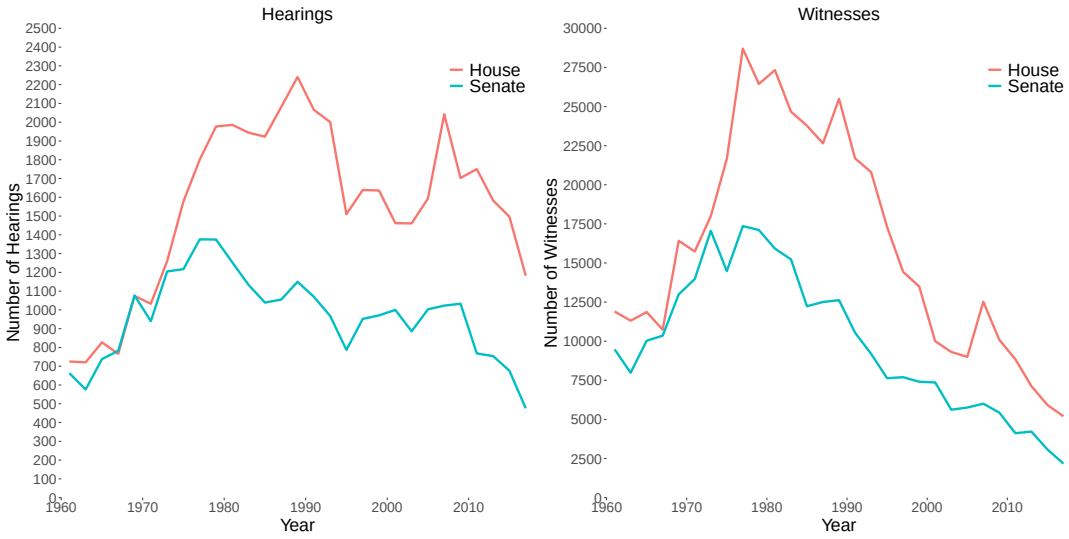
Table 1 – Types of Witness Affiliation

Type	Composition (%)	Example	Category
Agriculture	1.64	American Farm Bureau	Business
Corporation	8.85	Ford Motor Co.	Business
Trade Association	6.48	Chamber of Commerce	Business
Bureaucrat	24.98	Department of Defense	Bureaucrat
Congressional	8.85	Congressional Budget Office	Congressional
State&Local Government	10.56	Mayor	Local Gov
(K-12) Educational	1.06	Superintendent	Local Gov
Think Tank&University	8.45	MIT	Research
Membership Association	9.44	Veterans of Foreign Wars	Membership Assoc.
Non profit	7.52	Environmental Defense Fund	Nonprofit
Labor Union	2.29	AFL-CIO	Labor
Judicial	0.94	District Court	Other
Lawyers&Lobbyists	1.33	American Bar Association	Other
Healthcare	1.66	American Hospital Association	Other
Native American	1.24	National Congress of American Indians	Other
Religious	0.60	US Catholic Conference	Other
Citizen	2.77	Resident	Other
International	0.39	World Bank	Other
Total Number of Witness	732,021		

rectory which includes organizations that are active in Washington DC politics. Lastly, we collected a list of foreign governments from the Correlates of War Project. Together, these five datasets identified 1,063,223 unique names of the groups with which witnesses can be potentially affiliated.

In addition, we constructed committee-level variables, explained in a later section, and merged them to our dataset on witnesses. Next, we classified hearings into three types: legislative, oversight or investigative, and nomination hearings.[5] Lastly, we merged issue areas of each hearing from the Policy Agendas Project database on congressional hearings.

Figure 1 – Number of Hearings and Witnesses in Congress Over Time



Notes: The left figure shows the total number of hearings held by congressional committees in each two-year Congress in each chamber. The right figure shows the total number of witnesses who have appeared in committee hearings in each two-year Congress in each chamber. Each Congress is plotted by its first year.

3.1 Descriptive Statistics: Witness Compositions

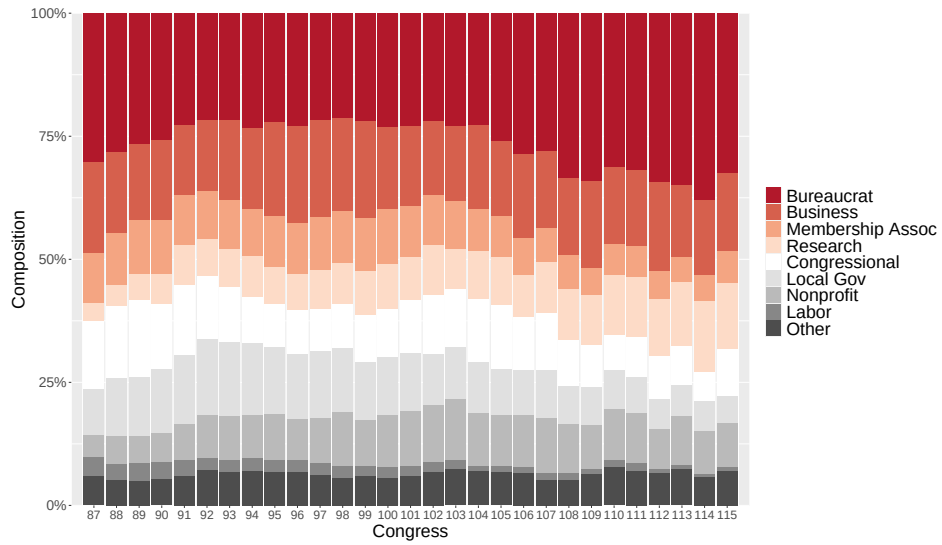
Our new dataset shows that the number of witnesses who appear in Congress varies significantly over time. Figure 1 illustrates the total number of witnesses who have appeared in each two-year Congress in each chamber from 1960 through 2018, as well as the number of hearings held by committees in each two-year Congress. A couple of main patterns emerge. First, the peak in the number of witnesses occurred in the 1970s, where the number of external witnesses topped out at 29,665 in the 95th House (1977 through 1979) and 17,027 in the 93rd Senate (1973 through 1975). This is likely in accordance with the increase in the number of subcommittees that resulted from the Subcommittee Bill of Rights in 1974; an increase in the number of subcommittees likely increases the number of hearings held and thus

[5]We identify nomination hearings as hearings that considered a nomination. For oversight or investigative hearings, we follow McGrath (2013) and classify non-nomination hearings as oversight or investigative if the PAP's description of that hearing contain one or more of the following words: "oversight," "review," "report," "budget request," "control," "impact," "information," "investigation," "request," "explanation," "president," "administration," "contract," "consultation," "examination." This is the same set of words used to filter for these types of hearings by McGrath (2013). Finally, we classify hearings that are not oversight or investigative, nor nomination hearings, as legislative hearings.

the number of witnesses. These maximums then decrease across time until the minimums seen in most recent years; the number of witnesses in Congress experienced a decline since the 1980s, with around five times fewer witnesses testifying in Congress now than at the peak in the late 1970s.[6] One possible contributor to this is a reform in 1995 that drastically cut the number of subcommittees, which had the opposite effect as the 1974 reform; cutting subcommittees means fewer chances for subcommittee hearings and thus witnesses (Deering and Smith, 1997).

Two other overall patterns between the two chambers can be seen from Figure 1. First, the number of witnesses follows similar trends in the House and the Senate; when the number of witnesses rises [falls] in one chamber, the number of witnesses rises [falls] as well in the other chamber. Second, the number of witnesses in the House for any given year has always been greater than the number of witnesses in the Senate. Finally, while Figure 1 presents the total number of witnesses in each chamber, Figures A1 and A2 in the Appendix present the number of witnesses who have appeared by committee over time.

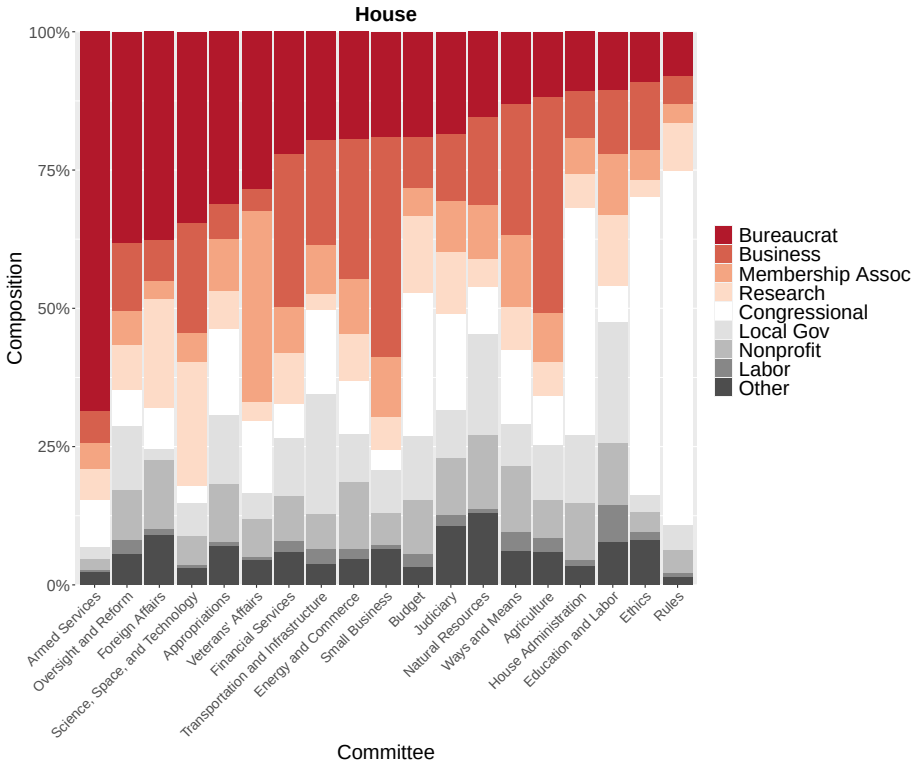
Figure 2 – Witness Affiliations Over Time



[6]While the trend in the number of witnesses does sharply decrease across time, the points seen in the last two years of the graph (2017-2018) do not include all hearings held, as hearings are still not completely made available for the most recent Congresses. For instance, classified hearings that happened in recent Congresses may not yet be declassified (compared to classified hearings that have been declassified across time).

The composition of witness affiliations across time is presented in Figure 2. For illustrative purposes, we grouped the 18 affiliation types we identified through the procedure described previously into 9 parent categories for Figure 2.[7] On the whole, bureaucrats represent the plurality of witnesses at any point in time. Over time, there has a been a gradual increase in the percentage of witnesses from the think tank and research category, and a decrease in the percentage of witnesses from membership associations and local governments.

Figure 3 – Witness Affiliations By House Committee



In addition to these trends across time, interesting variations appear when looking at committee-by-committee descriptive patterns. For instance, Figure 3 shows the average witness affiliations by committee in the House.[8] Immediately, it is clear that committees can differ widely by the type of witnesses they favor. Bureaucrats strongly dominate the presence of witnesses in the Committees on Armed Services, Foreign Affairs, Veterans' Affairs,

[7]Appendix Figures A6 and A7 present trends in the number of witnesses by specific type across time, for the Senate and the House, respectively.

[8]Figure A3 in the Appendix shows the equivalent for Senate committees.

and Government Operations; this is perhaps due to the high administrative focus of these committees. On the other hand, business witnesses command relatively more presence in the Agriculture, Banking, Energy and Commerce, and Small Business Committees, reflecting the tendency of these committees to request information from external sources in these industries.

3.2 Variation in the Content of Witness Testimonies

These descriptive patterns show how the composition of witnesses, in terms of their affiliations, has varied. While witness affiliations may be the clearest, most relevant characteristic of a witness present to committees when they choose witnesses, do affiliations capture meaningful differences in information? In this section, we illustrate one way in how the content of witness testimonies can vary by their affiliation.

The content of witness testimonies can vary in numerous ways; one measure of information that the existing empirical literature has focused on is the amount of falsifiable statements about the policy under consideration. Esterling (2004, 2007) terms this type of information *analytical* discourse, while other scholars have termed this type of information as "policy-analytic knowledge" or "technical information" (Bradley, 1980). This stands in contrast to non-analytical information, for example conveyed in the form of anecdotes or personal information, which other scholars have categorized as "ordinary knowledge" or "experiential discourse" (Esterling, 2007). While non-analytical information is also useful politically, especially for politicians to be able to understand and connect with constituents (Esterling, 2007), it is analytical information that is the necessary input to technical policy development and is the type of information that positive theories have mostly focused on (Krehbiel, 1991). Further, recent scholarly discussion on the declining analytical capacity of Congress adds additional importance to understanding the quantity and quality of analytical information provided by external witnesses (Burgat and Hunt, 2020). Following this, for the purposes of descriptive statistics in this section, we look at the amount of analytical infor-

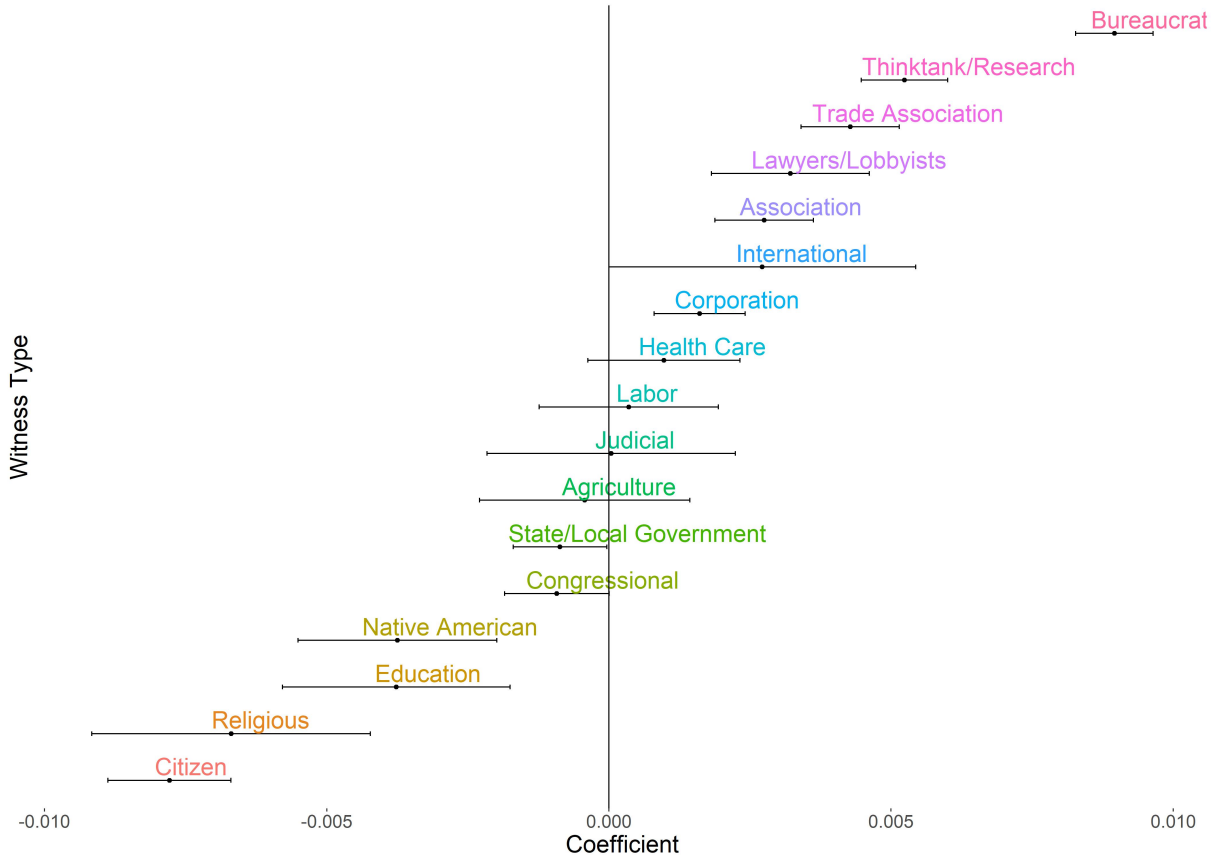
mation present in witness testimonies as a descriptive example of how witness testimonies can vary according to their affiliation type.

To do so, we collected hearing transcripts for the House from the 105th through 114th Congresses from the Government Publishing Office and parsed the transcripts by each statement or speaking instance (including speeches, questions, answers, and other declarations) made by witnesses.[9] In order to measure which types of witnesses tend to provide more analytical information in hearings, we quantify three aspects of witnesses' testimonies: How many words each witness spoke in a hearing; how many keywords which may convey analytical information that each witness used in a hearing; the proportion of these keywords out of all the words that each spoke in a hearing. We take the proportion of keywords as the main variable of interest as it best shows how efficiently a witness conveys analytical information in their testimony. We identify the set of keywords that may contain analytical information in three ways: words related to cognitive orientation from the Harvard IV-4 dictionary, words frequently appearing in information-seeking statements as identified in Park (2021), and any additional word stems that are similar to those in the first two groups. Details on how we identify keywords through these approaches can be found in Appendix Section B.

As we are interested in how witness affiliations correlate with the amount of analytical information present in the witness testimonies, the main independent variables of interest are witness affiliation types. Figure 4 presents the coefficients on witness type fixed effects, from an ordinary least squares regression that predicts the proportion of keywords that a witness uses in a hearing. We include hearing- and committee- level controls, along with issue, committee and congress fixed effects; the full regression model and results are presented in Appendix Table A1. The reference group is set as the witnesses representing nonprofit organizations.

[9]Based on the committee membership assignment data by Stewart and Woon (Stewart III and Woon 2017), committee members' statements and speaking instances in the transcripts are identified by their last names. Similarly, witnesses are identified by their last names based on the witness data we have. Then, we use only the witnesses' testimonies for this study.

Figure 4 – Proportion of Keywords by Witness Type



Notes: Vertical lines indicate 95% confidence interval. The reference group is the witnesses from nonprofit organizations.

The figure shows that bureaucrats and witnesses from think tanks and research institutions tend to give testimonies with the highest proportion of analytical information. On the other hand, individual citizens without an organizational affiliation and those representing religious institutions tend to provide the lowest proportion of analytical information, which seems naturally consistent and lends confidence that our measurement is substantively valid.[10]

There is a clear gap between the types of witnesses who provide the most and least analytical testimonies. Based on Figure 4, the difference between the coefficients for the

[10] Alternatively, when we look at the second model in which the dependent variable is the number of keywords spoken, the top two and bottom two groups remain the same. The coefficient plot for this model is presented in Figure A8 in the Appendix.

Table 2 – Examples of the Most and Least Analytical Testimony

	With the largest proportion of keywords	With the smallest proportion of keywords
Statement	"When projects are authorized, when there is a Chief's Report and the Congress authorizes a project, the economic analysis that is done on that calculates a benefit to cost ratio. And that benefit to cost ratio is based on a 3.125 discount rate. When the Office of Management and Budget evaluates projects for funding, including in the President's budget, that benefit to cost ratio is evaluated at a 7-percent discount rate. So the budgeting discount rate is different from the authorization discount rate that's used."	"When Michael came home that night and I confronted him and was talking to him, he had eye contact like we do now. But when he was sitting on the sofa and nobody was confronting him, he was comatose. He was in the ozone. He was sitting with his mouth hanging open, staring at the floor. I knew that there was something wrong with him that night. I could tell that he had taken something."
Speaker	Jo-Ellen Darcy, Assistant Secretary, Civil Works , Department of Army	Brad Alumbaugh, A parent of drug overdose victim
Type	Bureaucrat	Citizen

bureaucrats and citizens is 0.017. Given that the witnesses in this analysis tend to speak about 1,923 words in a hearing on average, bureaucrats are likely to use 32 more analytical keywords in a hearing on average than ordinary citizens. To further examine whether this difference is noticeable substantively, in Table 2 we provide two sample statements that include at least 50 words. The first one is the statement with the largest proportion of keywords among those made by bureaucrats and the second one is the statement with the smallest proportion of keywords among those made by citizen witnesses. In the first statement, a bureaucrat witness informs the committee members about different discount rates applied at different stages of policy-making and implementation process. On the other hand, in the second statement, a parent of a drug overdose victim explains his anecdotal experience with his son. The contrast between these two statements shows that the difference in the level of analytical information is successfully captured by our measurement. We provide additional, more representative sample statements to confirm this finding in the Appendix Section B, as well as details of a statistical validation with human coders.

The pattern demonstrated in this section shows that not all witness testimonies are the same in the type of information they provide. When examining the relative amount of ana-

lytical statements present in testimonies at hearings, it is clear that committees may receive different amounts of analytical information based on what types of witnesses they invite. This motivates how the composition of witness invitations hold important implications for committees, as not only do witness invitations show who committees select to hear from, but they also signify the different types of information that committees may ultimately receive from witnesses.

4 How Institutional Factors Affect Witness Invitations

The descriptive patterns in the previous section provide a picture of how the witnesses who testify in front of committees can vary. As we are interested in who Congress invites to provide information to produce policy, we focus on legislative hearings. What affects Congress' decision of who to invite to testify and provide information in legislative hearings, and under what conditions can we expect committees to invite more or less of certain types of witnesses? In this section, we present a theoretical framework that incorporates how three categories of explanatory factors can affect the choices of who committees turn to for external information. We characterize the strategic decision of a committee's witness selection as a function of the committee's intent for the hearing, how inter-branch relations politicize the information supply from within the federal government, and the extent to which the internal resources of Congress enable the selection and arrangement of witnesses. This spans three factors that can affect a committee's need (committee intent), incentives (inter-branch relations), and abilities (congressional capacity) in inviting external witnesses. This framework generates three categories of testable predictions regarding how institutional factors affect the composition of witnesses chosen by committees.

Committee Intent. We start with the relationship between committee intent the quantity or types of witnesses. As explained in Section 3, committees may hold legislative hearings at any point in the policy-making process for an issue. A hearing can be held on

a legislative issue without any specific bills under consideration, or a hearing can be held to discuss a specific bill that was introduced and is under consideration. A committee's information-seeking behavior may thus vary based on whether a hearing is to develop a potential bill or if a hearing is on a specific bill.[11] A legislative hearing that is on a topic for potential legislation but does not yet have a specific bill under consideration likely reflects a committee's intent to hold a hearing primarily for *learning* information and may seek information to learn about the issue area or potential legislation. Alternatively, in a hearing on a specific bill, since a committee has already decided to hold a hearing on a specific bill, it is thus more likely to have the intent of *conveying* a specific view, message, or justification for the bill in the hearing. While the committee may still have various intentions in a hearing, we focus on the relative intention. A hearing on a specific bill is likely to be relatively more about strategically using the questions and answers between members and witnesses to inform observers of the hearing (e.g. interest groups, media, lobbyists, other members) of any positions or reasonings for or against the bill, compared to a hearing without a bill attached.

Committees may wish to seek different types of witnesses based on their intent for the hearing; they may change the scope of information they seek and the sources that they invite to testify. When a committee is seeking witness testimony to learn about an issue area or potential legislation, they may wish to seek expert information about the details of what is needed to create policy (i.e. from a narrower set of witnesses that can provide expert information). On the other hand, when a committee is seeking witness testimony to convey a specific view or message about the bill, they may wish to seek information from a wider variety of witnesses, such as groups that are likely to be affected (either positively or

[11] A committee's intent when the committee schedules a legislative hearing is unobservable directly. This is because there is no systematically available information at the time a hearing is scheduled that directly shows what the committee's intent is; this intent is "private" information. Any content of the hearing also cannot be used to gauge the committee intent as that would be post-treatment. To gauge committee intent, then, we use a variable that reflects what a legislative hearing's main purpose is – whether a hearing is on a bill or not.

negatively) by the legislation in order to message about the bill or build a case for the bill under consideration. This leads to our first hypothesis:

Committee Intent Hypothesis: Committees will invite a narrower set of witnesses and relatively more witnesses who can provide expert information in legislative hearings without a bill attached compared to legislative hearings on a specific bill. Committees will invite more varieties of witnesses and relatively more witnesses from groups that are likely to be affected by legislation in legislative hearings on a specific bill compared to legislative hearings without a bill attached.

Inter-Branch Relations. Second, we consider whether Congress searches for more (or less) information, and from different sources, when there is divided government versus unified government. Divided government creates issues for legislative control over the implementation process and, thus, Congress has created numerous legislative and procedural solutions to increase its influence on behaviors of executive branch: for one, they can design agencies to be more insulated from the president's influence (Lewis, 2003), or they can write more detailed laws (Huber, Shipan, and Pfahler, 2001) to reduce the discretion delegated to the bureaucracy (Epstein and O'Halloran, 1999).

Congressional hearings are another tool that the legislative majority can employ to exercise control over the executive branch. For example, scholars document that divided government is strongly related to Congress' use of investigative hearings on the executive branch's conduct (Kriner and Schickler, 2016). While Kriner and Schickler (2016) examine investigative hearings in particular, the logic of attempting to manage the power of the executive branch through hearings can be applied to legislative hearings as well. Bureaucrats as witnesses are an important group to consider, as they have been characterized as possessing an informational advantage in policy production and implementation over Congress (Gailmard and Patty 2012; Patty and Turner 2021), and our own descriptive patterns in Section 3.2 reveal that bureaucrats provide the relative highest levels of analytical information. As seen

in the descriptive patterns in Figures 2 and 3, bureaucrats indeed comprise a substantial number of the witnesses that committees call to testify. While there are many career civil servants in the bureaucracy, the president is the head of the executive branch and, additionally, names political appointees who oversee and directly manage career bureaucrats.

The informational advantage and policy expertise that bureaucrats possess – but also the connection between bureaucrats and the heads of the executive branch – raise a strategic question for committee chairs as they consider whether to invite bureaucrats as witnesses for legislative hearings. This becomes especially salient when there are policy disagreements between the legislative and executive branches of the government (and perhaps in particular on issues that the president prioritizes), which is more likely during periods of divided government. Thus, when the majority party in Congress differs from the party of the president, committees are faced with the potential of bureaucratic witnesses representing the opposing party (and bureaucratic officials are faced with the potential of providing valuable information to a Congress controlled by the opposing party). As a result, committees may be more likely to turn to other sources of information, such as other types of witnesses or internal congressional sources. This leads to our second hypothesis:

Inter-Branch Relations Hypothesis: Committees will invite relatively fewer bureaucrats as witnesses in legislative hearings during periods of divided government compared to periods of unified government.

Congressional Capacity. Third, we consider how internal capacity of the Congress affects the witness invitation patterns. Scholars describe congressional capacity as the level of internal resources of Congress, with one main internal resource being internal congressional support agencies. The Congressional Budget Office, Congressional Research Service, Government Accountability Office, and the former Office of Technology Assessment (OTA) make up the set of internal support agencies that were created to serve and assist members and committees in their workflow (Kosar, 2020). In general, these internal support agencies

provide information to Congress that help identify matters that Congress should address and attend to, arm legislators with specialized information, and help rebalance intra-branch information asymmetries (Baumgartner and Jones, 2015).

This form of congressional capacity received a shock in 1995, when the Republicans became the House majority party for the first time since 1952. One of the core agendas of House Speaker Newt Gingrich's "Contract with America" platform was to downsize the government and the legislative branch was not immune to changes. The Republican majority in the House eliminated funding for the Office of Technology Assessment (OTA) and cut resources for the other internal congressional support agencies as part of their 1995 reform.

Congress had created the OTA in 1972 to study emerging technologies and to provide advice to Congress on these technologies and other scientific matters. The information from the OTA, and other internal support agencies, were often routed through congressional committees – an individual member of Congress could not request a study or report from the OTA, but a congressional committee could. As a result, committees that were particularly in need of scientific and technical advance frequently requested information from the OTA, and the OTA acted as a provider of information and a source of expert staffers internally within Congress. Committees who relied on the OTA reported not just the benefit of internal information from the OTA, but also of trusted relationships with OTA staff that helped committees navigate scientific research and sort through the amount of available expertise and competing expert opinions (Tudor and Warner, 2019; Johnson, 2019). Thus, with the elimination of the OTA in 1995, committees who frequently relied on the OTA suffered an immediate cut in internal information and the absence of a group of OTA staffers who liaised between committees and the scientific community.

We examine how the elimination of the OTA in 1995 affected the invitation patterns of external witnesses for committees who had depended on the OTA for information and expertise. On one hand, with the defunding of the OTA, committees that had relied heavily on internal sources of information may increase their efforts in inviting external witnesses,

especially research-based witnesses who can provide technical and analytical information, in order to compensate for the loss of internal information that had been provided from the OTA. This leads to the hypotheses that emphasizes the *substitution* effect for the third factor:

Congressional Capacity Hypothesis 3A: Committees that relied more on the OTA will invite relatively more witnesses from think tanks and research organizations in legislative hearings after the elimination of the OTA.

On the other hand, without the OTA's advice and guidance, those committees may have a reduced capacity to even identify or facilitate the invitation of scientific witnesses on their own. The process of witness selection takes time and resources, especially for the types of witnesses that require relatively more effort to identify, research, and prepare. What's more, the 1995 reform also drastically cut committee staff across all committees.[12] As staffers are integral to arranging witnesses for hearings, sufficient numbers of committee staff may need to be maintained in order to support a committee's search for external information. The elimination of the OTA, along with a substantial cut in committee staff, could result in a more drastic reduction of expert witnesses in the committees that relied more on the OTA, even though demand for those types of witnesses may have increased. This leads to the hypothesis that emphasizes the *amplifying* effect of the loss of congressional capacity:

Congressional Capacity Hypothesis 3B: Committees that relied more on the OTA will invite relatively fewer witnesses from think tanks and research organizations in legislative hearings after the elimination of the OTA.

[12]Figure A10, which presents the patterns of committee staffing in each standing committee in the House across time, shows that there were sharp declines in the number of committee staffers across the board.

5 Empirical Evidence

In this section, we provide empirical evidence for the theoretical intuitions on how institutional conditions affect the patterns of witness invitations. To do so, we focus on legislative hearings in the House of Representatives.

5.1 Committee Intent and Witness Invitations

We investigate the effect of committee intent on witness invitation patterns by examining how the quantity of witnesses and composition of witnesses at a legislative hearing vary based on whether the committee intends to use the hearing relatively more to *learn* information about an issue area or relatively more to *convey* information to produce a message or justify a position on an issue, as previously discussed.

We use the following regression and ordinary least squares estimation:

$$Y_{hict} = \beta \text{Hearing Characteristics}_{hict} + \gamma \text{Committee Characteristics}_{ct} + \alpha_i + \alpha_c + \alpha_t + \varepsilon_{hict}$$

where the subscripts indicate hearing h, committee c, issue i, and congress t.[13] The outcome variable Y_{hijt} will measure (1) the quantity of witnesses and (2) the diversity of witness types present at a given hearing, along with the percentage of witnesses from each affiliation type present at the hearing. *Hearing Characteristics* contain the main hearing-level variable of interest that proxies the committee's intent in the hearing: whether the hearing had a bill attached to it. Besides this key explanatory variable, we also include control variables such as *Subcommittee* (which equals 1 if the hearing was held at the subcommittee level, and equals 0 otherwise). We include fixed effects by committee, issue, and congress. While we use a committee level fixed effect, we also include committee-level control variables in *Committee Characteristics*$_{ijt}$ such as the total number of committee members and the absolute difference

[13]The issues j represent the 21 major topics from the Policy Agendas Project.

in DW-NOMINATE scores between the committee chair and the floor media, as they may be of interest in the estimated results.[14] Standard errors are clustered at the committee level.

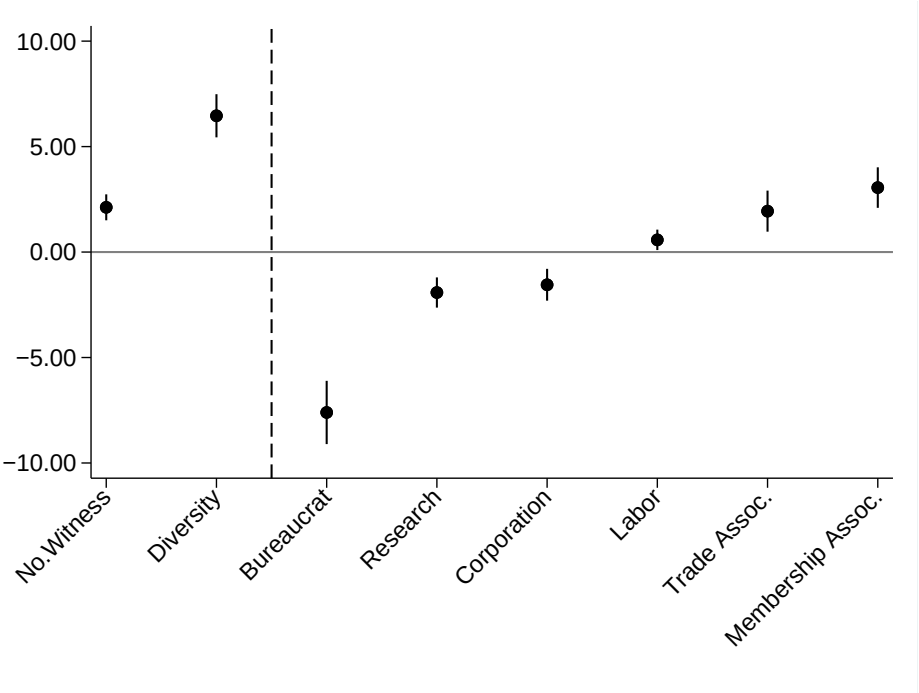
Figure 5 presents the coefficient plots for the selected outcome variables of interests when a hearing considers a specific bill.[15] The outcome variable "No.Witness" is the number of witnesses invited to testify at the hearing. When hearings consider a specific bill, committees tend to invite more witnesses. The outcome variable "Diversity" represents the diversity of witness types and is based on the Herfindahl index of the witness types that are present in a given hearing: for the eighteen possible witness types, we calculate each type's share of the total number of witnesses in a given hearing and sum the squares of these shares. For ease of interpretation, we take 1 minus this Herfindahl index in order to create our outcome variable, such that a higher value will indicate more diversity in witness types in a hearing, and a lower value indicates less diversity. The results in Figure 5 show that hearings which consider bills tend to invite more witnesses, and a higher diversity of witnesses, compared to hearings that are held without specific bills attached.

Which types of witnesses are invited more often during hearings without a bill compared to during hearings with a bill when there is already a specific bill developed? These types of witnesses are the ones with a negative significant coefficient in Figure 5. First, the share of one type of witness, bureaucrats, is of interest due to their particular knowledge about policy production and needs (Bendor, Taylor, and Gaalen 1987; Gailmard and Patty 2012; Patty and Turner 2021) and higher levels of analytical information (as we illustrate in Section 3.2) that they can bring to committees. While we will investigate how partisan control of government affects the presence of bureaucrats in committee hearings in the next section, here, we show that the relative frequency of bureaucrats is related to the committee's intent in hearings. The results show that committees tend to seek out bureaucrats – their analytical

[14] Additional committee-level time-varying controls are the absolute difference in the DW-NOMINATE score between the Democrats and Republicans in the committee, and the absolute difference in the DW-NOMINATE score between the committee median and floor median.

[15] Table A2 in the Appendix presents the results that investigates the effects of hearing characteristics on witnesses.

Figure 5 – The Effect of Hearing Considering Specific Bills on Witness Invitations



Notes: Each plot indicates the regression coefficient for each outcome measure (x-axis). Y-axis shows the regression coefficients; "No. Witness" is the number of witnesses, "Diversity" is the Herfindahl index, and the others are the percentage shares of witnesses. The groups not shown in the plot have coefficients that are not statistically significant. The plots are presented with 95% confidence interval.

information and expert information about policy production and needs – more often when committees are not considering a specific bill, compared to when committees already have a specific bill developed.

Second, the results also show that committees invite relatively more witnesses from think tanks or universities ("Research") for hearings without a specific bill attached compared to hearings on a specific bill. Think tanks and universities are of interest as well due to the potential information they can bring to committees – they represent a relatively credible source of information. While think tanks and universities can certainly be politically motivated or biased, when compared to other witness types (such as witnesses from corporations or trade associations), the research from think tanks and universities hold relatively more scientific weight due to their connections to academic research. The result in Figure 5 shows

that hearings without a specific bill attached have a higher proportion of witnesses from think tanks or universities compared to hearings held on a specific bill already developed. This result, then, points to congressional committees seeking out and obtaining relatively more information from think tanks and universities at the development stages of the policy-making process rather than at later stages when a specific bill is at hand. This holds true for witnesses from corporations as well. Committees also tend to seek out information from corporations more during hearings without bills than during hearings with bills attached.

The opposite, however, is true for witnesses from labor unions, trade associations, and membership associations. Witnesses from these mass-based groups are more likely to be invited and testify during hearings with bills attached, compared to hearings without bills (positive significant coefficients in Figure 5). This suggests that once committees are further along in the policy-making process and are deliberating a specific bill, they are more interested in requesting information from witnesses who represent those who will be impacted by the legislation.

5.2 Inter-Branch Relations and Witness Invitations

We investigate the effects of inter-branch relations on who committees turn to for information by examining how witness invitation patterns differ during periods of divided government (when the majority party in the House is different from the party of the president) compared to periods of unified government. We use the following regression and ordinary least squares estimation:

$$Y_{hict} = \beta \text{Hearing Characteristics}_{hict} + \gamma \text{Committee Characteristics}_{ct} +$$

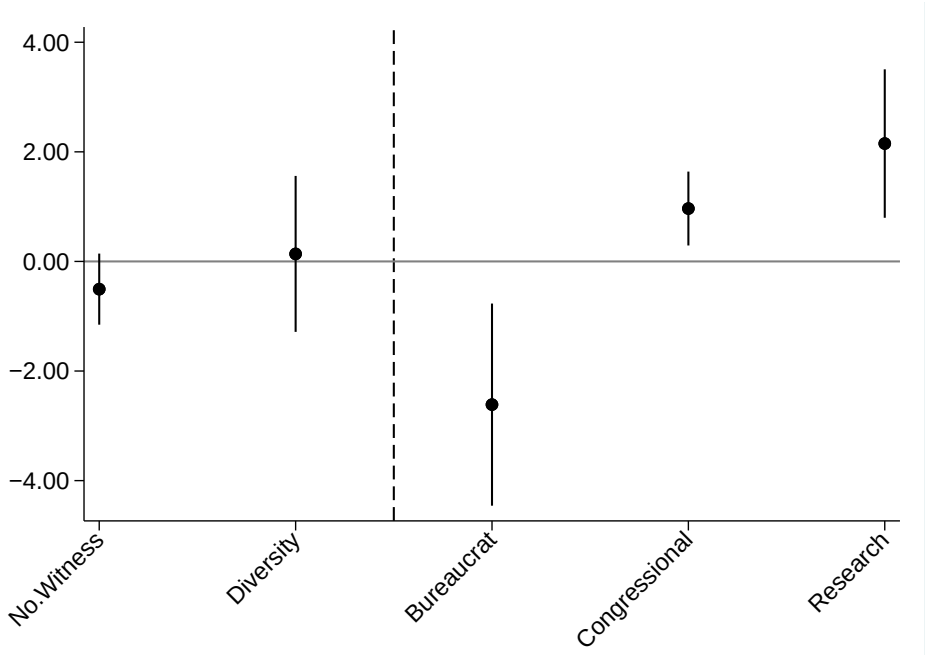
$$\delta \text{Congress Characteristics}_{t} + \alpha_i + \alpha_c + \alpha_p + \varepsilon_{hict}$$

where the subscripts indicate hearing h, issue i, committee c, congress t, and president p. *Congress Characteristics* includes *Divided Government* and *Democratic Majority*. The main explanatory variable *Divided Government* equals 1 when the majority party in the House is

different from the party of the president and equals 0 otherwise. *Democratic Majority* equals 1 when the Democratic Party is in majority of the House and equals 0 otherwise (when the Republican Party is in the majority). Both *Divided Government* and *Democratic Majority* are at the congress-level; in order to estimate the effects of these variables that vary by congress, we include president fixed effects (α_p). Committee-level and hearing-level control variables (i.e. the number of witnesses in a hearing) are included as controls, as previously. The outcome variable Y_{hijp} will measure the percentage of witnesses in a given hearing that are from an affiliation type.

We present the coefficient of estimating the effect of *Divided Government* variable on a selected set of outcome variables in Figure 6. The full results, including outcomes of all affiliation types and all control variables, are presented in Appendix Table A3.

Figure 6 – The Effect of Divided Government on Witness Invitations



Notes: Each plot indicates the regression coefficient for each outcome measure (x-axis). Y-axis shows the regression coefficients; "No. Witness" is the number of witnesses, "Diversity" is the Herfindahl index, and the others are the percentage shares of witnesses. The plots are presented with 95% confidence interval.

Figure 6 shows the results of divided government on the invitation patterns of witnesses. Our analysis do not show a relationship between divided government and the number of witnesses invited to testify at a hearing or the diversity of witness types. However, our results do show that there is a negative, statistically significant effect of divided government on the percentage of witnesses that a committee invites from the bureaucracy, compared to periods of unified government. This lends support to the perspective that during divided government, the majority party in Congress differs from the party in charge of the executive branch, and committees (controlled by the majority party in Congress) are faced with the choice of whether to invite bureaucratic witnesses that may represent the views of the opposing party. Specifically, our results show that divided government is associated with a decrease of 2.6 percentage points in the percentage of witnesses who are bureaucrats, a magnitude which represents 7.5% of the mean percentage of bureaucrats who testify before committees. The direction of this finding is of particular note and holds important implications for the information that committees search for and receive during periods of divided government, as our previous results show that bureaucrats are the types of witnesses that, on average, provide relatively higher amounts of analytical information in their testimonies compared to other types of witnesses.

While committees may invite lower rates of bureaucrats to testify before them during periods of divided government, committees compensate for this by inviting higher rates of witnesses from two types in particular. The coefficient plots for "Congressional" and "Research" variables in Figure 6 show that there is a positive, statistically significant effect of divided government on the percentage of witnesses that a committee invites from think tanks and universities, as well as on the percentage of witnesses that come internally from Congress. Divided government is associated with an increase of two percentage points in the percentage of witnesses from think tanks and universities – as the mean percentage of witnesses from this type who appear in hearings is 9.3%, this two percentage point increase represents just over 20% of the mean percentage of witnesses of this type. Likewise, divided

government is associated with an increase of around one percentage point in the percentage of witnesses that come internally from Congress, an effect magnitude which represents 12.5% of the mean percentage of witnesses of that type who appear in hearings.

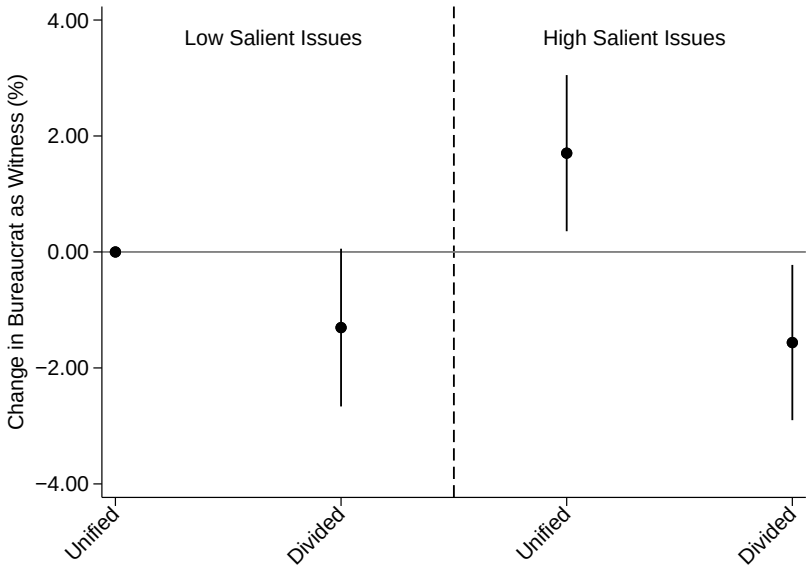
Additionally, we examine further variation into the effect of divided government on bureaucrats as witnesses. We investigate whether a committee's strategic decision to invite bureaucrats as witnesses in congressional hearings also varies by the president's issue priorities. During the divided government, when committees hold hearings on issues that the president prioritizes, the committee chair may be less likely to invite bureaucrats who would represent the viewpoints of the executive branch. To measure the president's issue priority, we use data from Comparative Agenda Project's State of the Union Speeches dataset, following existing work (e.g., Krause and O'Connell 2016; Ballard and Curry Forthcoming). This dataset provides issue information for each statement made during the president's speeches. We aggregate the number of issues by Congress and assign a decile for each issue area to identify the relative issue priorities of the presidents. Then, we merge this information to our hearings dataset in order to determine whether a hearing was held on an issue prioritized by the president.

Figure 7 presents the results.[16] High salient issues refer to the issues that are placed in top 50% and low salient issues refer to the issue that are placed in the bottom 50% in terms of the frequency of the State of the Union addresses in each Congress by the president. When committees hold hearings on issues that the president does not prioritize, there is little difference in terms of the frequency of inviting bureaucrats as witnesses between periods of unified and divided government. However, when committees hold hearings on issues that the president *prioritizes* ("High Salient Issues"), there is a clear diverging pattern: committees invite relatively more bureaucrats into hearings when the majority party in the House and

[16]Table A4 in the Appendix presents the regression results and Figure 7 visualizes the results in column (3). The reference category is a hearing on low salient issues under unified government.

the White House is the same but invite relatively fewer bureaucrats as witnesses when there is divided control.

Figure 7 – The Effect of Divided Government on Inviting Bureaucrats as Witnesses By Presidential Issue Priorities



Notes: Plots indicate the changes in the percent of witnesses who are bureaucrats during unified/divided government, by the president's issue priorities. The plots are presented with 95% confidence interval.

Overall, these findings suggest that during divided government, committees turn relatively less to bureaucrats for information, and instead turn relatively more to think tanks, universities, and internal congressional sources for information. The partisan divide between the House and the executive branch, therefore, may not just result in partisan obstacles for the congressional majority in getting their legislation signed into law, as commonly understood, but also holds implications for who provides more (or less) information that Congress emphasizes and chooses to reveal that they consider during policy-making.[17]

[17]We also examine whether the party in control in the House is associated with witness invitation patterns. As Table A3 shows, having a Democratic majority in the House does not affect the number of witnesses or the diversity of witnesses invited, and does not affect the invitation patterns of bureaucrats, congressional, or witnesses from think tanks or universities. However, a Democratic majority is associated with an increase in the percentage of witnesses from labor unions, and a decrease in the percentage of witnesses from trade associations – supporting the close relationship often ascribed to the Democratic party and labor (Schlozman 2015).

5.3 Congressional Capacity and Witness Invitations

To investigate how the elimination of the OTA in 1995 affected the witness invitation patterns of committees that depended on the OTA, we leverage the fact that committees differed in their reliance on internal information. When analyzing the number of reports that congressional committees requested from the OTA, there is substantial variation across committees. For example, from 1990-1995 (the period for which report request data is available), the House Committee on Small Business requested only one report from the OTA, while the Energy and Commerce and Science, Space, and Technology committees requested 55 reports from the OTA.[18] Certain committees, such as these latter two committees, demonstrate a particular reliance on internal information, compared to other committees who hardly made any use of the OTA and thus do not primarily rely on internally produced information. Thus, we assign Energy and Commerce and Science, Space, and Technology as the group impacted by the treatment – the committees who would be affected by the elimination of the OTA. We estimate the following difference-in-differences model to examine whether witness invitation patterns exhibit distinctive patterns in the treated committees compared to the control group of committees that do not primarily rely on internal information:

$$Y_{hict} = \beta \text{Treated}_c + \sum_{s=1}^{6} \gamma_s \text{Congress}_{100+s} + \sum_{s=1}^{6} \delta_t (\text{Treated}_c \cdot \text{Congress}_{100+s}) + \rho X_{hict} + \alpha_i + \epsilon_{hict}$$

In this equation, Y_{hcit} indicates the outcome measures for witness characteristics at the hearing level (for hearing h, issue i, committee c, in congress t). *Treated* indicates the two House committees that had a strong reliance on internal information: the House Energy and Commerce Committee and the House Committee on Science, Space, and Technology. The variable *Congress* captures the lead time periods from the 100th Congress (1987-1988), which is the reference congress. The main variable of interest is δ_t, which indicates whether there were any significant differences in the witness invitation patterns between the treated

[18] Figure A9 in the Appendix presents the distribution of the OTA assessment request by House committees.

and control groups before and after the reform in the 104th Congress. X_{hict} include other hearing-level control variables. We include an issue fixed effect (α_i), and standard errors are clustered at the committee level.

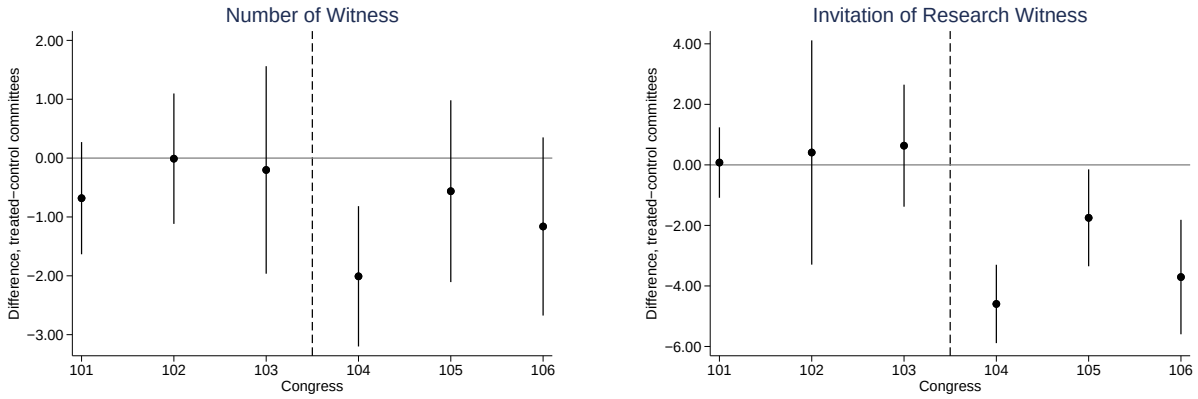
Figure 8 presents the results for two outcomes: (1) the number of witnesses testifying at the hearing and (2) the percent of witnesses from think tanks and universities.[19] In the figures, the reference Congress is the 100th Congress; the plots cover the time-trends from the 101st Congress to the 106th Congress, a period which covers three terms before and three terms after the 1995 reform. There is no pre-trend in terms of the number of witnesses invited and the witnesses from think tanks and universities before 1995. However, after the reform, there was a clear the decline in the number of witnesses in the treated committees that heavily relied on the support from the OTA, though the pattern disappears in the subsequent Congresses. The decline in the number of research-based witnesses in the treated group right after the reform was more substantial, and the pattern continues in the subsequent Congresses. Given that the average percentage of witnesses who were research-based witnesses before the reform was 7.3%, the coefficients presented in Figure 8 suggest that there was at least a 24% drop in the invitation of research-based witnesses after the OTA elimination.

These decreases confirms the expectation from *Congressional Capacity Hypothesis 3B*: Committees that relied more on the OTA will invite relatively *fewer witnesses from think tanks and research organizations* after the elimination of the OTA. With the defunding of the OTA, committees that had relied heavily on internal sources of information may, in fact, be expected to increase their efforts in inviting external witnesses, especially research-based witnesses who can provide technical and analytical information, in order to compensate for the loss of internal information that had been provided from the OTA.

This is contrary to the expectation in the opposing hypothesis *Congressional Capacity Hypothesis 3A*, which was of the view that committees who had relied heavily on the OTA

[19]The regression results are presented in Appendix Tables A5 and A6.

Figure 8 – Elimination of the OTA on Witness Invitation Patterns



(a) Number of Witness **(b)** Thinktank/Research Witness (%)

Notes: The reference Congress is 100^{th}. Reform took place in the 104th Congress. The plots are presented with 95% confidence intervals.

may, in fact, be expected to increase their efforts in inviting external witnesses, especially witnesses who can provide technical and analytical information, in order to compensate for the loss of internal information that had been provided from the OTA. However, a simultaneous cut in number of committee staff across all committees in 1995 – those who play a key role in the selection, invitation, and preparation process of witnesses, especially for technical and scientific witnesses – is possibly one reason why committees who had relied on the OTA were unable to fill the void created by the elimination of the OTA. A committee's own staff would already be a weaker substitute to OTA staffers – the chair of the U.S. House Committee on Science, Space, and Technology clearly stated in 2019 that "committee staff are not a replacement for OTA" (Johnson, 2019) – but even so, committee staff was cut as well.

Taken together, internal congressional support agencies and congressional committee staff largely arm committees with the ability to gather and process information – these two types of internal capacity can be characterized as "tools" that committees possess to conduct information searches. The 1995 reform eliminated one internal source of information, the OTA, for the specific committees that relied on this internal information. Our difference-in-differences results reveal that these committees suffered a drop in the number of witnesses,

especially the number of research-based witnesses, as a result of the OTA elimination, and likely could not compensate for this loss of information because of the commensurate cut to committee staff across Congress.

6 Conclusion

In this paper, we have examined the information flow between Congress and witnesses from external groups using a new, comprehensive dataset on committee hearings, witnesses, and witness testimonies from 1960-2018. Overall, we use witness testimony to examine an important avenue of information-seeking behavior of congressional committees. Using 72,871 hearings and 757,161 witnesses who testified in Congress across this time period, our findings show how different types of witnesses provide different levels of analytical information in their testimonies and how institutional settings can affect who committees invite to provide information. We highlight our main results and suggest extensions for future work below, to further emphasize how our data can be of value to any scholars and policy-makers interested in the information flow between Congress and external groups.

Our results illustrate how committees seek out different types of witnesses based on institutional settings. For one, our results reveal that committees turn to different types of witnesses and different types of groups based on committee intent: if they are exploring a legislative issue and thus likely to be learning information about a potential area for future legislation, or if they are actively considering a specific bill and thus likely to be gathering information to craft a message surrounding the bill. This, in turn, suggests that different groups may have different kinds of opportunities for influence through information provision during different stages of committee politics; extensions that closely examine this and the implications of such opportunities may be of further interest to scholars of interest group politics.

In addition, we find that committees react to the partisan setting of divided government by inviting lower percentages of bureaucrats to testify. This link between divided government and lower invitation rates of bureaucrats not only has implications for the information that committees receive, as bureaucrats have been shown to provide high levels of analytical information in their testimonies, but also points to how committees may be choosing to respond to partisan considerations over informational considerations. This motivates possible future work that examines the extent to which committees may be behaving strategically with bureaucrats. More broadly, as bureaucrats are one of the most common types of witnesses to appear before committees, as shown in our data, using bureaucrat testimonies may be particularly promising for future work on the inter-branch sharing of information between congressional committees and the executive agencies.

On a final note, by scaling the amount of analytical information present in witness testimonies to provide a descriptive look into how witness information can differ, we show how witnesses from executive agencies, think tanks, universities, and trade associations provide the relative highest proportions of analytical information in their testimonies. While we focus on the level of analytical information in witness testimonies due to the existing literature's focus on such information, various other ways of characterizing the content of witness testimonies may be of further interest. For instance, the quality of information and the use of scientific evidence in policy-making have been salient for governments and the American public, especially in regards to current issues such as climate change, cybersecurity, and pandemics. As Congress has made use of congressional hearings and witnesses to address and respond to current issues such as these, further inquiry into the presentation and use of scientific evidence in witness testimonies can enrich scholars' understanding of the role of research and scientific evidence in shaping public policy in the U.S.

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Supporting Information for
How Are Politicians Informed? Witness Testimony and Information Provision in Congress

A Additional Descriptive Statistics on Witness Appearances

A.1 Number and Composition of Witnesses

Figure A1 breaks down the number of witnesses who testify by committee in the House, across time. Immediately, it is clear that there are some House committees – Appropriations, Ways and Means, and Commerce – who have historically invited more witnesses than other committees. Committees focused on procedural or internal matters, such as Rules, House Administration, and Standards of Official Conduct, have historically called the lowest number of witnesses.

Figure A2 is similar to Figure A1 except for the Senate. Among the Senate committees, we see that committees with the highest number of witnesses are Appropriations, Interior and Insular Affairs, and Labor and Public Welfare. Rules and Administration, similar to its counterpart in the House, is one of the committees with the lowest number of witnesses, though is joined by Veterans' Affairs, Budget, and Foreign Relations. Of note is the fact that Foreign Relations in the Senate and its counterpart, Foreign Affairs in the House, both have low numbers of witnesses compared to the other committees.

Figure A3 is the Senate version of Figure 3 in the main text, and shows the average composition of witness affiliations by committee in the House.

Figure A4 plots the composition of witness types (grouped by parent category for illustrative purposes) called by each party when they are in the majority party in each chamber. The top bar in each panel shows the percentages of witnesses called of each category when the Republicans are in the majority (and hold all committee chairs) in that chamber. The bottom bar in each panel shows the percentages of witnesses called of each category when the Democrats are in the majority (and hold all committee chairs) in that chamber.

Figure A1 – Witnesses in House Standing Committees Across Time

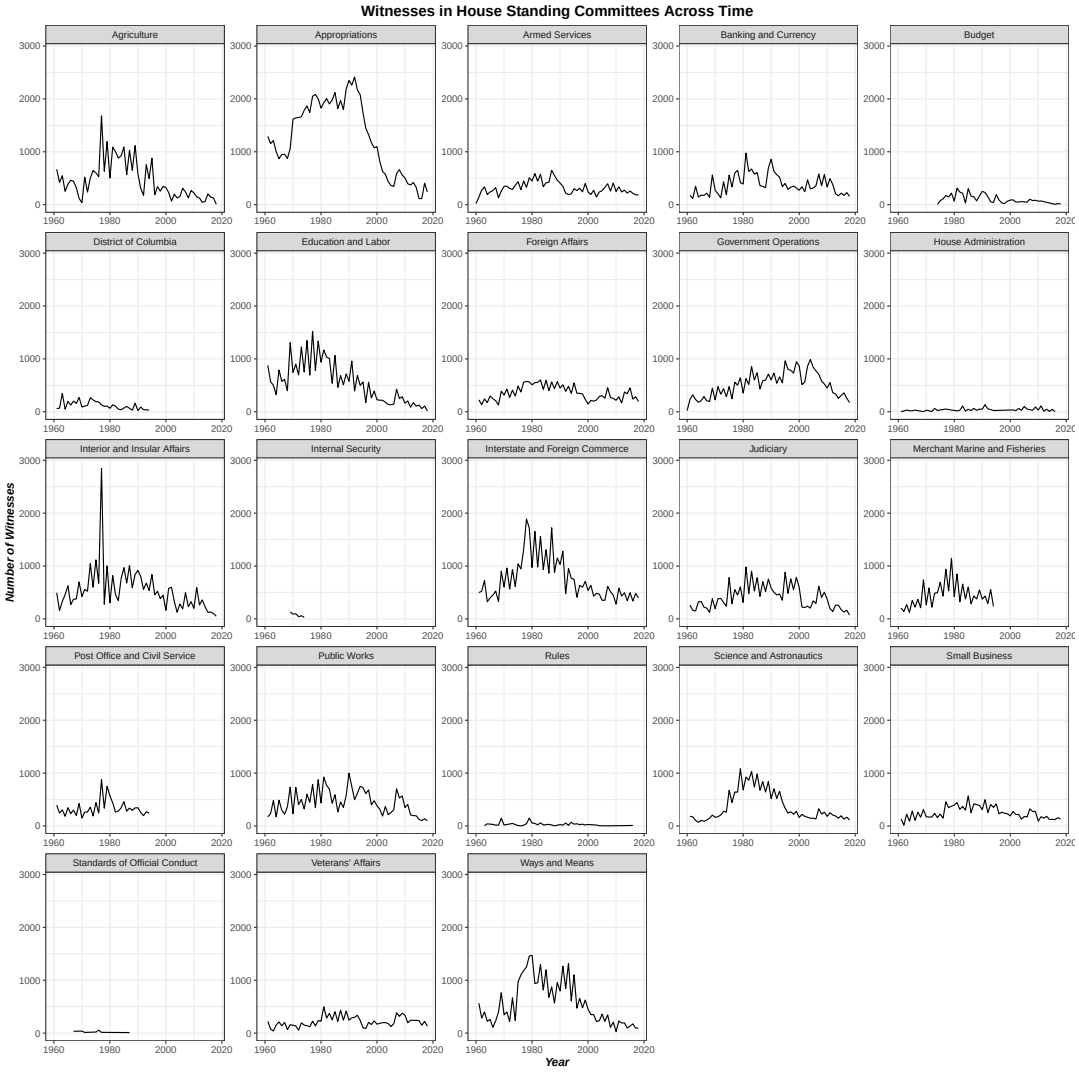


Figure A2 – Witnesses in Senate Standing Committees Across Time

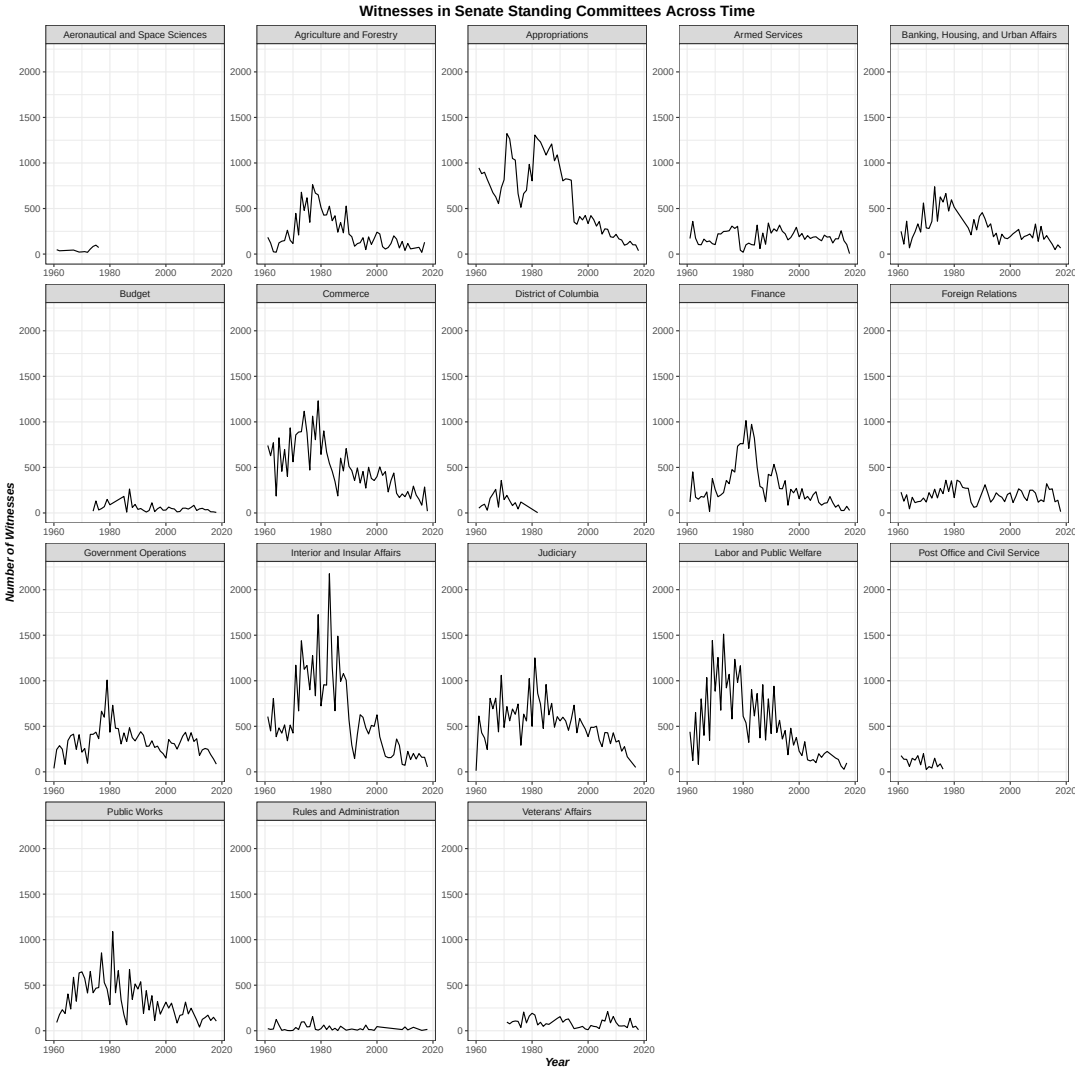


Figure A3 – Witness Affiliations By Senate Committee

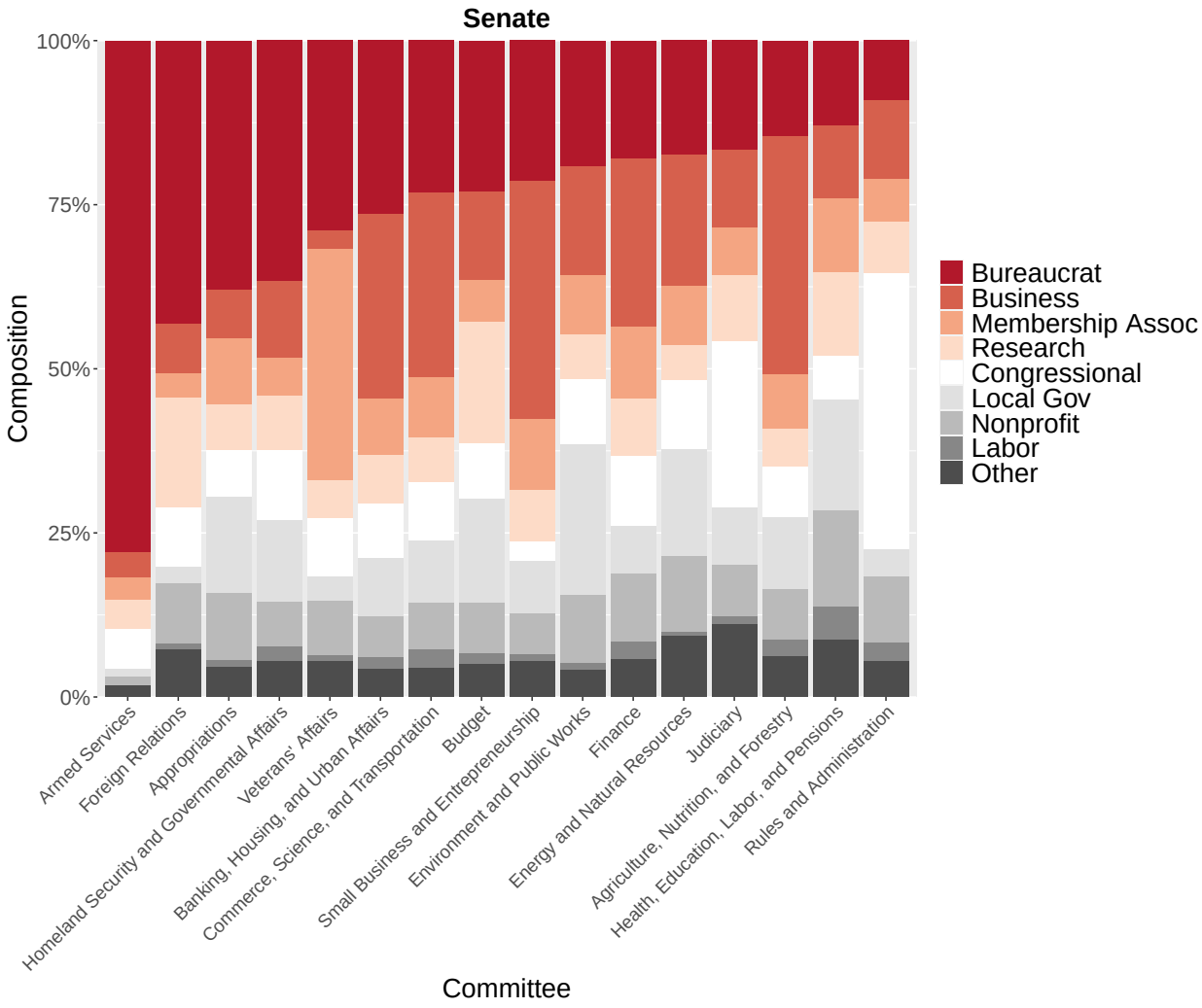
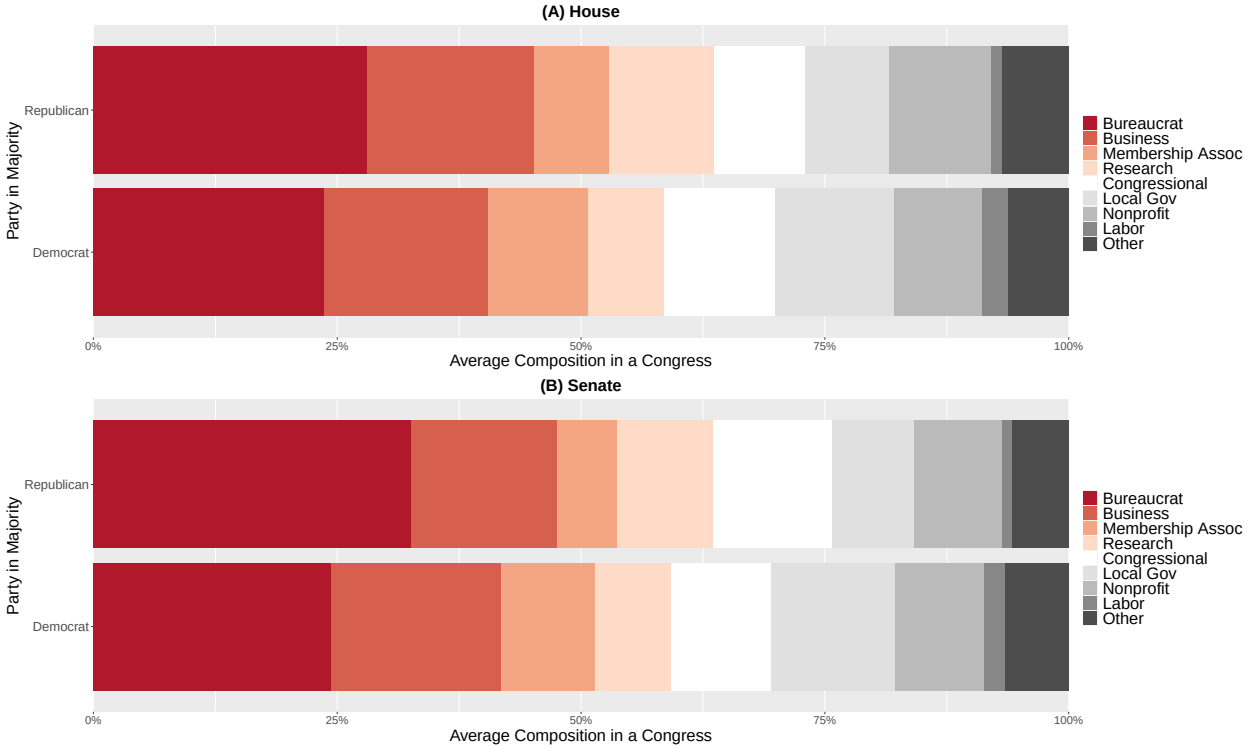


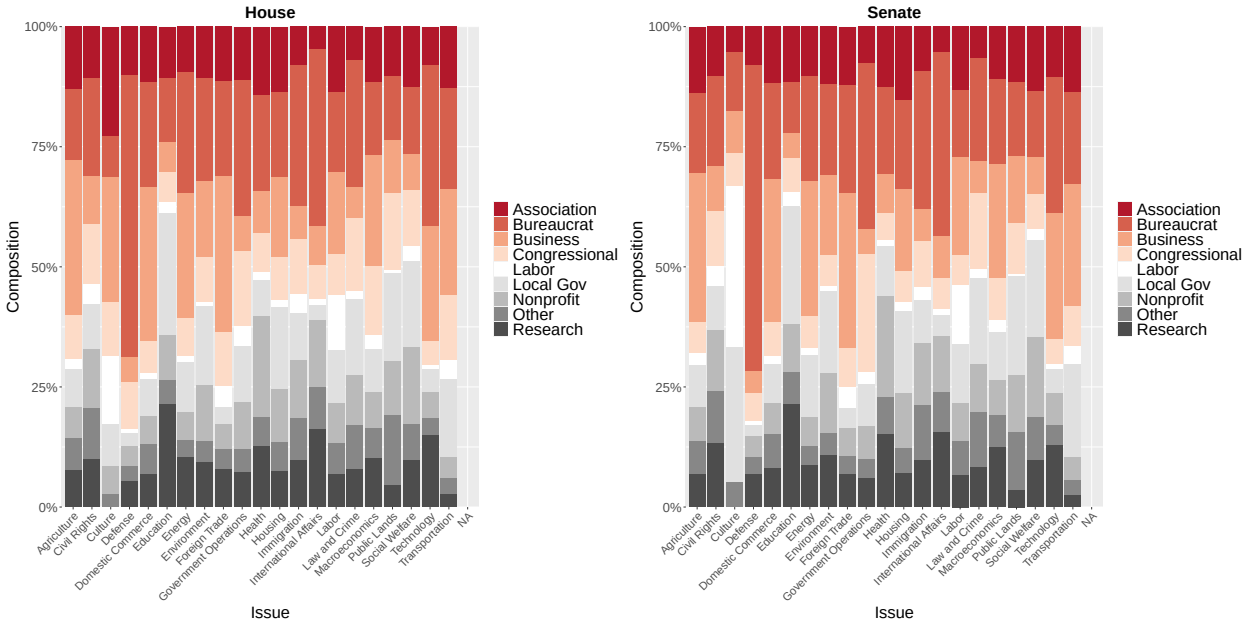
Figure A4 – Witness Affiliations by Majority Party



Notes: In each panel, the top bar presents the percentages of witnesses of each affiliation category called in that chamber when the Republicans are the majority party in that chamber. The bottom bars present the percentages of witnesses of each affiliation category called in that chamber when the Democrats are the majority party in that chamber.

A.2 Witnesses by Issue Area

Figure A5 – Witness Affiliations by Issue Area



A.3 Witness Types Across Time

Figure A6 – Number of Witnesses by Type: House

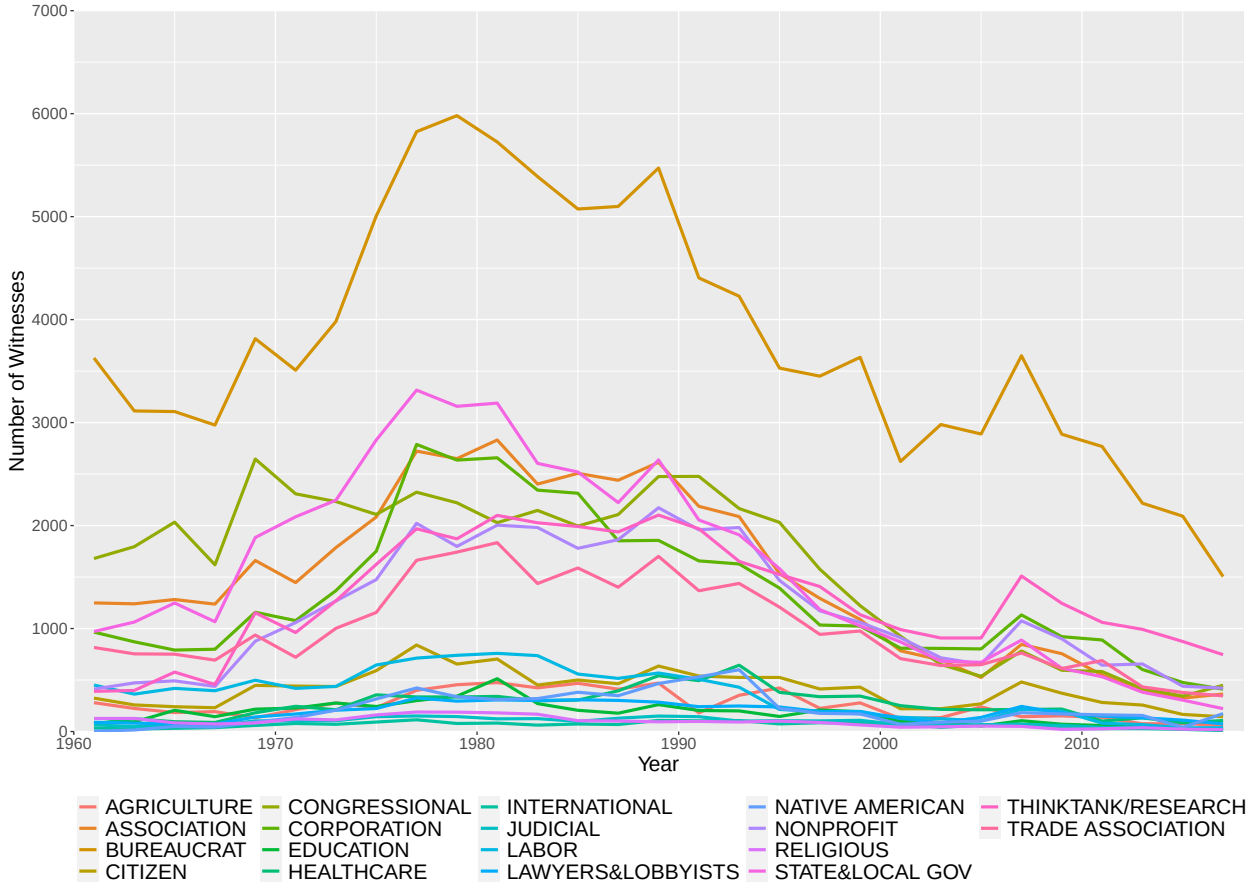
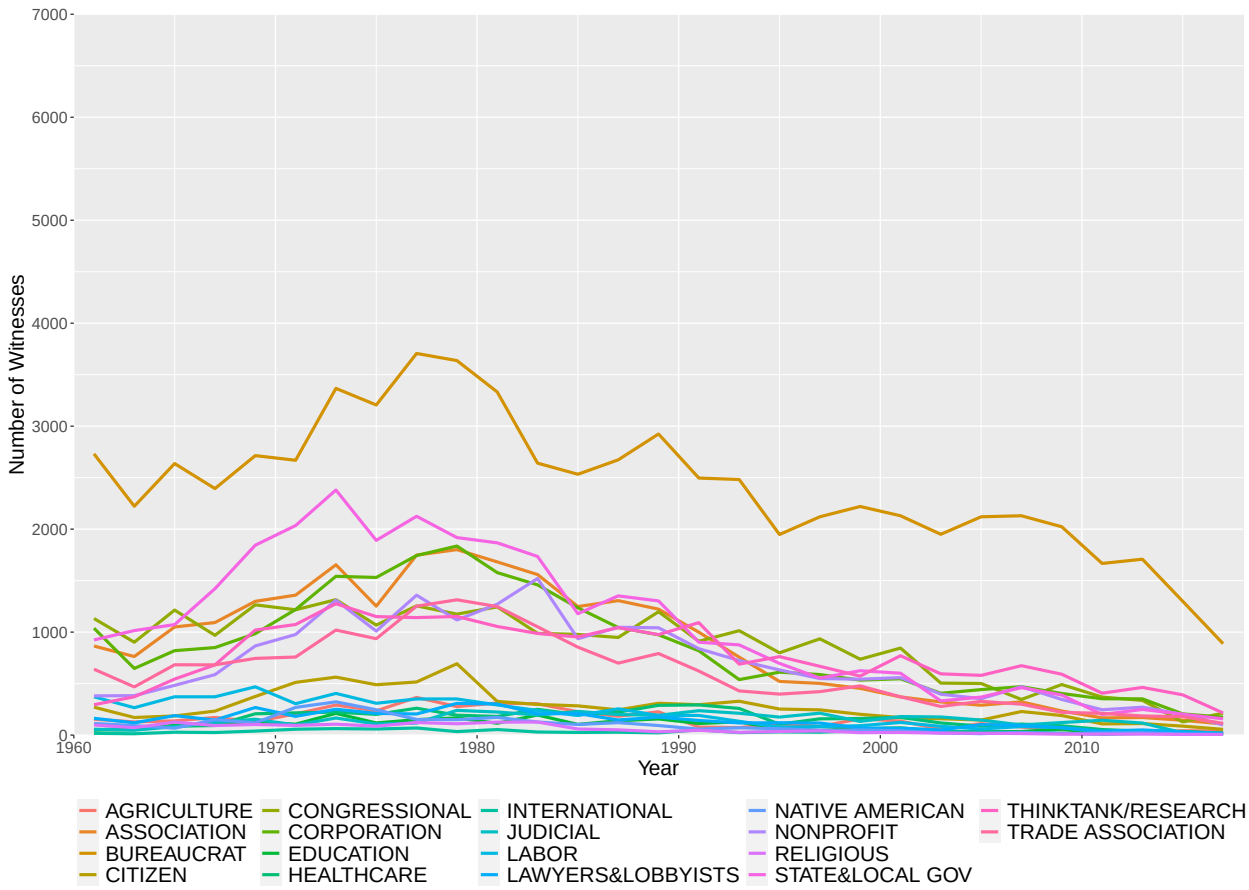


Figure A7 – Number of Witnesses by Type: Senate



B Measuring Analytical Information in Witness Testimonies

B.1 Keywords

The keywords that potentially cue that a testimony may contain some analytical information were chosen from three sources. First, we refer to the grandstanding score introduced in Park (2021) which assigns a continuous score to committee members' statements to measure political messaging activities in congressional hearings from the 105th to 114th Congresses. As a side-product of the score, members' statements scoring low are featured largely by either procedural statements or information-seeking statements. From the list of 200 most frequent word stems in the statements scoring the lower quartile of the score, we selected 74 word stems that were deemed relevant to bills (e.g., bill, law and legisl), sources of information (e.g. inform, letter, record and report), research (e.g., author, data, estim and studi), statistics (e.g., percent, rank and rate), logical relationship (e.g. relat, associ and differ), cost-benefit calculation (e.g., benefit, budget, cost and dollar), policy consequences (e.g., change, effect, impact and increase), and deliberation (e.g., discuss, possibl, and review). Then, we added one more word stem and two special characters: "statist", "%" and "$". These word categories can be considered constituting a typical policy-making process which includes collecting information and data, analyzing them, assessing cost, benefit and possible consequences of policy alternatives, and finally deliberating and making decision on the choice of the alternatives.

Second, we additionally collected words that are related to cognitive orientation from the "Harvard IV-4" dictionary. Specifically, we chose 32 words in the following sub-categories: "know" (e.g., analyt, calcul and correl), "causal" (e.g., caus, consequ and odd), "compare" (e.g., less, higher and better) and "quan" (e.g., approx, averg and disproportion) and stemmed the words for the analysis.

Third, to complement the list, we identify 28 more word stems that are relevant to analytical information but not in the list of words described above (e.g., diagnosi, survey, examin, investig and measure) or the words that have similar meaning with that of the words in this list but not included in the list (e.g., percentag is similar to "percent"; contrast is similar to "differ"; result is similar to "consequ"). In total, we use 134 keyword stems for this study. The full list of the keywords is in the appendix.

B.2 The List of the 134 Keyword Stems

$, %, address, analit, analysi, analyt, answer, approxim, assess, associ, author, averag, awar, benefit, better, bill, budget, calcul, case, caus, chang, classif, classifi, comment, compar, comparison, consequ, consid, content, contrast, contribut, correct, correl, cost, criteria, data, decid, decis, decreas, degre, determin, determinist, diagnosi, diagnost, differ, discuss, disproportion, dollar, effect, empir, equival, estim, evid, examin, explain, fact, factor, feasibl, fund, higher, impact, implaus, imposs, improv, increas, indic, influenc, inform, interest, investig, laboratori, law, legisl, less, letter, level, list, lower, mean, measur, necessari, need, number, object, odd, percent, percentag, plan, plausibl, point, polici, possibl, predict, probabl, process, product, project, propos, rais, rank, rate, reason, recommend, record, reduc,

refer, relat, report, requir, research, respond, respons, result, review, rise, risk, scienc, scientif, solut, solv, specif, standard, statement, statist, studi, substanti, survey, technolog, test, testifi, understand, unit, wors, yield

B.3 The Most and Least Analytical Testimony

B.3.1 With the length limit to include 50 to 150 words

The most analytical statements

1. "When projects are authorized, when there is a Chief's Report and the Congress authorizes a project, the economic analysis that is done on that calculates a benefit to cost ratio. And that benefit to cost ratio is based on a 3.125 discount rate. When the Office of Management and Budget evaluates projects for funding, including in the President's budget, that benefit to cost ratio is evaluated at a 7-percent discount rate. So the budgeting discount rate is different from the authorization discount rate that's used."

2. "We found that the differences are primarily–and this is a big amount of–the biggest chunk was in the estimate of labor costs associated with the subcontractors. There were costs also associated–of $1.2 billions–associated with engine cost that was a difference in the estimate; also $1 billion in terms of the production cost reduction plans, and also $800 million difference in terms of what the Air Force's plans for–relating to productivity investments."

3. "In terms of offsetting the costs and benefits, we did offset those costs, so the benefits are reduced by the amount of those costs in terms of attributing–and that's in the cost/benefit analysis, but in analyzing the costs and in analyzing the benefits, we did reduce the benefits by those costs."

The least analytical statements

1. "Now, the access through public lands is, again, a heated debate. The President just drew an Executive Order declaring much of the border area and New Mexico as a monument, wilderness, whatever. They are all the same. Is the Organ Pipe National Monument, has that still got the signs up there requesting people not to go in there, American citizens, saying you should not go in there because it is too dangerous?"

2. "I guess we mistakenly believed that it was a secret location, and the only people who knew about it were the EOD staff from both SFPD, the FBI and the Sheriff's Office. Unbeknownst to us, this particular individual, and I won't say too much, but was a plumber in that area and apparently had seen the officers going into that area and perhaps followed them in."

3. "And don't forget by the way, sir, that we have right now–and the senator gets upset about this, but you have time to do this. We should do it this year. But we should adjust the system so that we get ready for 2017 when more money is going out than coming in, and we can do it."

B.3.2 Without the length limit

The most analytical statements

1. "Well, when you say higher costs, higher costs overall or higher costs—-"

2. "It would increase confidence, lower expected tax rates, and lower real interest rates."

3. "That is correct. The President's budget proposes a funding level of $100 million."

The least analytical statements

1. "Thank you. I am going to ask my colleague, Mike Connor, to take that question."

2. "Thank you very much, Mr. Souder, and your staff for helping to deal me in today. I found out about this yesterday morning, and I'm pleased to be here. I am a former college administrator and teacher. My name is Dean, but I was one once."

3. "If Congress would like to do that, I would be absolutely thrilled."

B.4 The Statistical Validation Strategy for the Measurement of Analytical Information

This section explains how we constructed a human-coded validation measurement for the 100 sample paragraphs of witness testimonies. First, we randomly selected 1000 statements that witnesses made and keep only the statements with more than 80 words. Then, if a statement contains multiple paragraphs, we divide the statement by paragraph. Among the paragraphs or single-paragraph statements, we keep only those with less than 50 words or more than 150 words. Second, we measure the proportion of keywords for each paragraph. Third, we conduct random block sampling to construct 100 sample paragraphs to be human-coded; we select 20 paragraphs from each of the following five blocks: 0-0.05, 0.05-0.1, 0.1-0.15, 0.15-0.2, 0.2 or above. The thresholds are chosen such that they divide the range that the proportion of keywords in our data runs into five equidistant smaller ranges. Fourth, each of the 100 sample paragraphs are randomly matched with another paragraph to create 1000 pairs. Fifth, each of the two trained student research assistants compares 500 pairs and chooses the one that sounds more analytical. To define analytical information, we borrow the definition of analytical information from Esterling (2007). That is, a paragraph is analytical if it contains verifiable, fact-based, objective or positive statement as opposed to non-verifiable, experiential, opinion-based, subjective or normative. After collecting coders' choices, we fit a STAN model to measure the latent trait in the sample paragraphs and construct a continuous measurement as suggested in Carlson and Montgomery (2017).

The correlation coefficient between our measurement, the proportion of keywords, and the human-coded score resulting from the STAN model is 0.6, which provides statistical as well as substantive validation of our measurement. This correlation shows that they run in the same direction and this validation strategy is considered suitable for the purpose of showing descriptive analysis about the differences across witnesses' affiliation types.

B.5 Regression and Results

The regression equation is shown below:

$$\text{Proportion of keywords}_{sfhict} = \alpha_0 + \beta * \text{Hearing Characteristics}_h + \gamma * \text{Committee Characteristics}_{ct}$$

$$+ \alpha_f + \alpha_i + \alpha_c + \alpha_t + \varepsilon_{sfhict}$$

where the subscripts indicate statements s, witness affiliations f, hearings h, issue i, committee c, and congress t.

In these regression models, we control for the following control variables. At the hearing-level, we control for the number of times that a witness was asked to speak in a hearing, an indicator for whether a bill was considered, the number of committee members present, the number of witnesses present in a hearing, and a subcommittee hearing indicator. At the committee level, we include the ideological distance between the floor median and the committee median based on the DW-NOMINATE score to capture how ideologically extreme the committee is as a group, the distance between Democrats and Republicans in a committee to capture the level of polarization within a committee, the distance between the floor median and the committee chair to measure the ideological intensity of the chair, and the average legislative effectiveness score of the committee members who spoke in a hearing (Volden and Wiseman 2014). We also include congress fixed effects, committee fixed effects, hearing issue fixed effects (from the Policy Agendas Project), and witness affiliation fixed effects.

The results from this regression is shown in Table A1 next.

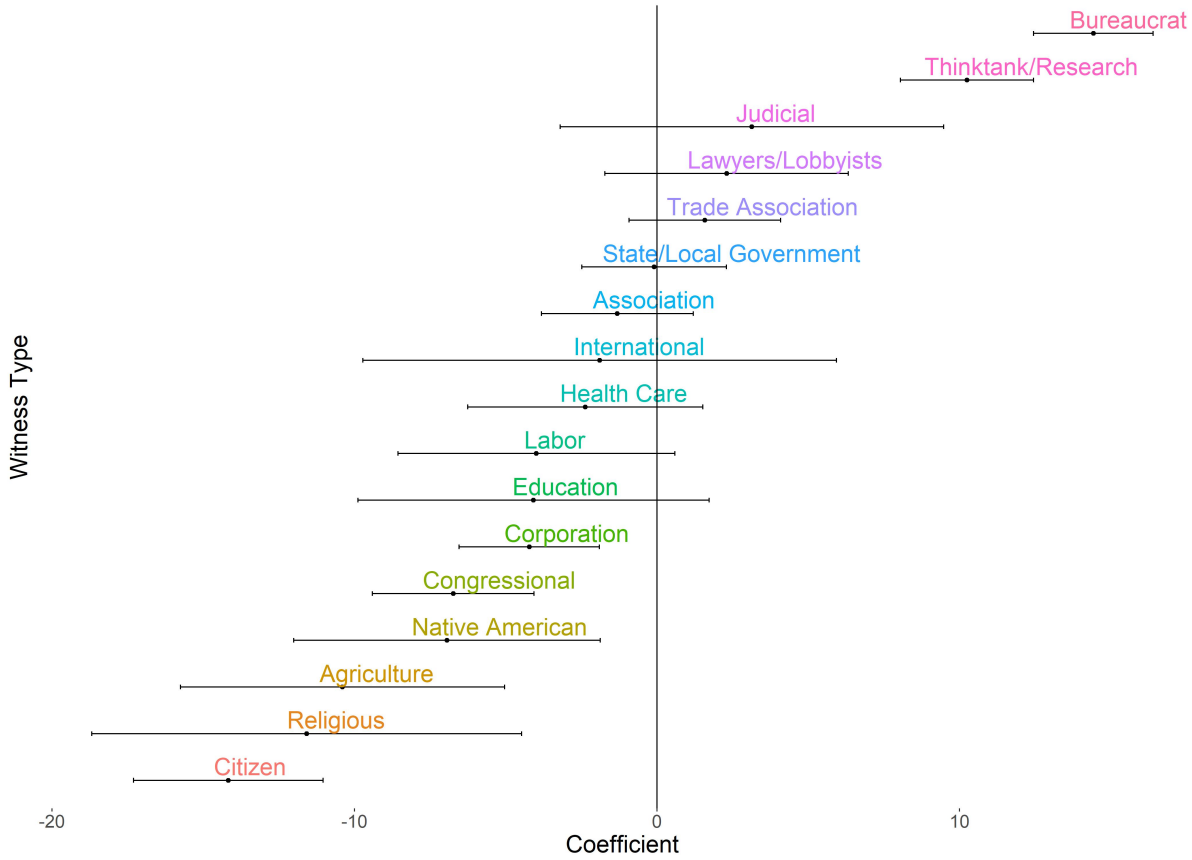
Table A1 – Regression Results Analyzing Witness Testimonies

	Dependent variable:		
	Words	Keywords	Keywords/Words
	(1)	(2)	(3)
Number of Statements	66.521***	3.391***	−0.0001***
	(0.331)	(0.020)	(0.00001)
Bill	−91.301***	−3.313***	0.0005**
	(10.698)	(0.637)	(0.0002)
Number of Members	337.180***	11.059***	0.0004
	(53.204)	(3.166)	(0.001)
Number of Witnesses	−29.297***	−1.686***	−0.0001***
	(0.994)	(0.059)	(0.00002)
Subcommittee Hearing	−44.006***	0.020	0.001**
	(13.578)	(0.808)	(0.0003)
Committtee Ideology	−554.421***	−11.078*	0.009***
	(106.764)	(6.353)	(0.002)
Polarization of Floor	−679.374***	−38.686***	−0.0004
	(116.496)	(6.932)	(0.002)
Chair's Ideology	−248.777***	−12.171***	0.0001
	(51.078)	(3.040)	(0.001)
Avg. LES of Committee	7.279*	0.404	−0.00002
	(4.327)	(0.257)	(0.0001)
Constant	2,199.623***	108.552***	0.047***
	(91.597)	(5.451)	(0.002)
Witness Type FE	Yes	Yes	Yes
Issue FE	Yes	Yes	Yes
Committee FE	Yes	Yes	Yes
Congress FE	Yes	Yes	Yes
Observations	33,605	33,605	33,605
R^2	0.652	0.604	0.149
Adjusted R^2	0.652	0.603	0.147

Note: *p<0.1; **p<0.05; ***p<0.01

The dependent variable in the first model is the number of words spoken; in the second, the number of keywords spoken; and in the third, the proportion of keywords in the total number of words spoken.

Figure A8 – Number of Keywords by Witness Type



Notes: Vertical lines indicate 95% confidence interval.

C Institutional Conditions and Witness Invitation

Table A2 – Hearing Characteristics and Witness Invitation Patterns

Panel A *Outcome (%) =*	(1) No.Witness	(2) Diversity	(3) Bureau	(4) Research	(5) Corp.	(6) Labor	(7) Trade	(8) Membership
Bill	2.123***	6.460***	-7.605***	-1.919***	-1.551***	0.578**	1.939***	3.056***
	(0.314)	(0.522)	(0.765)	(0.365)	(0.385)	(0.247)	(0.497)	(0.490)
Subcommittee	-0.896	6.228***	-5.019***	0.593	1.216***	0.0450	0.0750	0.838**
	(0.548)	(0.736)	(1.682)	(0.830)	(0.414)	(0.173)	(0.530)	(0.382)
No. Comm. Members	0.0403	-0.0778	-0.0234	-0.00754	0.0100	0.0202	0.0526**	0.0917
	(0.0448)	(0.0592)	(0.0994)	(0.0424)	(0.0336)	(0.0202)	(0.0204)	(0.0551)
|Floor Median-Comm. Median|	-0.112	6.150	1.592	-5.113	-4.653***	1.176	5.060***	6.209*
	(4.393)	(3.831)	(8.129)	(4.155)	(1.608)	(1.413)	(1.688)	(3.272)
|Comm. Dem-Comm. Rep|	5.022*	-6.330*	6.439	4.844*	-0.660	1.322	-0.267	-3.379
	(2.887)	(3.351)	(4.951)	(2.397)	(1.665)	(0.986)	(1.326)	(2.025)
|Floor Median-Comm. Chair|	2.243	-0.194	4.686	-1.854	-0.0650	0.544	-0.212	-2.980
	(1.645)	(3.043)	(3.770)	(1.616)	(0.863)	(0.531)	(0.900)	(1.908)
Number of Witness		1.045***	-1.009***	0.0668**	0.119***	0.0285***	0.105***	0.145***
		(0.0988)	(0.0909)	(0.0267)	(0.0229)	(0.00702)	(0.0205)	(0.0216)
N	30994	30983	30983	30983	30983	30983	30983	30983
adj. R^2	0.157	0.318	0.288	0.128	0.130	0.166	0.161	0.224
Mean Outcome Var.	9.8	53.6	34.8	9.3	8.1	2.2	5.7	7.8

Panel B *Outcome (%) =*	(9) Agri.	(10) Cong.	(11) Judicial	(12) Local Gov.	(13) Lawyer	(14) Nonprofit	(15) Healthcare	(16) Other
Bill	-0.106	6.194***	0.222	-1.216***	0.153	0.775***	-0.0612	-0.459*
	(0.0869)	(0.518)	(0.185)	(0.316)	(0.116)	(0.245)	(0.102)	(0.222)
Subcommittee	0.155	0.901**	0.0196	0.559	-0.0799	1.551***	0.181	-1.034
	(0.0994)	(0.352)	(0.0860)	(0.486)	(0.143)	(0.402)	(0.154)	(1.084)
No. Comm. Members	-0.0142*	-0.0726*	0.00255	0.00787	-0.0149	-0.0176	-0.0162*	-0.0185
	(0.00783)	(0.0387)	(0.00510)	(0.0284)	(0.00996)	(0.0202)	(0.00885)	(0.0175)
|Floor Median-Comm. Median|	0.496	0.0771	-1.714	-3.551	-0.648	0.715	-0.578	0.932
	(0.633)	(3.126)	(1.114)	(2.442)	(0.903)	(1.714)	(0.685)	(1.022)
|Comm. Dem-Comm. Rep|	-0.742	-4.718*	0.550	-1.133	-0.259	-0.680	0.305	-1.622
	(0.601)	(2.702)	(0.659)	(0.980)	(0.718)	(1.396)	(0.573)	(1.267)
|Floor Median-Comm. Chair|	0.521	-1.496	-0.173	0.485	-0.213	-0.420	0.154	1.023
	(0.482)	(1.462)	(0.224)	(1.116)	(0.290)	(0.952)	(0.410)	(1.185)
Number of Witness	0.0358**	0.0946**	-0.00596	0.200***	0.000859	0.120***	0.0196***	0.0789***
	(0.0170)	(0.0351)	(0.00541)	(0.0283)	(0.00287)	(0.0172)	(0.00384)	(0.0107)
N	30983	30983	30983	30983	30983	30983	30983	30983
adj. R^2	0.332	0.146	0.087	0.175	0.065	0.091	0.253	0.074
Mean Outcome Var.	1.0	7.7	0.6	8.5	1.4	6.7	1.4	4.1

* $p < 0.10$ ** $p < 0.05$, *** $p < 0.01$. Congress, Committee, Issue FEs are included.

Table A3 – Institutional Characteristics and Witness Invitation Patterns

Panel A *Outcome (%) =*	(1) No.Witness	(2) Diversity	(3) Bureau	(4) Cong.	(5) Research	(6) Agri.	(7) Corp.	(8) Trade
Divide Government	-0.468	0.313	-2.613**	0.965**	2.151***	0.161*	0.238	-0.0239
	(0.340)	(0.766)	(0.941)	(0.344)	(0.691)	(0.0818)	(0.405)	(0.272)
Democratic Majority	0.150	0.450	-1.421	-0.375	1.374*	-0.379**	0.486*	-1.172***
	(0.319)	(1.152)	(1.217)	(0.438)	(0.727)	(0.137)	(0.272)	(0.341)
Bill	2.149***	6.422***	-7.533***	6.188***	-1.943***	-0.106	-1.574***	1.926***
	(0.317)	(0.540)	(0.785)	(0.522)	(0.362)	(0.0842)	(0.376)	(0.501)
Bubcommittee	-0.909	6.131***	-4.961***	0.854**	0.580	0.147	1.199***	0.0621
	(0.545)	(0.732)	(1.660)	(0.341)	(0.834)	(0.0976)	(0.415)	(0.526)
No. Comm. Members	0.0352	-0.0166	-0.0507	-0.0765*	0.00658	-0.0142*	0.0151	0.0527**
	(0.0402)	(0.0551)	(0.0910)	(0.0390)	(0.0389)	(0.00698)	(0.0302)	(0.0203)
|Floor Median-Comm. Median|	-0.187	6.737	0.984	0.251	-4.310	0.369	-4.667***	5.078***
	(4.287)	(4.797)	(8.459)	(3.074)	(4.120)	(0.532)	(1.564)	(1.591)
|Comm. Dem-Comm. Rep|	5.418*	-6.674*	6.445	-5.356*	4.514*	-0.746	-0.211	-0.0954
	(2.741)	(3.445)	(4.890)	(2.614)	(2.290)	(0.610)	(1.544)	(1.330)
|Floor Median-Comm. Chair|	1.974	-0.812	4.409	-1.565	-1.564	0.475	-0.308	-0.209
	(1.629)	(3.241)	(3.682)	(1.495)	(1.515)	(0.466)	(0.978)	(0.933)
Number of Witness		1.043***	-1.005***	0.0965**	0.0650**	0.0355**	0.119***	0.105***
		(0.0987)	(0.0910)	(0.0351)	(0.0267)	(0.0169)	(0.0229)	(0.0205)
N	30994	30983	30983	30983	30983	30983	30983	30983
adj. R^2	0.154	0.316	0.287	0.145	0.128	0.332	0.130	0.161
Mean Outcome Var.	9.8	53.6	34.8	7.7	9.3	1.0	8.1	5.7

Panel B *Outcome (%) =*	(9) Judicial	(10) Local Gov.	(11) Lawyer	(12) Labor	(13) Nonprofit	(14) Healthcare	(15) Membership	(16) Other
Divided Government	-0.0387	0.108	0.290*	-0.410***	-0.224	-0.214	-0.659	0.271
	(0.0504)	(0.270)	(0.152)	(0.135)	(0.278)	(0.163)	(0.396)	(0.365)
Democratic Majority	0.0723	-0.287	0.361**	0.340***	0.572	-0.0582	-0.114	0.601
	(0.0993)	(0.457)	(0.172)	(0.100)	(0.531)	(0.162)	(0.484)	(0.564)
Bill	0.223	-1.212***	0.152	0.584**	0.774***	-0.0632	3.057***	-0.475**
	(0.185)	(0.320)	(0.116)	(0.245)	(0.246)	(0.103)	(0.493)	(0.215)
Subcommittee	0.0210	0.558	-0.0684	0.0518	1.577***	0.176	0.842**	-1.041
	(0.0848)	(0.481)	(0.141)	(0.173)	(0.403)	(0.152)	(0.369)	(1.075)
No. Comm. Members	0.00256	0.0176	-0.0131	0.0176	-0.0137	-0.0137	0.0861*	-0.0162
	(0.00510)	(0.0283)	(0.00923)	(0.0187)	(0.0196)	(0.00837)	(0.0491)	(0.0183)
|Floor Median-Comm. Median|	-1.707	-3.758	-0.579	0.877	0.902	-0.436	6.057*	0.938
	(1.110)	(2.494)	(0.979)	(1.284)	(1.618)	(0.676)	(3.150)	(1.043)
|Comm. Dem-Comm. Rep|	0.445	-0.644	-0.297	1.456	-0.860	-0.0215	-3.424*	-1.205
	(0.632)	(0.963)	(0.650)	(1.030)	(1.409)	(0.604)	(1.957)	(1.124)
|Floor Median-Comm. Chair|	-0.112	0.596	-0.135	0.449	-0.399	0.174	-2.894	1.084
	(0.196)	(1.182)	(0.327)	(0.508)	(0.926)	(0.406)	(1.982)	(1.078)
Number of Witness	-0.00611	0.200***	0.000304	0.0286***	0.119***	0.0192***	0.145***	0.0781***
	(0.00528)	(0.0284)	(0.00290)	(0.00723)	(0.0172)	(0.00383)	(0.0213)	(0.0107)
N	30983	30983	30983	30983	30983	30983	30983	30983
adj. R^2	0.087	0.175	0.065	0.165	0.090	0.253	0.225	0.074
Mean Outcome Var.	9.6	8.5	1.4	2.2	6.7	1.4	7.8	4.1

* $p < 0.10$ ** $p < 0.05$, *** $p < 0.01$. President, Committee, Issue FEs are included.

Table A4 – Divided Government, President's Issue Priority, and Bureaucrats as Witnesses

	(1)	(2)	(3)
Outcome = Bureaucrat as Witness (%)			
Divided Government	-2.153**	-0.292	-1.304*
	(0.796)	(0.897)	(0.694)
Issue Decile[a]		0.401**	
		(0.169)	
Divided Government × Issue Decile		-0.384**	
		(0.147)	
High Salient Issue[b]			1.704**
			(0.687)
Divided Government × High Salient Issue			-1.562**
			(0.683)
Controls	✓	✓	✓
N	31773	27270	31773
adj. R^2	0.275	0.277	0.275

* $p < 0.10$ ** $p < 0.05$, *** $p < 0.01$. President and committee FEs are included. Standard errors are clustered at the committee level. Hearing- and committee-level controls are included. **a**: President's issue priority measure based on the State of the Union speeches. It ranges from 1 to 10: 1 = least frequently mentioned issue, 10 = most frequently mentioned issue. **b**: 1 if *Issue Decile* ≥ 5 and 0 otherwise.

Table A5 – Elimination of OTA on the Number of Invited Witness

Variable	Coef.	Std. Err.	t-stat	P-value	[95% Conf.	Interval]
Treated	-0.0183	0.6563	-0.03	0.978	-1.3833	1.3466
101th Congress	0.0208	0.2794	0.07	0.941	-0.5603	0.6020
102th Congress	-0.7329	0.4251	-1.72	0.099	-1.6169	0.1511
103th Congress	-0.9991	0.6318	-1.58	0.129	-2.3130	0.3148
104th Congress	0.9819	0.5590	1.76	0.094	-0.1806	2.1444
105th Congress	-1.6116	0.6859	-2.35	0.029	-3.0381	-0.1851
106th Congress	-1.9415	0.6694	-2.9	0.009	-3.3337	-0.5493
treatedX101th Congress	-0.6811	0.4862	-1.4	0.176	-1.6922	0.3300
treatedX102th Congress	-0.0100	0.5651	-0.02	0.986	-1.1852	1.1652
treatedX103th Congress	-0.2014	0.8994	-0.22	0.825	-2.0718	1.6690
treatedX104th Congress	-2.0086	0.6082	-3.3	0.003	-3.2734	-0.7438
treatedX105th Congress	-0.5624	0.7880	-0.71	0.483	-2.2012	1.0764
treatedX106th Congress	-1.1619	0.7721	-1.5	0.147	-2.7676	0.4439
Bill	2.2112	0.4534	4.88	0	1.2684	3.1541
Subcommittee	-1.1215	0.8328	-1.35	0.192	-2.8534	0.6104
Number of Committee Member	-0.0154	0.0413	-0.37	0.712	-0.1014	0.0705

Notes: Number of observation is 10,179. Prob >F = 0.0000. Adj R-squared = 0.0677. Issue fixed effects are included. Standard errors are clustered at the committee level.

Table A6 – Elimination of OTA on the Invitation of Research Witness

Variable	Coef.	Std. Err.	t-stat	P-value	[95% Conf.	Interval]
Treated	3.993364	2.7699	1.4400	0.1640	-1.766887	9.753615
101th Congress	-0.3568618	0.4594	-0.7800	0.4460	-1.312171	0.5984473
102th Congress	1.250601	0.9309	1.3400	0.1930	-0.6853599	3.186562
103th Congress	-0.5356855	0.8278	-0.6500	0.5250	-2.257258	1.185887
104th Congress	1.045746	0.9077	1.1500	0.2620	-0.8420227	2.933514
105th Congress	1.103274	0.9820	1.1200	0.2740	-0.9388484	3.145397
106th Congress	0.7270946	0.9801	0.7400	0.4660	-1.31112	2.765309
treatedX101th Congress	0.0767433	0.5936	0.1300	0.8980	-1.157769	1.311256
treatedX102th Congress	0.4090257	1.8902	0.2200	0.8310	-3.521845	4.339896
treatedX103th Congress	0.6340882	1.0286	0.6200	0.5440	-1.504983	2.773159
treatedX104th Congress	-4.594514	0.6603	-6.9600	0.0000	-5.967743	-3.221285
treatedX105th Congress	-1.748871	0.8168	-2.1400	0.0440	-3.447461	-0.0502822
treatedX106th Congress	-3.706158	0.9647	-3.8400	0.0010	-5.712429	-1.699888
Bill	-1.811747	0.5606	-3.2300	0.0040	-2.977584	-0.6459086
Subcommittee	-2.064094	1.5808	-1.3100	0.2060	-5.351648	1.22346
Number of Committee Member	0.0176605	0.0659	0.2700	0.7910	-0.1193818	0.1547028

Notes: Number of observation is 10,172. Prob >F = 0.0000. Adj R-squared = 0.0787. Issue fixed effects are included. Standard errors are clustered at the committee level.

Figure A9 – Number of OTA Assessment Request by House Committees, 1990-1995

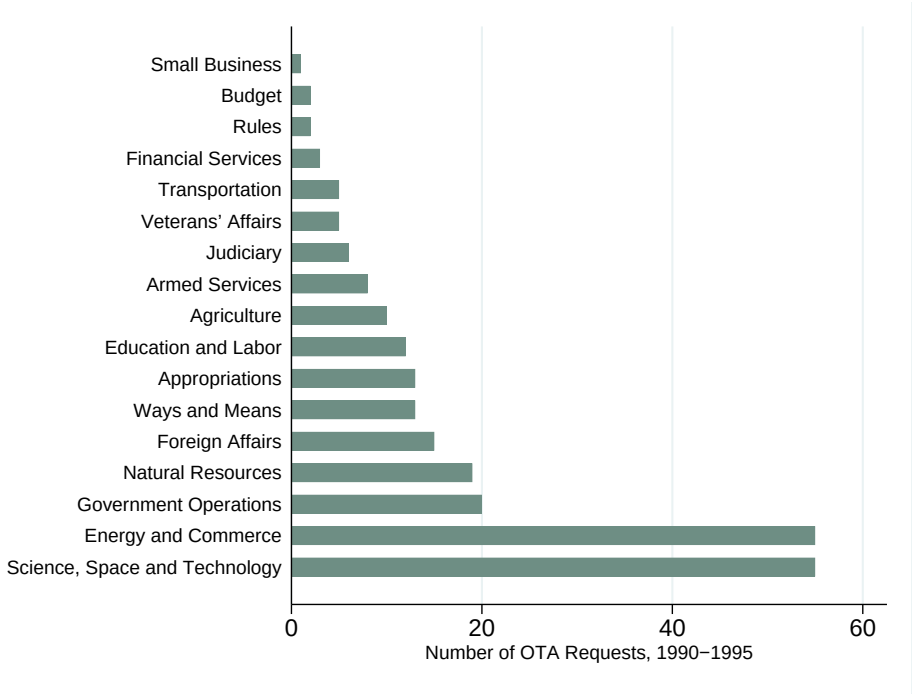


Figure A10 – Changes in the Number of Committee Staff