Measuring the Legislative Design of Judicial Review of Agency Actions

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ABSTRACT: When Congress writes and passes statutes, it can include detailed provisions designating how judicial review of agency actions will operate. Yet despite their importance, empirical research has suffered from a lack of a systematic measure or assessment of these review provisions. In this project we create a new measure of exposure to judicial review by hand-coding judicial review provisions in the text of significant legislation from 1947 to 2016. We identify five categories of review provisions, including language that describes the reviewability of agency decisions, time limits for petitioning courts, the scope of review, court venue, and standing. Utilizing these attributes, we construct latent indexes of exposure to the judiciary, including law-specific and agency-specific versions of these indexes. We then examine the validity of these measures of agency exposure to judicial review by assessing their covariation with litigation, discretion, and independence. Our data create possibilities for future research on how Congress can strategically attempt to influence other branches as well as insight into interactions among the branches in a separation-of-powers system.

Government agencies produce the vast majority of public policies in the United States. The textbook version of how agency policymaking proceeds is relatively straightforward to describe, at least in broad outline. First, Congress writes laws that delegate policymaking responsibility to an agency. Second, the agency develops a policy or policies. And third, a court reviews the agency's actions.

How the courts act in this last stage is determined in part by judicial actors themselves, of course, and is affected by the views of judges toward agency expertise, canons of statutory interpretation, and a host of other factors. But how this last stage plays out also can be affected by another political actor: Congress. When Congress writes laws that delegate power to agencies, it has the opportunity to structure the process of judicial review of agency actions by establishing the rules that the courts should follow. In so doing, it can attempt to increase the likelihood of review, exposing agency actions to judicial reconsideration. Alternatively, it can take steps to decrease the likelihood of review, protecting agencies from judicial intrusion.

Our goal in this paper is to develop a measure of judicial review of agency action in congressional statutes, one that captures the idea of agency exposure to judicial review.[1] Surprisingly, as we will detail shortly, little systematic evidence exists regarding Congress's activity with respect to the design of judicial review of agencies. Thus, we begin by identifying the types of provisions Congress can use to influence review of agency actions, providing illustrative examples of each type. Next, we develop a coding scheme for systematically detecting and classifying the use of these review provisions in existing statutes. We use this approach to code hundreds of laws from the past seven decades, which reveals the types of judicial review provisions Congress has included in

laws and shows their frequency. In sum, we provide the first systematic portrait of how, when, and in what manner Congress anticipates judicial review of agency actions.

Using these data, we then turn to our main task: creating a measure of exposure to judicial review. We utilize a mixed factor, one-dimensional Bayesian latent variable model to create an index that captures the extent to which laws either expose agencies to judicial review or insulate them from it, an approach that has the advantage of combining various types of provisions into a single measure.[2] We then complement these static, cross-sectional measures by creating additional scores using a dynamic item response (IRT) latent variable model (Martin and Quinn 2002). Thus, overall we develop three distinct (although related) measures – one that focuses on *laws* as the unit of analysis, in order to provide a measure of exposure to judicial review for each law we examine, and two that focus on *agencies* (one that is cross-sectional and one that is dynamic), allowing us to see which agencies Congress has chosen to insulate from judicial review and which it has decided to expose.

Next, we turn to the essential task of validation. When creating new measures, it is crucial to explore their validity. Following the example of recent studies in political science that have developed other new, useful measures, we consider the validity of our indexes in a variety of ways. We first examine whether our scores are predictive of litigation, assessing whether increased opportunities for review lead to more litigation.[3] We then turn to an assessment of the relationship between our measures and two notable political features of agency policymaking: discretion and agency independence. These validation assessments lend support to the value and usefulness of our measures by

providing examples of what Selin (2015) refers to as predictive validity and Grimmer (2010) would characterize as confidence in the application of our index.

Our creation of a measure of exposure to judicial review produces several major contributions. Most basically, it highlights a crucial aspect of judicial review of agencies that has been dramatically underappreciated. Indeed, as we will explain, even prominent legal scholars who study judicial review have held that such provisions – in particular those that preclude or limit judicial review of agency actions – either rarely occur or are simply indications that Congress is reiterating the availability of review. Contrary to this prevailing view, we find that such provisions, including those that constrain or preclude review, are a regular feature of statutes that delegate policymaking authority to government agencies. In doing so, we go beyond case studies to show that rather than being rare or idiosyncratic, such provisions are widespread and regular.

More specifically, by systematically analyzing the inclusion of judicial review provisions in laws, we create a measure that reveals that laws vary – sometimes dramatically – in the degree to which they either increase or decrease the likelihood of review. It has long been recognized that Congress uses procedural and statutory provisions in an attempt to influence agencies directly; here we show that it also uses such tools to attempt to influence courts. Notably, scholars can now use our measures to assess a range of empirical relationships between institutions, providing significant new insights into the separation of powers and the interaction of the three branches of government in the U.S.

1. Background

Despite the importance of Congress's ability to strategically design provisions for judicial review of agencies, and despite the potential for such provisions to influence agency actions and policy choices, few studies have considered this power, and even fewer have systematically assessed it. The most common recognition of the design of judicial review has come in the form of case studies that provide qualitative accounts of specific instances when Congress has debated and, in some cases, adopted specific review provisions that either open agencies up to review or protect them from review. Thus, we have learned that in the areas of veterans' affairs (Light 1992), environmental policy (Melnick 1983; Rose-Ackerman 1995), communications (Cass 1989; Shipan 1997), and welfare (Melnick 1994) legislators carefully considered and debated whether to include judicial review provisions in statutory law, with an eye toward how these provisions would then affect courts, agencies, and policy outcomes.[4]

The few studies that have engaged in more systematic evaluation of this congressional tool have examined either single policies (Smith 2005; 2006 on environmental policy) or specific types of actions, like jurisdiction stripping (e.g., Chutkow 2008).[5] Smith's (2005; 2006) studies deserve highlighting. He demonstrates that Congress strategically includes citizen suit provisions – agency-forcing provisions that citizens can use to push agencies to take action, and citizen-enforcement provisions that let people file suit directly against companies violating the law – in environmental statutes.[6] After demonstrating that the inclusion of these provisions can be explained by political factors, Smith concludes that by carefully choosing the "*parameters of judicial*

review, Congress can set the level and character of the judicial role in national policymaking" (2005, 139; emphasis in original).

The scattered nature of research on this topic has left us with a limited and incomplete picture of this congressional tool. We know little about broader overall patterns regarding whether Congress includes review provisions in laws, when it does so, and what specific types of review provisions it uses. For example, we know that Congress debated whether to protect the Veterans Administration (VA) by precluding (i.e., completely prohibiting) judicial review (Light 1992). Yet the standard view among legal scholars who have discussed preclusion more generally is that it rarely, if ever, occurs (see, e.g., Rabin 1975 and Bagley 2014). Is this true? What about other types of review provisions, such as the scope of review, or time limits for seeking review? Does Congress use such provisions to either increase or decrease the likelihood of judicial review? Beyond the case studies highlighted above, does Congress set the parameters of judicial review of agencies more broadly and across policy areas? In sum, we currently have little sense of how and when Congress designs review provisions.

Empirical research on judicial review thus has suffered from a lack of a unified and systematic approach to measure whether, how, and how frequently Congress uses statutory language to either expose agencies to, or insulate them from, judicial review. Without such a measure, we are limited in our ability to systematically test hypotheses that might emerge from theoretical models of review. Indeed, without such a measure, and without even basic knowledge of whether Congress does in fact include such provisions in laws – or how frequently it does so, or what types of provisions it includes – it makes little sense to develop theoretical accounts.[7] With such a measure, on the other

hand, not only can we begin to understand and investigate the empirical regularities of judicial review provisions, we also can provide a foundation for a deeper theoretical and empirical understanding of separation-of-powers interactions across institutions.

2. Types of Judicial Review Provisions

The range of statutory provisions available to Congress is broad and can seem hard to categorize. In reality, however, the majority of these provisions can be placed into one of five categories: reviewability, time limits, venue, scope of review, and standing. In the following sections we discuss these five types, providing examples within each category.

2.1 Reviewability

First, Congress can address the reviewability of agency actions – that is, whether the courts are permitted to review specific agency actions.[8] Such provisions might specifically designate certain agency actions, or types of actions, as reviewable; they can place limits on review; or they can even completely preclude review. Provisions that allow for review of agency actions can take many forms. They might, for example, straightforwardly state that agency actions are reviewable.[9] Alternatively, they might establish reviewability by asserting that review is *not* precluded (e.g., "Nothing in this subsection shall be construed to preclude judicial review of other final actions and decisions by the Secretary," in the Reclamation Projects Authorization and Adjustment Act of 1992). Or they might specify which actions are reviewable, such as when Congress, in the Cable Television Consumer Protection and Competition Act of 1992, ensured that "[a]ny applicant whose application for a second franchise has been denied by a final decision of the franchising authority may appeal such final decision."

Limits on review similarly can take different forms. Sometimes review is limited by the dollar amount involved, as when the Social Security Amendments of 1965 allowed for judicial review of a decision, but only when "the amount in controversy is $1,000 or more." Other times review is constrained by identifying the grounds on which an agency can be challenged in court, such as when the Immigration Act of 1990 limited the conditions under which a non-citizen could seek review of an agency decision.

Finally, and most strikingly, laws can preclude review entirely, removing the judiciary from the process and giving agencies the final word. Probably the most well-known example of preclusion relates to the actions of the Veterans Administration (VA) prior to when it became a cabinet-level agency in 1988 (Light 1992). Still, although this case illustrates that Congress can preclude review, the dominant perception among scholars is that preclusion is quite rare. Rabin (1975, 905), for example, observed that "[u]sing the federal statutes as a measuring stick, one would search long and hard for an explicit congressional exemption of administrative action from judicial review." More recently, in an insightful article about reviewability Bagley (2014, 1323) echoed this view, contending that "[p]reclusion is uncommon" because "Congress is attentive enough to the importance of judicial review that it typically provides for it." As we will see, however, preclusion – or other limits on review – is not nearly as uncommon as these experts' observations suggest.[10]

2.2 Time Limits

Congress often allows agency actions to be appealed to the courts. But are there limits on the time frame in which judicial review must be initiated? The answer, at least with

respect to the Administrative Procedures Act (APA), is "no," as the APA is silent about such limits. There is, however, a six-year limit governing when suits – including challenges to administrative actions – can be brought against the U.S. government (28 USC §2401(a)). Consequently, in the absence of any explicit time limits in authorizing statutes, a relatively long six-year window exists for the initiation of judicial review proceedings.

Congress can, however, set time limits shorter than this six-year window.[11] The Internal Security Act of 1950, for example, allowed for review of decisions of the Subversive Activities Control Board – provided such review was initiated within 60 days of a final action. The Federal Coal Mine Health and Safety Act of 1969 created an even narrower window, mandating that review had to be sought within 30 days of the agency's decision. There are, of course, a number of reasons why Congress might put such time limits in place – to decrease uncertainty for regulated entities that might have to expend funds on compliance, for example, or to facilitate pre-enforcement review (e.g., Verkuil 1983). At the same time, however, there is little doubt that shorter time limits, by restricting the period during which review can be initiated, decrease the likelihood that an agency's action will be reviewed.[12]

2.3 Venue

Another approach that Congress can use to influence review concerns the venue, or forum, in which review will take place. Statutes can dictate that review must be sought in the local district court; any district court; the local US appellate court; the US Court of Appeals for the D.C. circuit; any federal appellate court; or a special court. In the absence

of a statutory provision that designates which court has jurisdiction, the default is provided by 28 USC §1391(e), which states that judicial review must be sought in the local federal district court, usually defined as the district in which the person seeking review works or resides. But Congress can (and does) designate the venue for review (Greenfest 2013). For example, the Civil Service Reform Act of 1978 states that employees "may obtain judicial review of the order in the United States court of appeals for the judicial circuit in which the employee resides or is employed at the time of the action." And the Housing and Urban Development Act of 1968 stipulates that "[a]ll final orders or decisions… made under this title shall be subject to review by the District of Columbia Court of Appeals."

There are several reasons why Congress might choose to specify and limit where review can be conducted. Specialized courts can be used for certain policy areas, such as customs or tax-related issues. Appellate courts might be chosen to expedite the process by skipping what otherwise would end up being just the first round of review in district courts. And the DC Court of Appeals might be chosen because of its high-level expertise regarding regulatory issues. More relevant for our analysis, case studies have shown that by either broadening the number of courts that can conduct review, or by limiting the potential venues, Congress can respectively increase or decrease the likelihood that an agency's actions will be taken to court (Cass 1989; Shipan 1997).

2.4 Scope of review

The scope of review concerns the standards that a court should use when assessing an agency action. The APA spells out a number of potential standards – whether, for

example, the agency has acted in an arbitrary and capricious manner, or has abused its discretion; whether its actions are unsupported by substantial evidence; and so on.[13] The court then evaluates the agency's action against these standards when determining whether the action should be set aside, and it often has leeway to decide which standard to apply (Pierce 2011). However, rather than leaving the choice of a standard up to the courts, Congress can use enacting statutes to spell out which standard should be used. Furthermore, it has the incentive to do so, since evidence indicates that "when Congress has spoken either on scope of review or on standards of proof, the Court tries to honor Congress' wishes" (Verkuil 2002).

One particular scope of review provision directly affects how much an agency action is exposed to judicial review: whether the court can substitute its own judgment for that of the agency (i.e., *de novo* review), or whether it must defer to the agency's expertise and accept its findings of fact. The Food Stamp Act of 1964, for example, states that when judicial review of an agency action is sought in a U.S. district court, there "shall be a trial de novo by the court in which the court shall determine the validity of the questioned administrative action in issue." The Surface Mining Control and Reclamation Act of 1977 takes a different tack, requiring the court to base its decisions "solely on the record made before the Secretary." As with other types of provisions, Congress can tailor the scope of review to either expose or protect an agency's decisions to review.[14]

2.5 Standing

Finally, Congress can specify which person or persons have the right to challenge an agency's decision in court – in other words, who has standing. Of course, rules about

standing have emerged in part from decisions of the courts themselves (Shapiro 1988).[15] But Congress can, and does, stipulate requirements for standing in laws (Greenfest 2013). In some cases, these provisions are broad, as in the Clean Air Act Amendments of 1970 that allow "any interested person" to seek review. At other times, however, laws may follow the APA more closely and specify that only a person who has been "adversely affected" can pursue review, as in the Consolidated Appropriations Act of 2004.[16]

3. Coding Judicial Review Provisions in Major Laws

The examples in the preceding section demonstrate that Congress can incorporate a variety of provisions that regulate the conduct of judicial review and agency exposure to the courts. But much about this tactic remains unknown and unexplored, including which provisions are used, how frequently these provisions appear, and whether they generally aim to increase or decrease the likelihood of review. Again, other than broad claims that preclusion almost never occurs, and some discussion of debates over whether to increase or decrease the likelihood of review, we have little systematic information about whether Congress acts to preclude, limit, or broaden review; and if so, how frequently it takes such actions and with what types of provisions.

To investigate congressional use of judicial review provisions, we identified all judicial review provisions in major laws from the post-World War II period, using the well-known list of laws compiled (and updated) by Mayhew (2005). We obtained the full text of each of these laws, which we then searched for terms related to judicial review.[17] Once we found any of these search strings, we read each of the sections containing these provisions and dropped those that were not about judicial review of federal agencies.

3.1 Coding Delegated Agencies

Because we are interested in judicial review of agency actions, and not other instances in which Congress might give the courts instructions about how to interpret laws, we also drew upon ProQuest's Regulatory Insight and Legislative Insight databases, which provide information about legislative and agency rulemaking history. Based on our reading of these histories and the laws themselves, we categorized each law as to whether delegation occurred and, if so, which federal agencies received this delegated authority.[18] Starting from the complete set of laws in Mayhew's updated list of significant enactments from 1947 to 2016 and relying on our full text searches, we identified 420 laws that delegate to federal agencies in our analysis.[19]

3.2 Coding Reviewability, Time Limits, and Venue

The next task was to code each of the identified judicial review provisions in the laws according to the categories described above.[20] Three of these categories were straightforward. For reviewability we coded whether provisions either precluded review, limited review, or specifically allowed review.[21] For time limits we coded whether statutory language placed any constraints on when review can be sought. If limits existed, we also coded the number of days.[22] And for venue, we coded whether judicial review was assigned to a specific court or set of courts.

3.3 Coding Scope of Review and Standing

Scope of review is more multifaceted, so we coded two sets of variables. To begin with, laws vary along a continuum in which they give either more or less *deference* to the agency's actions, and in particular whether they instruct courts to defer to the agency's findings of fact. To capture deference, we coded three mutually exclusive indicator variables: "Defer," which denotes whether the enacting language directed the court to accept (i.e., defer to) the agency's findings of fact; "Question Agency," which identifies whether the language of the law gives the court the authority to suggest or require that the agency take additional information into account; and "De Novo," which captures whether the court is allowed to conduct the review *de novo* (i.e., from the beginning), in which case it can substitute its own judgment for that of the agency. In each of these cases the variable was coded as 1 if the provision contained that authority, and 0 otherwise.

In addition, we also coded scope of review by examining whether the law mentioned the *standard* that courts should use when assessing agency actions. More specifically, we noted whether review provisions instructed the courts to apply one of the following standards: arbitrary or capricious; substantial evidence of concern with the decision or processes; or whether the actions were clearly erroneous. We again treated each of these as a dummy variable, assigning a value of 0 for the categories that lacked the specified language and 1 when that language appeared. If no scope of review language was included in the law, we coded each of these as zero.

Finally, we also coded legislative language about standing. More specifically, we coded the level of harm required for a person or persons to have standing, where the primary distinction was between whether the law stated that a person needed to be

adversely affected or aggrieved (as in the APA), or whether it said that any interested person can seek review (thereby broadening the set of people who can file suit). As with the scope of review attributes, we coded these as three dummy categories – "Adversely Affected," "Aggrieved," or "Low Level of Harm" – where each received a 1 if present and a 0 otherwise.

3.4 Baseline Level of Review

Before proceeding to an examination of the data, two other issues merit attention. First, we acknowledge that provisions that allow, limit, or preclude review – or more generally that increase or decrease opportunities for review – do not completely tie judges' hands. Indeed, the courts often rely on a strong presumption of review. Moreover, courts can interpret statutes as allowing for review even when the language of the statute seems to indicate preclusion (Bagley 2014); and they can also do the reverse, interpreting a statute as precluding review even if it does not specifically mention preclusion (Breyer et al. 2017). Still, courts "frequently accept the limitations on review Congress seeks to impose" (Verkuil 1983).[23] More importantly, by including judicial review provisions in law, Congress raises the costs to a court of acting in ways inconsistent with these provisions, whether those costs come in the form of a higher likelihood of being overturned or reputational costs.

Second, the laws we examine were constructed in the shadow of the APA, which contains some (albeit not very detailed) instructions for how judicial review should be carried out. The existence of these APA provisions about review creates an implicit set of review instructions, even in laws that do not contain specific language about review.

Since our primary goal is to assess when Congress either increases or decreases the opportunities for review, we distinguish provisions that either increase or decrease the likelihood of review from those that make no mention of judicial review. For example, the APA is generally viewed as implying a presumption that agency actions will be reviewable (e.g., Bagley 2014). A law that precludes or limits judicial review operates as a clear departure from this presumption. Yet if a law specifically says that judicial review is allowed, we view this as Congress sending a potentially stronger signal to the courts than if it omitted any mention of judicial review and relied on the courts to recognize the presumption of review.

After all, Congress had a choice. It could have made no mention of judicial review, in which case, based on the APA, review would be presumed (although not ensured). We denote this baseline level by coding the attributes discussed above as equal to 0. Alternatively, it could have removed any doubt about whether review is allowed by specifically including language to that effect, thereby dramatically reducing the likelihood that a court might, for example, interpret the absence of any discussion of reviewability as implying preclusion. Including judicial review provisions, even if they mirror language from the APA, therefore suggests an attempt by Congress to make its intentions clear to the judiciary. Furthermore, as Rodriguez (1992) points out, the judicial review sections of the APA are sometimes inconsistent, and even in conflict, with each other, which means that if a law simply defaults to the APA it may be ambiguous with respect to review.[24] Thus, Congress can strengthen its signal by specifying the details of judicial review rather than relying on either presumptions or potentially ambiguous expectations.

4. Frequency of Judicial Review Provisions

Since scholars have not conducted systematic assessments of the range or frequency of judicial review provisions across major laws, we begin by providing basic findings regarding their use. We start by focusing at the law level – that is, we look to see how many laws include judicial review provisions, as well as what types of provisions they include. This aggregation, which we later relax, allows us to provide the first systematic evidence regarding whether, and how frequently, Congress anticipates judicial review.

Table 1 shows that Congress often anticipates judicial review when writing statutes. Of the significant laws enacted between 1947 and 2016 that delegate to agencies, we find that a substantial number include provisions about reviewability, venue, time limits, scope of review, and standing. More specifically, 36% of the 420 delegating laws included at least one section that specified whether judicial review of agency actions was precluded, limited, or allowed.[25] Approximately 29% identify the court (or courts) in which a petition must be filed, and just under 27% set time limits for initiating the review process. Additionally, 27% of laws prescribe the scope of review that courts should follow, while almost 29% delineate which petitioners can file for judicial review. The findings, which we report in Table 1, firmly establish that the inclusion of judicial review provisions in laws is common. Far from letting the courts decide what form judicial review should take, and in contrast to the conventional wisdom, Congress regularly acts to structure the interaction between courts and agencies.

<INSERT TABLE 1 ABOUT HERE>

In Figure 1, we isolate reviewability, the most common and arguably the most significant type of provision, in order to examine patterns over time in allowing, limiting, or precluding review. Several features of this figure are noteworthy. Even in the two Congresses that followed of the passage of the APA (in the 79th Congress), between 10% and 20% of major laws that delegated to federal agencies also specified that judicial review should be allowed. This finding is consistent with the idea that Congress can strengthen the case for allowing review by specifically providing for it, rather than just relying on the APA. In addition, specifically allowing for judicial review is generally – but not always – more common than either limiting or precluding review, although there are a handful of exceptions.[26]

<INSERT FIGURE 1 ABOUT HERE>

Finally, contrary to the standard view, which holds that "[s]ituations of nonreviewability are infrequent and disfavored" (Verkuil 2002, 681), Figure 1 shows that provisions that either explicitly preclude or limit review occur with regularity. Although these preclusions and limiting provisions were fairly rare initially, ever since the 83rd Congress they have become more common. In fact, in a number of Congresses, the combination of preclusions and limitations occurs more frequently than provisions allowing for review.

Overall within our law sample, we found 564 separate mentions of reviewability, which refutes the perception that Congress pays little attention to judicial review writing

laws and delegating authority to agencies.[27] Even more strikingly, and in marked contrast to the conventional wisdom that Congress almost never precludes review, we found 55 laws that include instances of complete preclusion, along with 46 more cases in which limits were placed on review (i.e., review was precluded under certain conditions).

5. Latent Agency Exposure to Judicial Review

Given that provisions for judicial review of agency actions can take multiple forms, and that these observable attributes may be correlated with each other, we now turn to latent variable modeling to create an index of *Agency Exposure*.[28] The value of this approach is that it allows us to combine the various types of provisions into a single measure that captures the degree to which statutory language either *exposes* an agency to review or *limits* the agency's exposure. Absent such a comprehensive measure, the alternative would be to rely on individual types of provisions to determine the extent of overall exposure to judicial review. But given that we have shown that there are multiple possibilities for insulating agencies from or exposing them to review, which type would be the appropriate one to use? If using more than one type, how should they be weighted? Creating a latent index allows us to circumvent these problems and combine information from the different aspects of judicial review that we have identified.[29]

Before discussing our latent variable approach, we first describe how we structured our data. Because laws contain multiple sections, and because these sections can differ not only in which types of review provisions they contain, but also which agency actions – or even which agencies – they address, we create two datasets.[30] One of these datasets is at the level of individual laws. For this dataset, each law in our sample

begins with one initial observation if any delegation to an agency occurs. If the law contains no sections that include language about judicial review provisions, it retains only this one row in the dataset. These are the laws that include delegation but then include no instructions about how judicial review should operate. Since these laws rely on the APA to structure the use of judicial review, we code a zero for each of the separate attributes and no time limit for petitioners, thus identifying these sections as our baseline level of APA review.

A law that contains sections that address the use of judicial review, though, has additional rows of observations for each of those sections. If all delegated agencies include details about judicial review, we remove the initial section of zeroes (baseline APA) and include each of the sections addressing judicial review as a row in our dataset. For laws that have a mixture, with some sections that discuss judicial review of the actions of some agencies and other sections that include no provisions regarding judicial review of other agencies, we retain the initial zero-valued row to provide for these baseline APA cases, in addition to including separate observations for all instances in which the law spells out review provisions. We then develop an exposure score for each section of each law and aggregate across sections to get an overall measure of agency exposure for each law.

This first version of the dataset allows us to derive a law-level measure of agency exposure, a measure that shows how much review that law allows for, regardless of which agency or agencies are involved. This index can be used to pursue questions that occur at the law level – for example, as we explore later, whether laws that delegate with more discretion provide for greater or lesser exposure to the courts. More generally, this

measure may be useful for providing insights into how a political coalition structures and bundles delegation, discretion, and oversight.

Because laws can delegate to multiple agencies, with each agency potentially receiving different judicial review attributes, we also structure our data into a second dataset, one that focuses on agencies. Thus, our first dataset allows us to examine the presence and degree of judicial revisions provisions in a *law*, regardless of the agencies that are involved, while the second provides us with the ability to focus on which *agencies* are targeted by judicial review provisions. To create this agency-level dataset, for each law we identified every agency that derives regulatory authority from the law by utilizing ProQuest's Regulatory Insight database. We rely on the public law number to find each regulatory history in our dataset and include only agencies promulgating rules within the first seven years of enactment.[31] We then merged this information with our coding of judicial review attributes. Recall that our law-level dataset includes 420 laws, 268 of which included no instructions for judicial review. Of these 268 laws, we identified 1,121 instances of agencies with regulatory responsibilities. For the remaining 152 laws, each of which contains at least one section detailing judicial review for an agency, an additional 1,402 agencies were delegated implementation responsibilities, but without any corresponding judicial review details.[32]

For example, consider the Sarbanes-Oxley Act, which Congress passed in 2002. Since this law delegates to eight different agencies (e.g., the Securities and Exchange Commission, the Department of House and Urban Development, etc.), and does not include any judicial review provisions in the sections delegating to each of these agencies, the entry for this law in our agency-level dataset contains eight observations

with review attributes coded as zeroes, each row corresponding to each delegated agency.[33] In contrast, the Trade Act of 2002 includes review provisions in its delegation to the Departments of Homeland Security Agriculture, Commerce, and Labor, so there is an observation for each of these agencies in which the review provisions are coded based on the language in the statute. In addition, however, this law includes two more rows with baseline APA codes (i.e., zeroes) for the Department of the Treasury and the Executive Office of the President, since the statute delegates to both but contains no discussion of review provisions relevant to these agencies.

Overall, laws varied widely, in terms of the number of agencies to which they delegate. Some laws delegate to few agencies – for example, the Budget Control Act of 2011 delegated to one agency, the Department of Health and Human Services. Other laws, however, contained multiple delegations. The Omnibus Consolidated and Emergency Supplemental Appropriations Act of 1999, for example, delegated to 42 different agencies, including the Departments of Agriculture, Labor, Justice, State, and more. Unlike the law-level scores, these agency-level scores allow for the exploration of judicial review for different types of questions – for example, the connection between agency independence and judicial review or, more generally, questions related to specific agency structures and processes relevant for policy implementation.[34]

With these data structures in hand, we can define a continuous index of *Agency Exposure* – either by law or by agency – as the extent to which agency actions are exposed to judicial review. This index includes both negative and positive values, with lower values indicating that Congress is insulating agencies from the courts and higher values revealing that Congress is exposing the agency's actions to judicial review. Since

we have a mixture of dichotomous and continuous variables, we utilize a mixed factor, one-dimensional Bayesian latent variable model to estimate our underlying latent trait for each coded section of a law in our law-level dataset and for each regulatory agency in each law for our agency-level dataset.[35]

The use of a latent trait model allows us to capture and combine the breadth of ways in which Congress designs judicial review of agencies by incorporating our data as coded above, as well as assuming each measured variable contributes differently to the index, in a fashion similar to traditional factor analysis. Let $i = 1, \ldots, N$ represent the coded sections of significant public laws enacted from the 80th to the 114th Congress (from 1947-2016) and $j = 1, \ldots, J$ be the individual attributes we collected above that are related to judicial review of agency actions. Following Quinn (2004), Rosenthal and Voeten (2007), and Caughey and Warshaw (2016), we first assume:

$$x_{i,j} = \begin{cases} 1 & \text{if } x_{i,j}^* > 0 \quad \text{for } j \text{ dichotomous,} \\ 0 & \text{if } x_{i,j}^* \leq 0 \quad \text{for } j \text{ dichotomous, and} \\ & x_{i,j}^* \text{ for } j \text{ continuous,} \end{cases}$$

where $x_{i,j}$ is the measured value for section *i* on trait *j* and $x_{i,j}^*$ is a latent score for the variable.[36] We then specify our model of latent agency exposure for each section as a function of a matrix of factor loadings (Λ) and a vector of factor scores (η_i):

$$x_i^* = \Lambda\eta_i + \varepsilon_i,$$

and assume that the $N \times J$ matrix of latent scores follows a multivariate normal distribution.[37]

To identify our models, we constrain the attribute "Allow" to be positive, "Preclude" to be negative, and our time variable to have a mean of zero; but otherwise we leave our attributes unconstrained.[38] In sum, we analyze the pattern of indicators related

to a provision within a law across J traits related to exposing an agency to judicial intrusion or limiting that exposure.[39]

We begin by creating two measures of agency exposure, one that captures exposure at the law level and the other by agency. These cross-sectional measures are valuable for a number of reasons. First, our approach in creating these measures follows Quinn (2004), Rosenthal and Voeten (2007), and Selin (2007) and thus is a well-established approach in the literature. Second, our measurement approach is, in effect, a repeated cross-sectional sampling strategy: significant laws in a year (law-level) and implementing agencies within those laws enacted in a year (agency-level). Thus, the static, cross-sectional model provides the most straightforward match between modeling assumptions and data collection. Third, to examine within-year differences in exposure to the judiciary, a static measure provides the most accurate picture of these differences. For example, if we are interested in considering the effect of divided government on the congressional design of judicial review and delegation choices, a static annual (or bi-annual) measure is valuable.

Because of our lengthy time frame from 1947 to 2016 and the potential for change in the meaning and context of attributes over the span of seven decades, we complement these two initial approaches by developing a third set of scores, one that specifically incorporates the possibility of temporal correlation of review attributes. To do this, we construct a dynamic latent measure of agency exposure to the judiciary, relying on the same methodology utilized to measure the ideology of legislators or judges based on their votes (e.g., Imai et al., 2016).[40] Thus our $N \times J$ matrix of attributes is partitioned by time:

$$x_{i,t}^{*} = \Lambda\eta_{i,t} + \varepsilon_{i,t}.$$

We assume the time component is each year, which means we aggregate our codes for each attribute in each law, section, and agency to each year in the dataset. Most notably, a dynamic approach to our construct of interest allows us to consider the possibility of change in the meaning of the attributes over time. For example, allowing for review in the 1950s may have a different connotation to the legislators involved in crafting statutory language than to legislators in the 2000s. Additionally, the background of judicial interpretations of deference to agencies, the meaning of the Administrative Procedures Act, or other components administrative law may change over time.

This dynamic approach, which explicitly models the temporal correlation of our attributes, in effect smoothing our exposure scores over time, allows the influence of individual attributes to change, albeit slowly.[41] A dynamic measure of agency exposure to the judiciary thus is useful for studying questions contingent on the evolution of legislative-executive or legislative-judicial interactions, such as whether the speed of agency rule promulgation depends on exposure to the judiciary over time. Moreover, if we are interested in the influence of changes in elite party polarization on delegation and the judicial oversight choices of the legislature over time, we would utilize our dynamic measure of exposure.

We plot the estimated contribution of each attribute to our two static indexes in Figure 2. The loading for each attribute is shown by the location of the marker, with the precision of the estimate provided by the lines extending from the marker (with 95% credible intervals denoted by the thick black line). Many of the attributes behave as we would expect in one or both plots.[42] For example, "Preclude" is associated with the lowest level of exposure to the judiciary across our analyses (i.e., higher levels of

insulation) and the mean of our continuous time limits attribute is zero. Meanwhile, as assumed in the model, "Allow" is associated with positive levels of exposure, although at a higher degree in our agency-level dataset than our law-level analysis. The three attributes that load the most positively on our static indices are two of the three standards of review categories: "Substantial Evidence" and "Clearly Erroneous," along with the ability of courts to question agencies.[43]

<INSERT FIGURE 2 ABOUT HERE>

A few attributes produced surprising results in Figure 2. For example, rather than being associated with higher levels of exposure, "De Novo" appears to have a slight positive effect in both the cross-sectional law- and agency-level analyses. We do not view these unexpected loadings as especially troubling. First, many of these categories have small numbers (i.e., few sections contain these specific attributes). Second, if we add or subtract assumptions – for example, restricting "De Novo" to be positive or changing our time limit categories – our results and scores change little. Third, if we exclude the factors that produce surprising loadings, we obtain results that are highly correlated with what we show here. Finally, note that if every factor loaded exactly as predicted, then there would be little need to create an index.

6. The Agency Exposure Index:

We turn now to a discussion of the results of our latent trait models. We begin with the law-level version of our *Agency Exposure* index. Next, we turn to the static agency-level measure, and then to the dynamic agency-level scores.

6.1 Law-level scores

Our measure of exposure to judicial review at the level of individual laws ranges from a low value of -1.45, which is the value for the law providing the most insulation, to 1.64 in the law providing the most exposure.[44] Table 2 provides examples of laws that appear at the low end of exposure (i.e., high insulation from judicial review), in the middle, and at the high end.[45]

<INSERT TABLE 2 ABOUT HERE>

Three of the laws that preclude review of agency actions exemplify a high level of insulation from review (i.e., low values on our exposure index): the Congressional Accountability Act of 1995, the Energy Security Act of 1980, and the Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014. For instance, one section in the Energy Security Act states that the "findings [regarding the need to exercise eminent domain powers] of the Board of Directors [of the Synthetic Fuel Corporation] shall not be subject to judicial review in any court." A later section focusing on the president's authority to determine whether there is a fuel shortage continues with "No

court shall have the authority to review any determination made by the President under this subsection."

Other laws, such as the Consolidated Appropriations Act of 2016, the Trade Act of 2002, and the Immigration Act of 1990 allow for middle levels of exposure, with some review allowed. In the Immigration Act, judicial review is precluded for Attorney General determinations with respect to temporary protected status. In contrast, final deportation orders are subject to judicial review as long as the petitioner files within 30 days of the determination (a decrease from the previous 60-day limitation). The average measure of agency exposure across the entire law for the Immigration Act is 0.11.

At the most positive end of the spectrum (i.e., high exposure scores) are those laws that specifically allow for review of agency actions, such as the Gun Control Act of 1968, where "the aggrieved party may [in 60 days]…file a petition …of a [gun collector license denial or revocation]…the court may consider any evidence submitted by the parties to the proceeding. If the court decides that the Secretary was not authorized to deny the application or to revoke the license, the court shall order the Secretary to take such action as may be necessary to comply with the judgment of the court." These examples reveal some of the complexity of judicial review attributes. By using our latent modeling approach, we can capture these nuances, which in turn allows for comparisons across laws. Thus, by systematically collecting judicial review attributes in laws, we are able to create a novel measure that documents differences across laws – and in our next version, across agencies – with respect to how they either expose or insulate agencies from judicial review.

6.2 Agency-level scores (static version)

As discussed, we also use a standard latent variable approach to create *Agency Exposure* scores at the agency level, since different laws might contain different types of provisions for different agencies. This agency-level version of our index runs from -1.60 to 2.17. As with the law-level index, preclusion from review lands a law in the most insulated range of our measure, as shown in Table 3 for the Federal Deposit Insurance Corporation and the Securities and Exchange Commission in the Dodd-Frank Reform Act, or the Department of Agriculture in the Food and Agriculture Act of 1977.

In contrast to those agencies that are mostly insulated from review, our measure shows that other agencies are subject to review, but with limits placed on the extent of review. Table 3 provides some examples of agencies that fall into this category, such as the Environmental Protection Agency in the Toxic Substances Control Act or the International Trade Commission in the Trade and Tariff Act of 1984, among others. The Consolidated Appropriations Act of 2001 provides another example. In this law, judicial review of the Social Security Administration's determination of the amount of payment to individuals with respect to Medicare parts A and B is not available if the payment is below $1,000. Thus, review is allowed, but limited. Moreover, although judicial review is available for individuals who fail to receive certain administrative review processes, individuals have twenty days after the agency's final ruling to file a petition for judicial review and the method of determining the amount of payment is not subject to judicial review.

Finally, other agencies are revealed to be at the high end of the distribution of this version of our index. For example, the Dodd-Frank Wall Street Reform Act intensifies

reviewability of the Consumer Financial Protection Bureau (CFPB) by including a provision that provides for *de novo* review, thereby broadly exposing this bureau to the courts. Other laws similarly expose agencies to a high level of review, such as the Department of Justice in the Civil Rights Act of 1964 or the Department of Energy in the Energy Policy Act of 1992. As the Dodd-Frank Reform Act exemplifies, laws can expose some agencies to higher levels of judicial review (CFPB), while also insulating others (the Federal Deposit Insurance Corporation and the Securities and Exchange Commission). In Figure 3 we plot the mean of the exposure index by agency across the years of our dataset. Agencies that are revealed to be more exposed to judicial review on average include the Environmental Protection Agency and the Department of Energy, whereas insulated agencies include the VA and the Department of Defense.

<INSERT TABLE 3 and FIGURE 3 ABOUT HERE>

6.3 Agency-level scores (dynamic version)

Given that our dynamic agency-level version of *Agency Exposure* creates a score for each agency in each year in our dataset, we can examine agency exposure across time for each of the agencies in the sample.[46] Examples of the underlying variability of the previous static agency-level means from Figure 3 are revealed over time for the EPA and the VA in Figure 4. The scores for the VA reveal low levels of insulation from the judiciary over the time period, with the exception of a large peak from 1983 to 1988, which is around the time of its transition from an independent agency to a cabinet-level department (Light 1992). Additionally, the trend since the late 1990s has been toward

increasing levels of exposure for the VA. The EPA, in comparison, shows fairly regular peaks and valleys in the level of exposure, with three- or four-year increases followed by similar three-to-four year decreases—a pattern that may reveal congressional reaction to controversy or delay as the EPA implements new policy changes or, alternatively, the salience of EPA policy and changing administrations.[47]

<INSERT FIGURE 4 ABOUT HERE>

6.3 Summary

Our latent variable approach produces the first comprehensive, systematic measure of the legislative design of judicial review of agency actions. Furthermore, it allows us to create law-level and agency-level scores for cross-sectional (i.e., static) and dynamic analyses. A law-level static index offers a measure of how Congress bundles judicial review as a package of delegations, as well as instructions for implementation and oversight. Our cross-sectional agency-level index provides us with a measure of within-legislature differences in the degree to which agencies are exposed to the judiciary, allowing scholars to examine questions related to the consequences of variation between congresses. Finally, by loosening our assumptions about temporal correlation, we create a dynamic measure of agency exposure from 1947 through 2016. This dynamic latent index allows us to consider changes in the meaning of judicial review attributes across decades, as well as affording scholars a measure to utilize in studies that incorporate evolution and change.

7. Validation

The previous sections establish that Congress frequently anticipates future judicial action and attempts to structure how review should be carried out. Based on our identification and coding of review provisions, we have constructed latent trait measures of exposure to judicial review at both the level of individual laws and for specific agencies within laws. Now we need to turn to the equally important task of assessing the validity of these measures. As Selin (2015) has argued, when constructing a new measure it is both informative and necessary to determine whether (and how) it correlates with other potentially related political attributes in order to determine criterion validity.

We begin by probing the validity of our scores by examining their relationship to litigation. More specifically, if our scores are valid, then an increase in opportunity for judicial review should be correlated with an increase in litigation. (A second test of validity, which can be found in Appendix C, conducts a similar type of validation by assessing whether Congress increases opportunities for review when it is more trusting of the courts.) We then further explore validity by examining the relationship between our scores and two fundamental aspects of agency policymaking: delegation and agency independence. Like many other scholars who have developed new and potentially useful measures (e.g., Bertelli and Grose 2011; Clinton and Lewis 2008; Clinton, Bertelli, Grose, Lewis, and Nixon 2012; Clinton and Lapinski 2006; Grimmer 2010; Selin 2015), our goal in these validation exercises is to provide an initial assessment of whether the new measure is related to existing concepts and measures in a reasonable way.[48] In addition, these exercises provide examples of how our scores can be used.

7.1 Litigation and Exposure

We begin by examining the correlation between our dynamic measure and data drawn from the University of South Carolina's Judicial Research Initiative (JuRI) (Hurwitz and Kuersten 2012). JuRI provides a dataset consisting of a random sample of U.S. Courts of Appeals cases from 1925 through 2002, categorized by (among other variables) the parties involved in the decision and the type and names of litigants involved.[49] We can use the JuRI dataset to assess the validity of our scores by examining the link between agency exposure to judicial review and the frequency of litigation.

Since our dynamic agency-level measure provides a yearly average of exposure, we would expect our measure to be correlated with a greater frequency of litigation. In other words, when Congress opens up agencies to judicial review, and makes review easier to initiate, we should expect to find a higher frequency of litigation involving those agencies. To examine whether this predicted relationship occurs, we begin by collecting the number of appeals courts cases that involve the federal government as a respondent by agency and year from 1947 through 2002. Then we compare the number of cases for each agency to our measures of exposure to judicial review.

In Table 4 we display the results of a t-test considering those dynamic agency exposure scores that are below versus at-or-above the median in comparison to the number of appeals courts cases in that year for an agency. We find that, as expected, agency-years with higher levels of exposure have approximately 2.5 more cases in a year than those with below median levels of exposure.[50] In other words, increased opportunities for judicial review are associated with an increase in litigation, which provides validation for our measure.

INSERT TABLE 4 ABOUT HERE

7.2 Delegation and Discretion

We continue our validation exercise with a consideration of the relationship between the amount of discretion that a law delegates to agencies and the degree to which the same law either increases or decreases the likelihood of judicial review. We know, from numerous earlier studies, that legislatures use statutes to influence the amount of discretion an agency has. One way they can do so is by using either detailed language that tells agencies what to do (and thus limits discretion) or vague language that allows for considerable discretion (e.g., Huber and Shipan 2002).[51] In other words, when a legislature wants to constrain agencies and limit their discretion, it can do so by writing detailed statutes that direct agencies to take specific actions.

In addition to writing detailed laws that tell an agency what to do, Congress has another tool that it can use to make sure the agency does what Congress wants: it can enlist the courts to watch over the agency. Writing detailed statutes that limit discretion and expanding access to review thus are complementary: when Congress wants to constrain an agency and writes detailed statutes that direct an agency to act in certain ways, it should also increase the likelihood of judicial review, to further ensure that the agency follows the law and does what Congress has told it to do. In terms of validation, we should find that our measure of exposure to judicial review increases in situations where Congress has given precise instructions to agencies and wants the courts to help it monitor these actions.

To investigate this relationship and to further assess the validity of our judicial review scores, we assess the correlation between our law-level index of *Agency Exposure* and the amount of discretion in each law. More specifically, we create a measure called *Discretion*, which captures the inverse of the extent to which a law constrains agencies by utilizing the commonly-used metric of word counts (i.e., where statutes containing more words place more constraints on agencies than do those containing fewer words).[52] We then investigate the correlation between this measure and our *Agency Exposure* scores.[53] To the extent that our measure is valid, we should expect that when Congress writes more detailed laws (i.e., limits discretion), it also should increase opportunities for review.

Table 5 explores this relationship. In this table, we divide laws into high and low levels of discretion, corresponding to whether each law's discretion score was above or below the median, respectively. Using our law-level measure of judicial review exposure, we then calculate the average exposure score for laws falling into each of those categories, with the expectation that when Congress writes more detailed laws (i.e., limiting agency discretion), it also will increase opportunity for review (i.e., higher *Agency Exposure* scores). A t-test confirms that this is indeed the case: as we move from laws with high discretion to those with low discretion (i.e., those in which Congress uses the statute to constrain agencies), we see a increase of 0.19 in our *Agency Exposure* score, which corresponds to a 6.1% increase.[54] Our results therefore suggest that Congress exposes agencies to more judicial review when it gives them explicit directions.[55]

<INSERT TABLE 5 ABOUT HERE>

7.3 Agency Independence

As a final exercise, we evaluate the relationship between agency independence and exposure to review. Agencies vary considerably in the degree to which they are independent of elected officials (e.g., Gilardi 2008). One question that has not been addressed, however, is whether there is a connection between an agency's level of independence and the degree to which Congress exposes it to, or insulates it from, judicial review.

The expectations here are less clear than in the previous two examples (or the example in the appendix). On one hand, Congress might choose to increase judicial review for agencies that are more independent and decrease judicial review for those agencies that are less independent. The logic here is that since Congress is unable to exert strong influence over agencies that are more independent, it might turn to the courts to try to place limits on what more independent agencies are doing. On the other hand, Congress might choose to shield agencies that are more independent from judicial review, as it expects such agencies to benefit from the freedom to draw on, and develop, its own expertise, without needing to worry about influence or reprisal from other institutional actors, including the courts. Since we lack a clear prediction here, this exercise is less about predictive or concurrent validation and more about demonstrating how our scores can be used to assess other aspects of agency policymaking.

We draw our measure of agency independence from recent work by Selin (2015). In this innovative study, Selin gathers separate indicators of independence and creates an index of independence along two dimensions: how agency leaders are appointed

(dimension one, which captures the independence of agency leaders), and political review of agency actions (dimension two, which captures the independence of agency processes).[56] Here we explore the relationship between Selin's measures and our agency-level measure of *Agency Exposure*. By comparing her measures with ours we can assess the connection between an agency's independence and the degree to which Congress opens it to judicial review.

To examine the correlation between Selin's measures and our agency-level measure of *Agency Exposure*, we use a simple regression, one that allows us to control for other factors by including time and agency effects. Since Selin's measure is a static measure of agency independence, we utilize our static agency-level index. Table 6 displays these results. Models 1 and 2 focus on the relationship between our agency-level exposure index and each dimension of agency independence separately, while Models 3 and 4 include both independence measures together, along with time trends in Model 4.

We find a statistically significant negative relationship between the independence of agency leaders and *Agency Exposure*. In Model 4, for instance, a coefficient of -0.044 corresponds to a 1.2% decrease in agency exposure to the judiciary as this first dimension of agency independence increases by one unit (given our agency-level exposure index is 3.77 units in length) for agencies with no insulation from politics of their processes (dimension 2). On the other hand, we find a positive effect for the second dimension of independence: as agency processes become independent of politics (for those agencies with no leadership independence), the agency is increasingly exposed to the judiciary. The coefficient for this variable corresponds to an increase of agency exposure around 1.4 percent as independent processes increase by one unit. Clearly, these mixed findings

call for further research. At the same time, by showing that when Congress trusts an agency's leaders it protects the agency from review, but that it increases opportunities for review when an agency is structurally more independent, our results suggest that Congress uses judicial review provisions strategically, varying their use depending on the specific nature of agency independence.

<INSERT TABLE 6 ABOUT HERE>

8. Discussion and Conclusion

Congress has the ability to spell out administrative judicial review provisions in individual statutes, offering up the potential to dramatically affect agency policymaking and shape policy outcomes. Although scholars have noticed the existence of these provisions, research has suffered from a lack of a systematic and unified approach to measure how Congress strategically uses statutory language in an attempt to influence this relationship between agencies and the courts. Our goals in this paper were to provide such a unified and systematic measure of exposure to judicial review across laws and agencies over time.

In part, we build upon insights from several case studies that have pointed to the controversies that occurred over the choice of review provisions in specific contexts. But our approach to measuring exposure to review is much more comprehensive, covering a significant number of major laws over a long time period and across policy areas. Based on intensive hand-coding of laws to determine which types of provisions have been used, we found that Congress regularly chooses to include review provisions in major laws.

Indeed, judicial review provisions are included in over a third of all major laws that have delegated authority to federal agencies in the post-World War II era.

Furthermore, we found that Congress sets the parameters for review in a variety of ways. These review provisions sometimes allow for review of agency actions, sometimes limit it, and other times preclude review all together. In addition, Congress often specifies the venue for review, the time limit in which review must be initiated, the scope of review, and standing. By using these provisions, and by deciding on their specific form, Congress can substantially affect whether the actions that agencies take are protected from judicial review or whether they are made vulnerable to judicial oversight. Overall, then, our analysis demonstrates how Congress can – and does – use procedural controls involving the courts in much the same ways that it does with the bureaucracy. Our main contribution is to combine these attributes with a latent variable approach to measure agency exposure to judicial review. Our measure of *Agency Exposure*, which we create at both the law-level and agency-level, has a wide variety of potential uses. Notably, we also carefully examined its validity, by considering the frequency of litigation as well as potential associations between *Agency Exposure* and important aspects of the separation of powers: the amount of discretion included in public laws and agency independence. Our validation exercises show that, as expected, an increase in exposure to judicial review is associated with an increase in litigation.[57] Furthermore, agencies that are more constrained (i.e., have lower levels of discretion) have higher levels of exposure to the courts, suggesting that Congress utilizes the courts in its efforts to ensure that agencies follow congressional directions and again supporting the validity

of our measures. Finally, we find mixed but interesting results concerning the relationship between agency independence and exposure to review.

Together, our new data and measure create possibilities for future empirical research to systematically explore how Congress creatively and strategically uses a variety of delegation tools to structure policy implementation. If, as our validation exercise suggests, Congress is pairing less court oversight with higher levels of discretion and protecting some kinds of independent agencies from administrative judicial review, theoretical approaches to delegation may need to be refined. It also suggests other avenues of investigation – for example, into the relative costs of congressional versus judicial oversight, differences across policy areas that require higher or lower levels of expertise or that have different levels of political salience, whether the use of review provisions is influenced by electoral considerations, and even whether courts are eventually constrained by these provisions. Our approach in this paper, by identifying, documenting, and systematically measuring the use of review provisions, as well as validating these measures, both suggests and makes possible these sorts of studies.

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FIGURES

Figure 1: Pattern of Reviewability by Congress

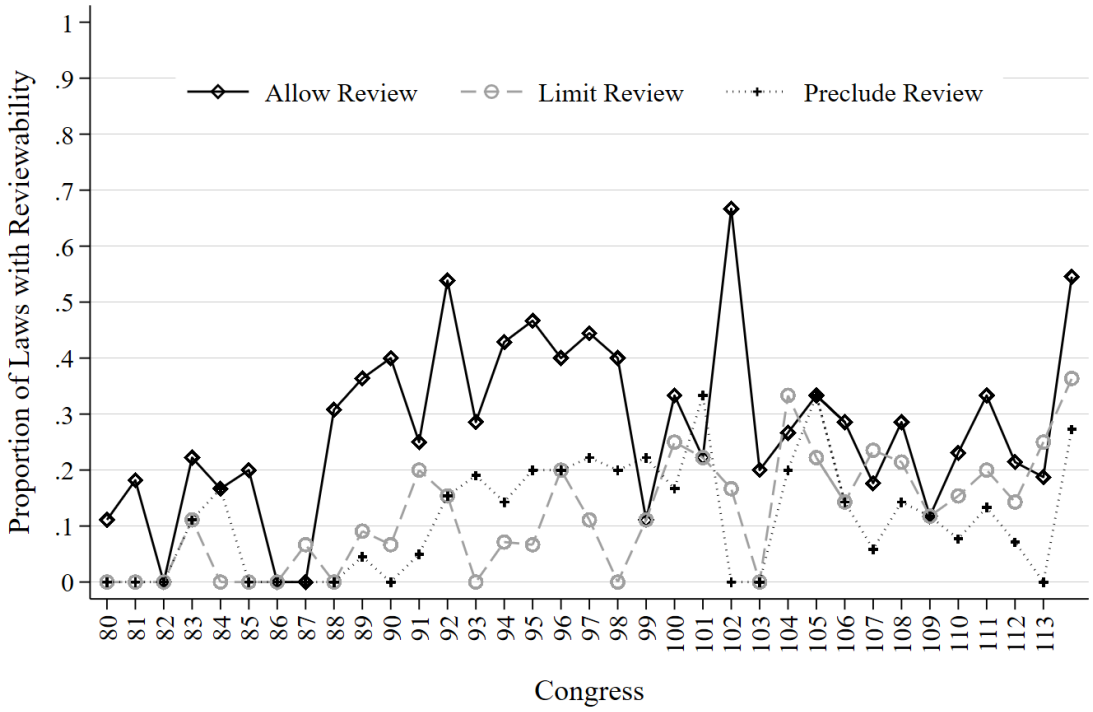
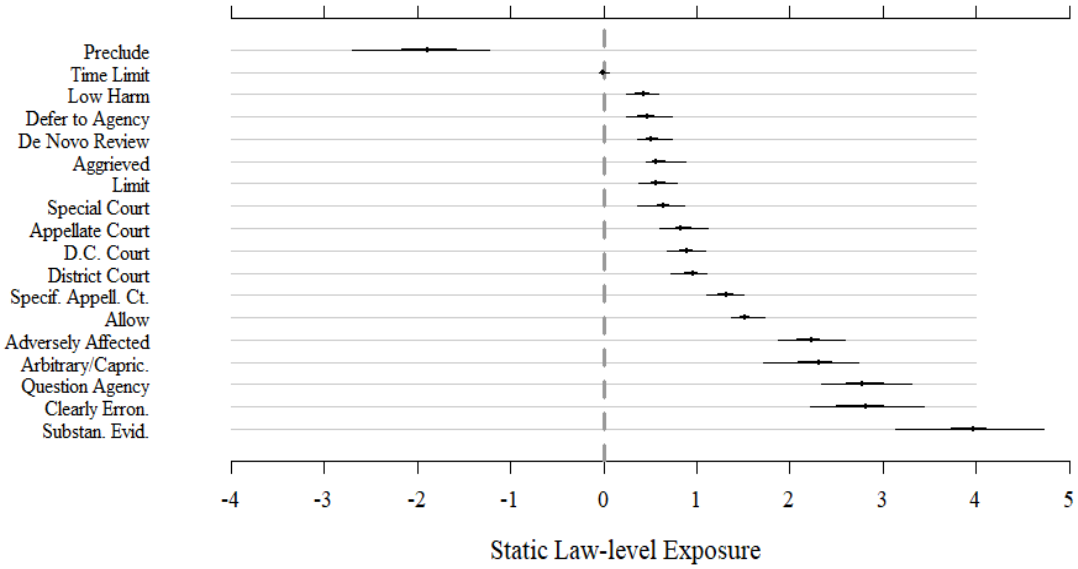


Figure 1 *depicts the proportion of laws with the three reviewability attributes by Congress.*

Figure 2: Relationship between Observables and Exposure to the Courts, Static Models



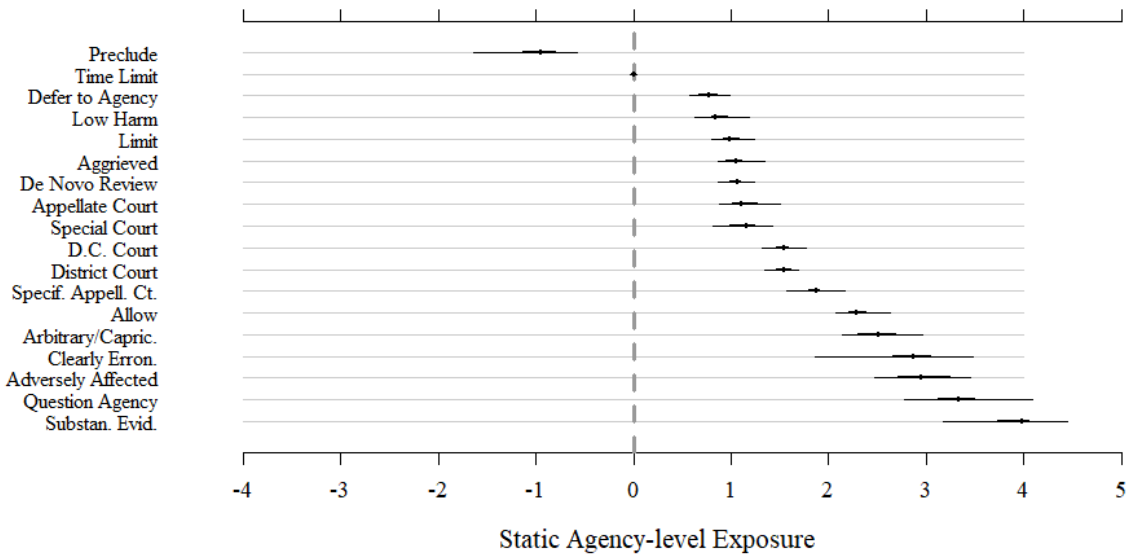


Figure 2 *plots the influence of each category of review (i.e., each attribute's loading) on the overall exposure index for (a) each law and (b) each agency in laws along with 95% credible intervals.*

Figure 3: Average Exposure Scores for Cabinet-level Agencies (1947-2016)

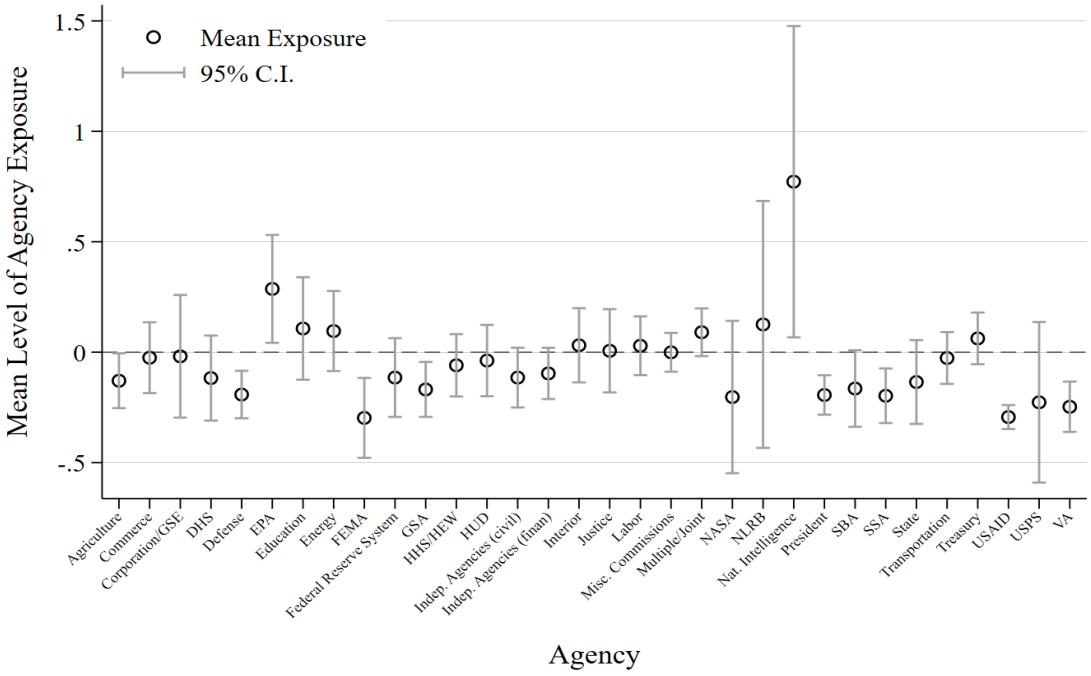


Figure 3 *graphs the mean agency-level exposure across time from our static model, along with the 95% confidence intervals*

Figure 4 : Dynamic Agency Exposure Scores for the Environmental Protection Agency and Veterans Affairs over Time.

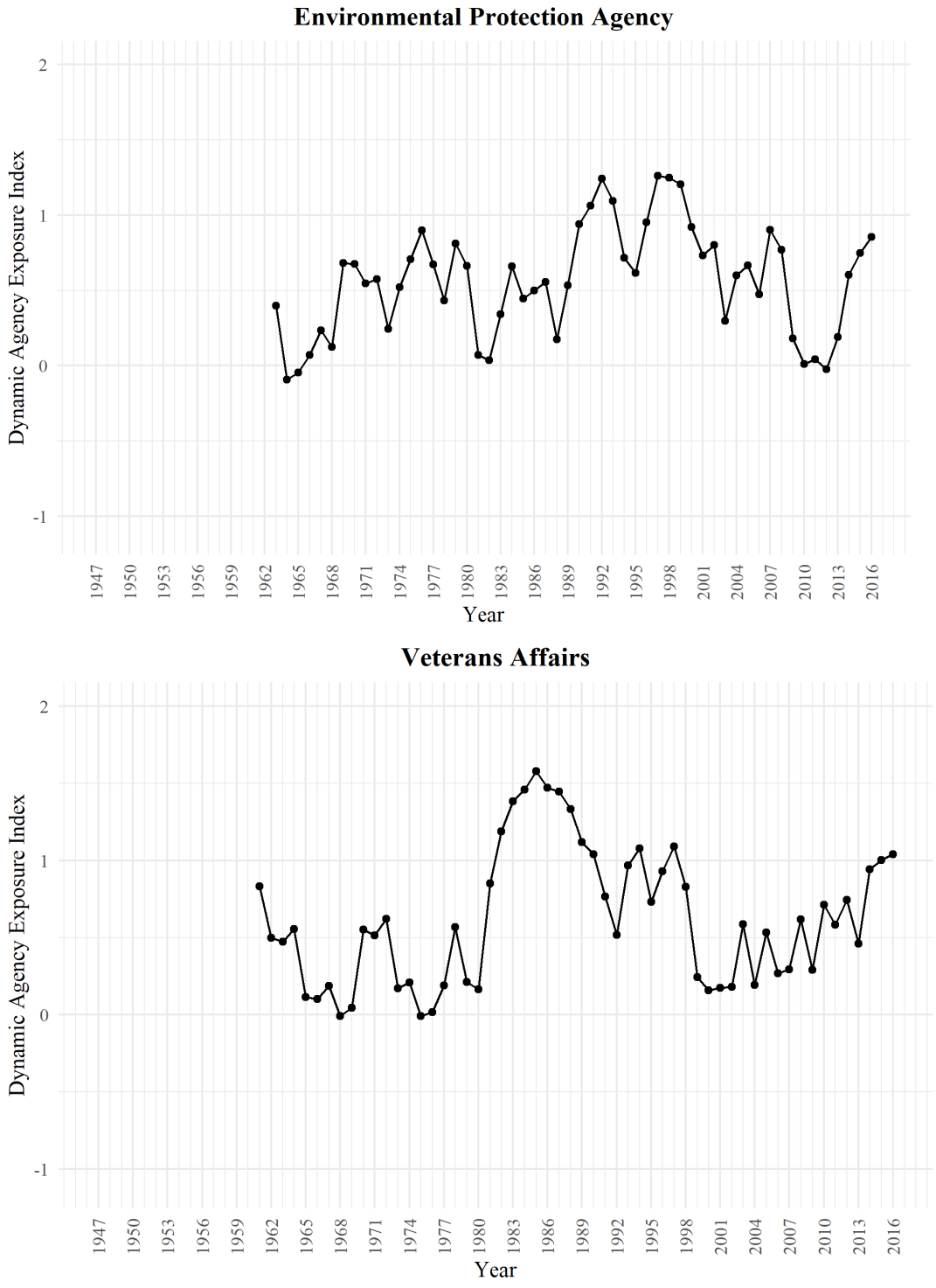


Figure 4 *provides the EPA and Department of Agriculture dynamic agency-level exposure scores across time.*

TABLES

Table 1: Frequency of Different Types of Provisions in Major Delegating Laws

Types of Provision	*Number of laws with this provision*	*Percentage of laws with this provision:*
Reviewability	152	36%
Venue	123	29%
Time Limits	112	27%
Scope of Review	114	27%
Standing	121	29%

Note: Total Number of Delegating Laws in Dataset = 420

Table 2: Law-Level Scores of Exposure to Judicial Review

Law Title (Pub. L. Number)	Exposure Index (mean)
Most Insulation from Review	
Congressional Accountability Act (Pub. L. 104-001)	-1.46
IMPACT Act of 2014 (Pub. L. 113-185)	-1.45
Energy Security Act of 1980 (Pub. L. 96-294)	-1.14
Some Review Allowed	
Consolidated Appropriations Act of 2016 (Pub. L. 114-113)	-0.17
Trade Act of 2002 (Pub. L. 107-210)	0.08
Immigration Act of 1990 (Pub. L. 101-649)	0.11
Most Exposure to Court Review	
Every Student Succeeds (Pub. L. 114-095)	1.10
Gun Control Act of 1968 (Pub. L. 90-618)	1.10
Copyrights Act of (Pub. L. 94-553)	1.64

Table 3: Agency-Level Scores of Exposure to Judicial Review

Public Law	Federal Agencies	Exposure Index (mean)
Most Insulation From Review		
Dodd Frank Wall Street Reform and Consumer Protection Act (Pub. L. 111-203)	Fed. Deposit Insurance Corporation; Securities and Exch. Commission	-1.60
Energy Security Act (Pub. L. 96-294)	Synthetic Fuel Corporation	-1.58
Food and Agriculture Act of 1977 (Pub. L. 95-113)	Dept. Of Agriculture	-1.52
Some Review Allowed		
Consolidated Appropriations Act of 2001 (Pub. L. 106-554)	Social Security Admin.	0.62
Toxic Substances Control Act (Pub. L. 94-469)	Environ. Protection Agency	0.72
FAST Act (Pub. L. 114-094)	Housing and Urban Development	0.90
Trade and Tariff Act of 1984 (Pub. L. 98-573)	U.S. International Trade Commission	0.98
Most Exposure to Court Review		
Energy Policy Act of 1992 (Pub. L. 102-486)	Dept. of Energy	1.63
Dodd-Frank Wall Street Reform and Consumer Protection Act (Pub. L. 111-203)	Consumer Financial Protection Bureau	1.78
Civil Rights Act of 1964 (Pub. L. 88-352)	Dept. of Justice	2.17

Table 4: Dynamic Agency Exposure to the Judiciary and Appeals Litigation Cases

Two-Sample T-Tests of Exposure:

	Number of Appellate Cases Involving an Agency as Respondent	Cumul. Number of Appellate Cases (over 3 years) Involving an Agency as Respondent
Insulated Agency-Years	0.902 (0.158)	2.951 (0.527)
Exposed Agency-Years	3.380 (0.332)	10.898 (1.056)
Difference:	-2.478 (0.368)**	-7.947 (1.162)**

Notes: Standard errors are reported in parentheses. Significance is ** $p < 0.01$.[58] Using the median of our dynamic agency exposure index, yields two samples: 1,638 agency- years that are insulated and 1,638 agency-years that are more exposed.

Table 5: Discretion and Law-level Exposure

Two-Sample T-Test of Constraints

	Law-level exposure
Low Discretion	-0.175 (0.039)
High Discretion	-0.292 (0.034)
Difference:	-0.117 (0.052)**

Notes: Standard errors are reported in parentheses. Significance is ** $p < 0.01$. Given we use the median of the distribution as the cut-point, there are 210 laws with low and 210 laws with high levels of discretion.

Table 6: Agency Independence and Agency Exposure to Judicial Review

	Model 1 Coef. (C.S.E.)	Model 2 Coef. (C.S.E.)	Model 3 Coef. (C.S.E.)	Model 4 Coef. (C.S.E.)
Leader Independence (Selin Dimension 1)	-0.016 (0.064)		-0.045 (0.057)**	-0.044 (0.057)**
Independent Processes (Selin Dimension 2)		0.035 (0.018)^	0.051 (0.018)*	0.051 (0.018)**
Agency Clustered S.E..	√	√	√	√
Congress F.E.	√	√	√	√
Policy Area F.E.	√	√	√	√
Time Trend				√
Time Trend^2				√
Time Trend^3				√
Constant	-0.256 (0.115)*	-0.275 (0.113)*	-0.277 (0.114)*	-0.797 (0.383)*
R-Squared	0.095	0.097	0.099	0.100
Adj. R-Squared	0.074	0.076	0.078	0.077
N	2,341	2,341	2,341	2,341

Notes: Models report ordinary least squares estimates with the dependent variable as the average static agency-year *Agency Exposure* index. Robust standard errors, clustered by agency, in parentheses with * $p < 0.05$, ** $p < 0.01$. All models also include indicators for policy area and Congress. Model 4 includes time trends (number of years since 1945, along with its square and cubic forms). We exclude agencies for which there were no independence measures and use zero for the Executive Office of the President.

Supplementary Appendix

APPENDIX A: Coding Details

Table A1: Public Laws Excluded

Pub. L. Num.	Law Title
85508	Alaska Statehood
86003	Hawaii Statehood
93198	DC Self Government Act
98144	Martin Luther King, Jr. birthday
108105	Partial Birth Abortion Ban
108212	Laci and Conner's Law
109002	Class Action Fairness Act of 2005

Notes: Two laws delegate to a federal agency but have judicial review provisions that relate only to non-federal agency actions (i.e., state implementation actions). We included these laws and coded them as not specifying federal-level judicial review.

Table A2: Judicial Review Attributes and Descriptions

Category of Review Provision	Judicial Review Attribute	Description:
Reviewability (Allow, Preclude, and Limit are mutually exclusive categories).	Allow	Allows for judicial review of agency actions (or specifically "does not preclude" judicial review).
	Preclude	Specifically precludes judicial review of agency actions.
	Limit	Various limited allowances for review.
Time Limits	Time Limit in Days and Ordered Time Limit: 1,2,3	Includes mention of time limits (in days) for filing for judicial review. We code no time limit at the maximum of 6 years (2190 days) and center the variable on its mean as a z-score. If review is precluded, the time limit in days is zero. We also recode these days into an ordinal three-category variable such that 1 = preclusion of review (0 days of time to submit), 2 = 1-2189 days to file for review (but a specific time limit is included); 4 = No time limit is mentioned.
Venue (these are not mutually	District Court	Specifically mentions a district court(s)
	Appellate Court	Specifically mentions an appellate court(s)

exclusive categories)	D.C. Court of Appeals	Specifically mentions the D.C. Court of Appeals
	Specialized Court	Specifically mentions a specialized court, such as customs court, tax court, etc.
Scope of Review/Standards (these are not mutually exclusive categories)	Arbitrary and Capricious	Specifically includes the terms "arbitrary and capricious" with respect to judicial review.
	Substantial Evidence	Specifically includes the terms "substantial evidence" of problematic processes/decisions, or wrongdoing by agency.
	Clearly Erroneous	Specifically includes the terms "clearly erroneous," "outside the scope of agency's discretion," and similar phrases.
Scope of Review/Judgement (mutually exclusive)	*De novo*	States that the court can substitute its own judgement for that of the agency.
	Question Agency	Allows the court to question agency processes and decisions, but does not allow for de novo review or deference to the agency.
	Defer	Specifically states that the court must defer to the agency or use only the agency's findings of fact or record.
Standing (mutually exclusive)	Adversely Affected	Includes mention of adversely affected or higher levels of harm for petitioners.
	Aggrieved	A middle category of harm to petitioners, typically a catch-all for less than adversely affected, but more than low harm.
	Low level of harm	Mentions "any interested" person or other lower levels of harm to petitioners that can file for judicial review.

APPENDIX B: Latent Index Construction

Alternative Assumptions and Specifications

Instead of the static mixed Bayesian model reported in the main text, alternatively we could utilize a static IRT factor model, an ordered Bayesian latent model, or two-dimensional models at each level (law and agency). For our dynamic model, we could assume our time periods are each public law number, instead of each year. We consider these alternatives below, but find few differences with the models reported in the text. The attribute loadings for the IRT model are provided in Figure B1a; those for the 2-dimensional mixed factor Bayesian model (agency-level) in Figure B1b. Figure B1c excludes the time limit from our mixed Bayesian analysis, which allows us to consider the extent to which time influences our index.

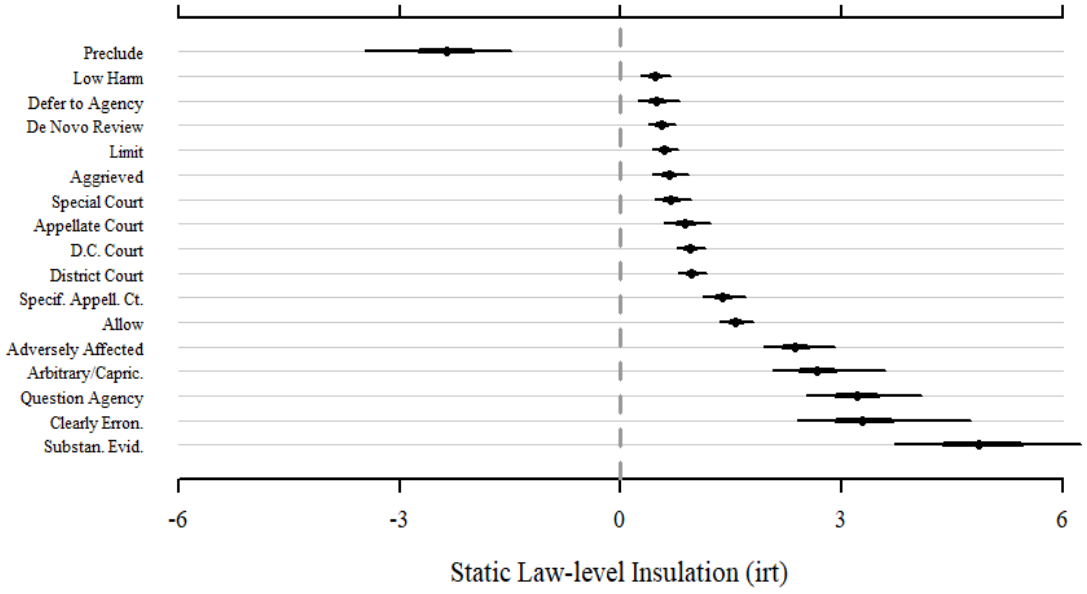
Finally, Figure B1d provides an ordinal Bayesian model at the law-level (left panel) and agency-level (right panel). Note that for the law-level analysis we include a three-category time limit variable. Due to the lack of convergence for the agency-level ordinal model, though, we exclude time.

The scores have a correlation greater than 0.99 across all specifications within a particular level (i.e., agency-section or law-section) and greater than 0.98 across levels. The correlation between the mixed Bayesian and ordinal latent index is greater than 0.80 at the agency-level and greater than 0.99 at the law-level. The two-dimensional model has a correlation of 0.84 with our main (agency-level, static) model for the first dimension and -0.34 for the second dimension.

To identify our models, we constrain the attribute "Preclude" to be negative and "Allow" to be positive, along with (in models with our continuous time variable) constraining the mean of its z-score to be zero. Otherwise we leave our attributes unconstrained.

In order to test the robustness of our models to inclusion and exclusion of specific laws and sections, we (1) exclude laws with a word count less than the 25th percentile of the distribution; (2) omnibus legislation; and (3) sections of laws with policy topic codes that differ from the overall policy code of the law. We find a high degree of correlation between our original measure and each of these adjusted sets of laws (0.99, 0.97, and 0.98, respectively). Hence, we are confident that our scores are robust to either the inclusion or exclusion of these features, and that none of them are unduly driving or affecting our results.

Figure B1a: Static IRT Model Attribute Loadings, excludes Time Limits



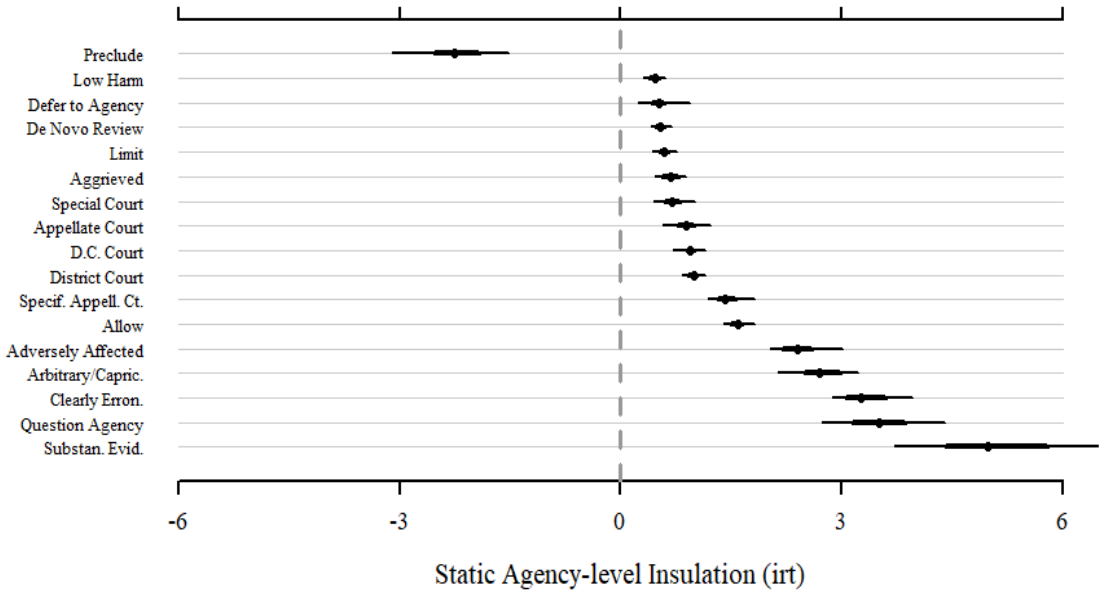
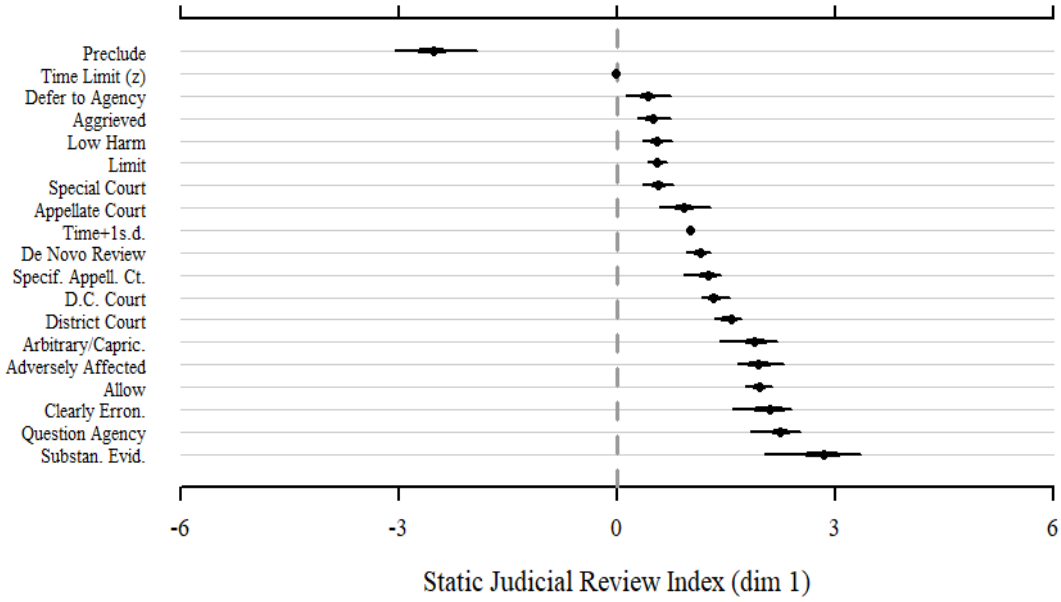


Figure B1b: 2-dimensional Mixed Factor Bayesian Model Attribute Loadings



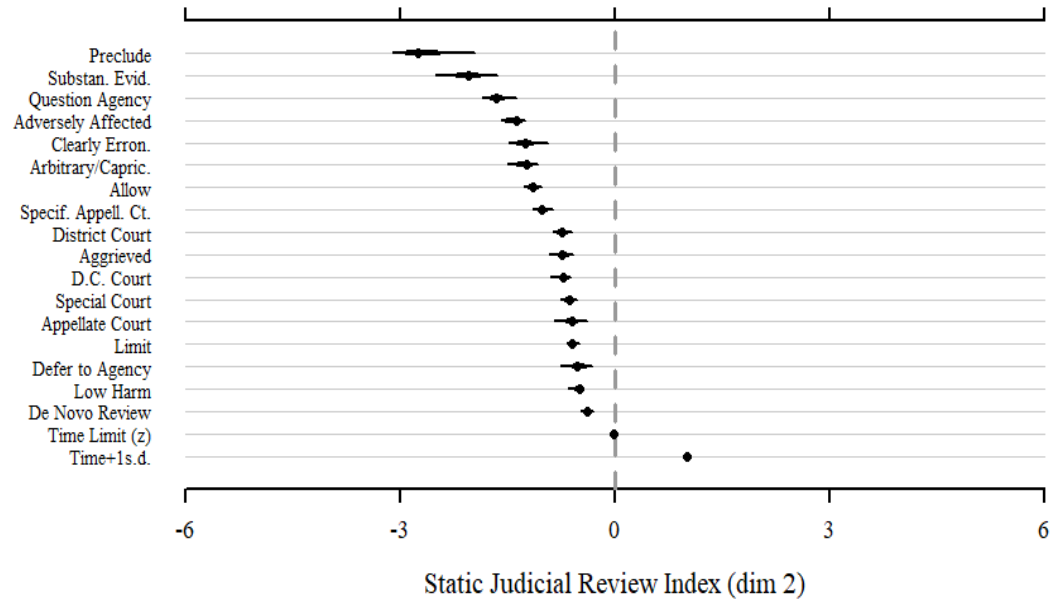
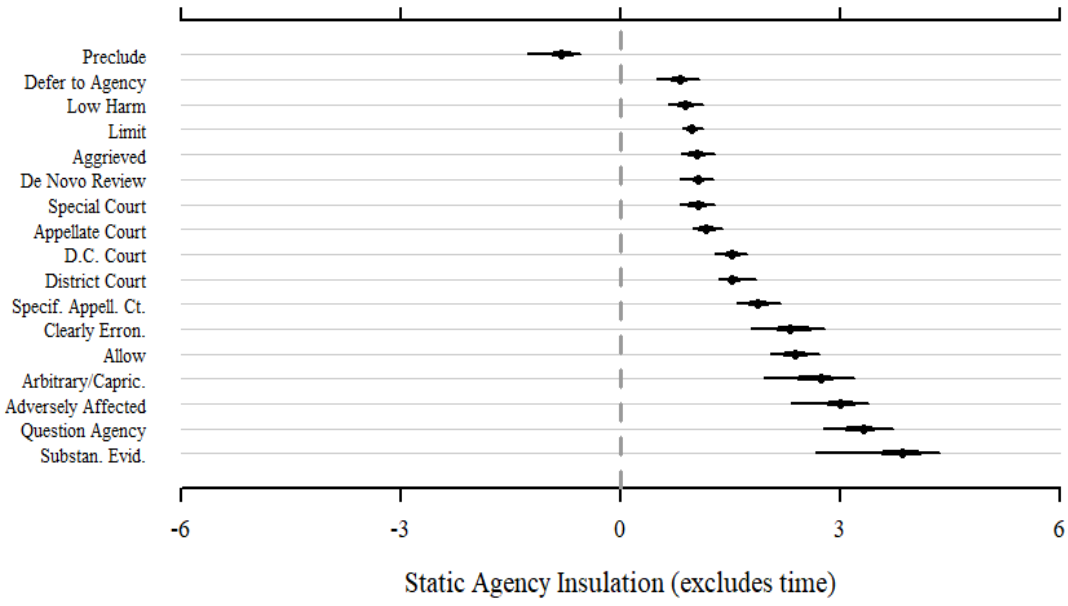


Figure B1c: Mixed Bayesian Model Attribute Loadings for Reviewability Index, excludes Time Limits



Ordered Latent Model

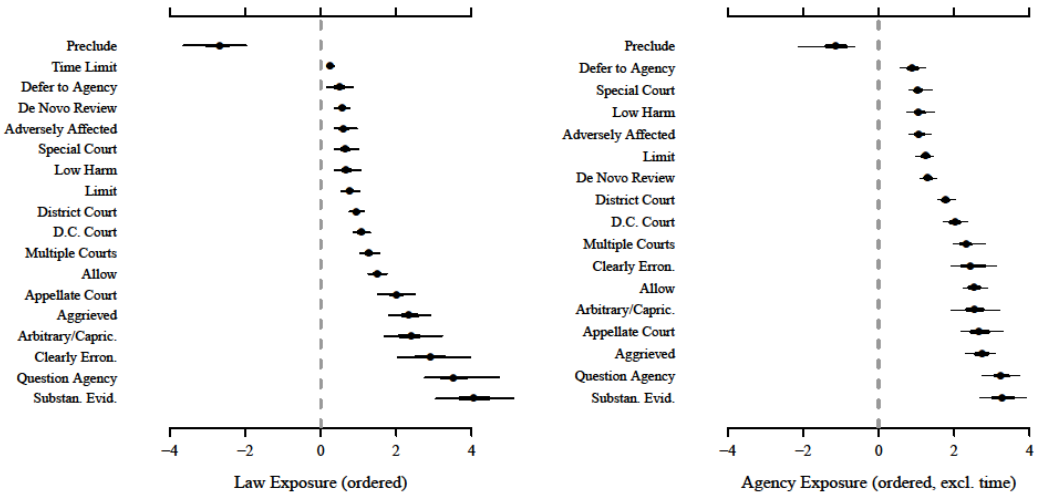
For our ordered latent analysis, let $i = 1, \ldots, N$ represent the coded sections of significant public laws enacted from the 80th to the 114th Congress (i.e., from 1947-2016) and $j = 1, \ldots, J$ be the individual attributes we collected above that are related to judicial review of agency actions. Following Trier and Jackman (2008), we first assume that each attribute can be modeled as the probability that it is measured as present (which we recoded as a 2 for dichotomous indicators), or, for our continuous time limit in days, is present at specified categories: *k*=1 (review is precluded), 2 (less than 90 days), 3 (91-day to 6-year limit), and 4 (no limit). Following from this, our model is:

$$\Pr(y_{i,j,k} = 1) = \begin{cases} \mathrm{F}(\lambda_{j1}\text{-}\mu_{ij}) & \text{if attribute=1} \\ \mathrm{F}(\lambda_{j2}\text{-}\mu_{ij})\text{- }\mathrm{F}(\lambda_{j1}\text{-}\mu_{ij}) & \text{if attribute=2} \\ \mathrm{F}(\lambda_{j3}\text{-}\mu_{ij})\text{- }\mathrm{F}(\lambda_{j2}\text{-}\mu_{ij}) & \text{if attribute=3} \\ \mathrm{F}(\lambda_{j4}\text{-}\mu_{ij})\text{- }\mathrm{F}(\lambda_{j3}\text{-}\mu_{ij}) & \text{if attribute=4,} \end{cases}$$

where $\mu_{i,j} = x_i\beta_j$, x_i is a latent level of agency exposure for the section level or agency level, $y_{ij,k}$ is the score for the j^{th} indicator, given a cut-point for *k*. Our model of latent agency exposure for each section or agency, then, is a function of a matrix of factor loadings (Λ) and a vector of factor scores (η_i) using a probit link for $F(\cdot)$:

$$x_i^* = \Lambda\eta_i + \varepsilon_i.^{\dagger}$$

Figure B1d: Ordered Bayesian Model Attribute Loadings for Reviewability Index:



† The error term (ε_i) is assumed to be distributed normally with mean of zero and variance of Ψ, which is assumed to be diagonal and equal to one for our dichotomous attributes. We rely on MCMCordfactanal within the MCMCpack package for R, which assumes independent conjugate priors on factor loadings and factor scores and an inverse gamma prior on the error variances (as in Selin 2015 and Jackman 2009).

Dynamic Latent Model

Additionally, we considered a dynamic latent model, excluding our continuous measure of time, relying on an IRT model. Our measure of time is each year, although we find substantively similar findings using our time unit as each public law. Our unit of agency exposure is the agenc(ies) promulgating rules within each of the laws within the years. To construct our dynamic score, we use the fast estimation methods developed by Imai, Lo, and Olsmted (2016). Imai, Lo, and Olsmted (2016) use variational Bayesian inference that approximates posterior inference by deriving a variational Expectation-Maximization algorithm. In the traditional ideal point estimates, researchers use the observed vote of legislator *i* on roll call *j* at time *t* to construct the dynamic score. In our case, *i* denotes various agencies, *j* indicates the various attributes we have coded for each section (preclude, allow, adversely affected, etc.), and *t* denotes years in the main text. Given that the algorithm can accommodate only binary variables, we drop our continuous measure of time constraints. We then impose informed priors similar to that from our static model (i.e., we assume preclusions are negative). We implement the proposed algorithms via the open-source R package, **emIRT**. The algorithms then create a dynamic score of agency exposure for each agency in each year.

The correlation with our static measure (agency-level) is 0.60 using informative priors (assuming agency-years that preclude are negative and agency-years that are the most positive from the static model as positive, all else are assumed to be zero), as indicated in Figure B1e. We provide two-decade samples in Figure B1f to reveal similarity of loadings over time, although there is a degree of change in the point estimates for each loading's contribution (e.g., note the movement of preclusion across the x-axis, although still the most protective of the attributes). We also provide graphs of the dynamic agency exposure score over time for a sample of agencies in Figure B1g.

Figure B1e: Static-Dynamic Correlation and Dynamic (agency-year) Attribute Loadings:

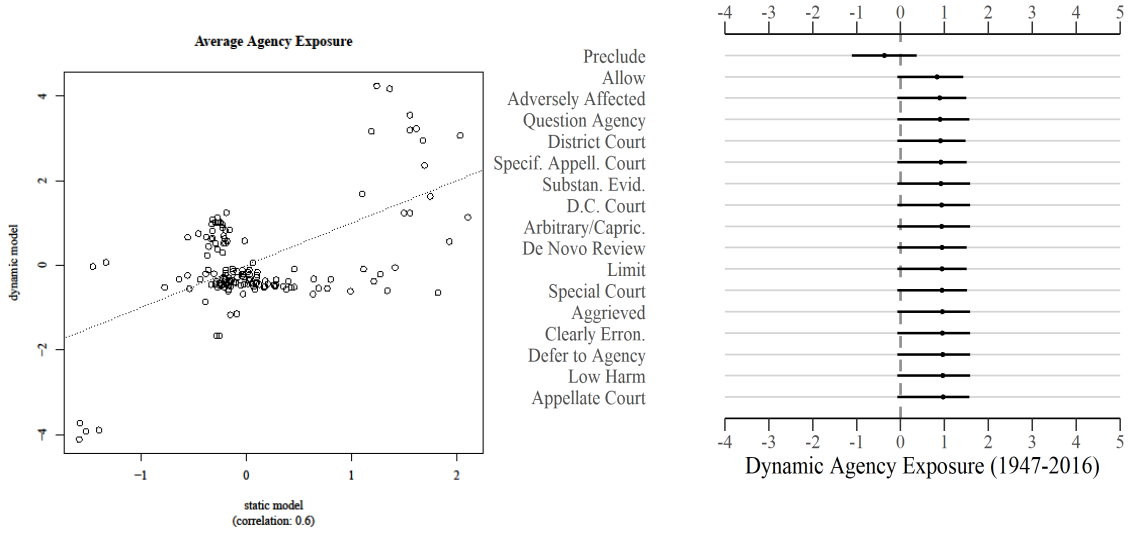


Figure B1f: Example Years' Dynamic Attribute Loadings:

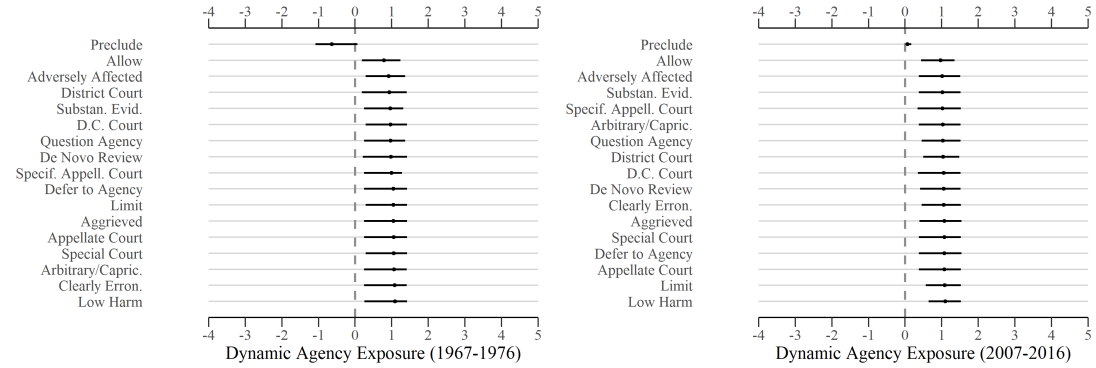
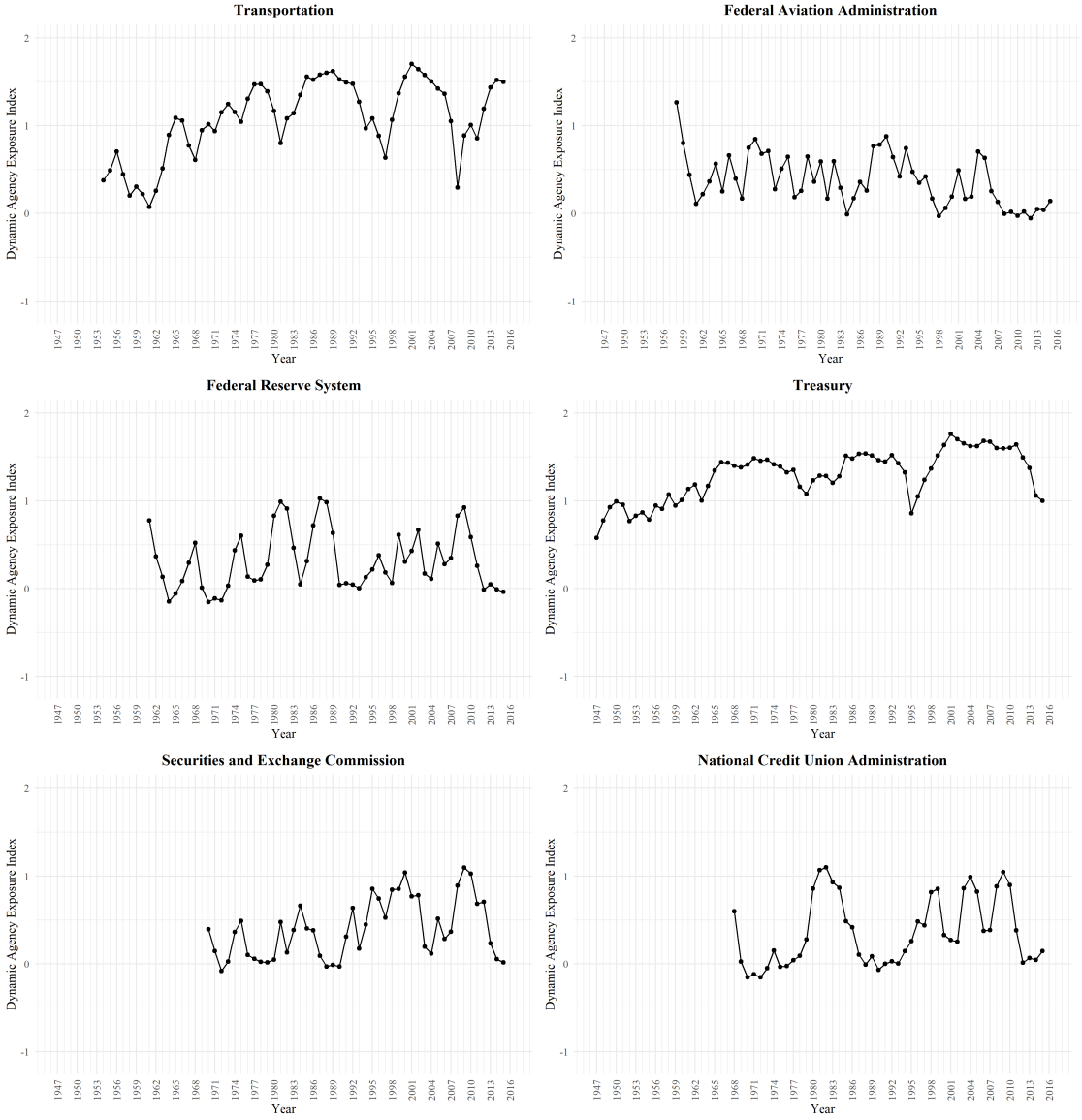
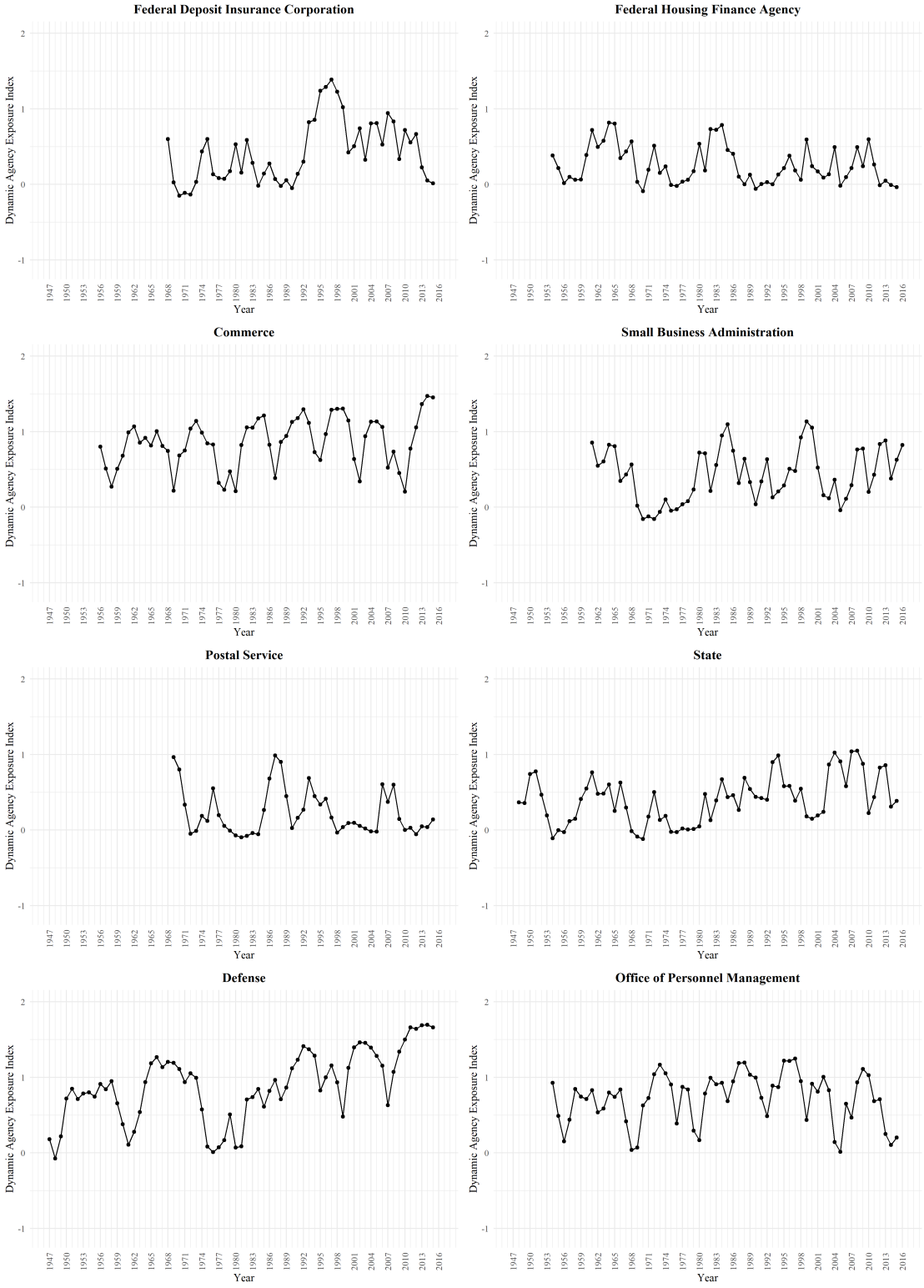
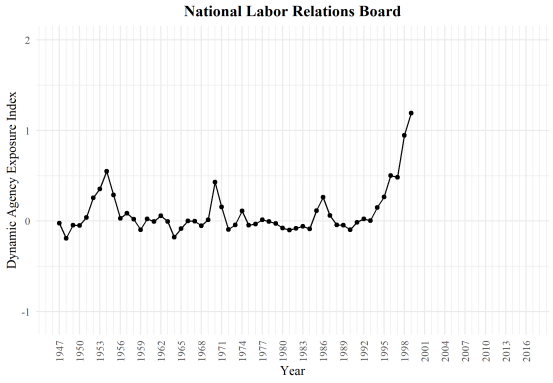
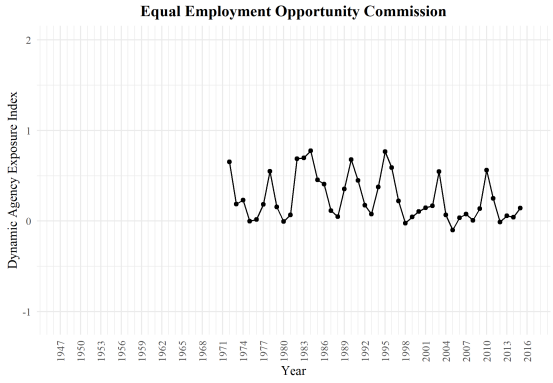


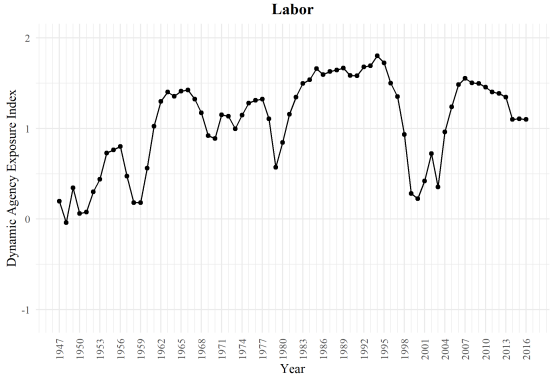
Figure B1g: Agency Exposure over Time for a Sample of Agencies:

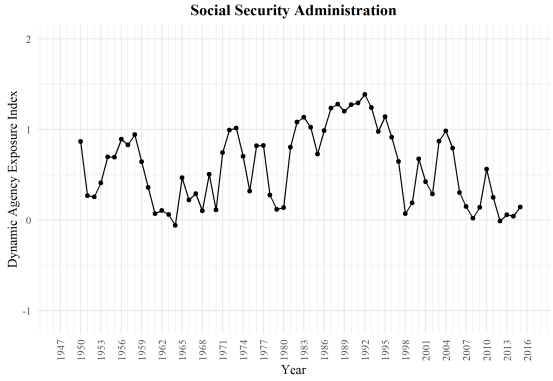


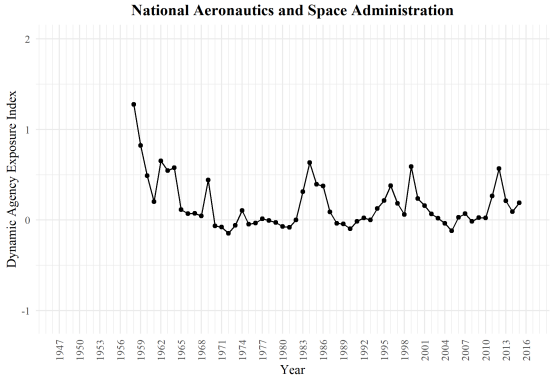

Federal Deposit Insurance Corporation
Federal Housing Finance Agency
Commerce
Small Business Administration
Postal Service
State
Defense
Office of Personnel Management
Dynamic Agency Exposure Index
Year

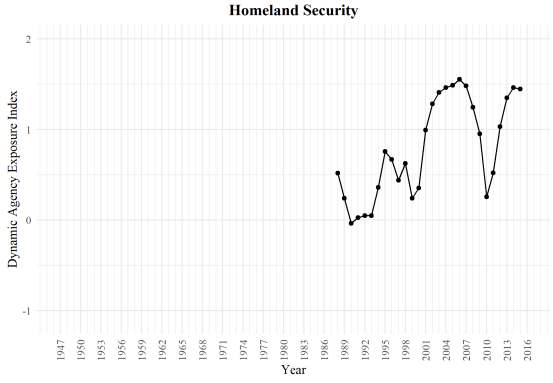

National Labor Relations Board
Dynamic Agency Exposure Index
Year

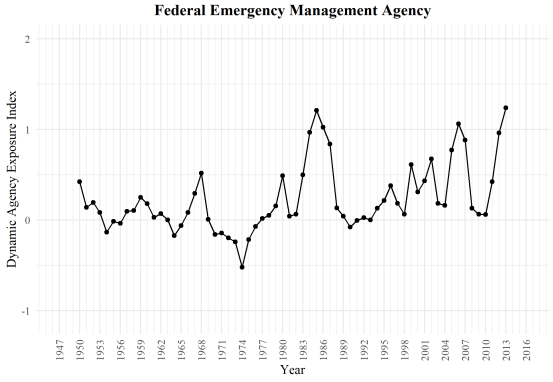

Equal Employment Opportunity Commission
Dynamic Agency Exposure Index
Year

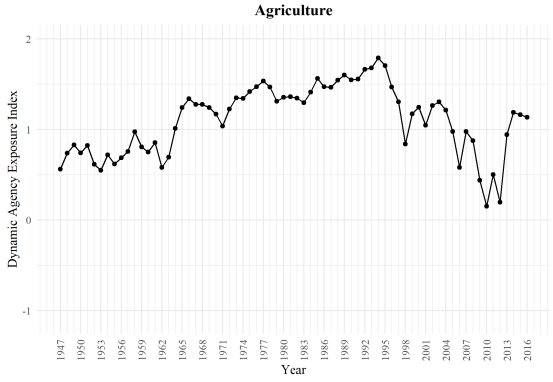

Labor
Dynamic Agency Exposure Index
Year

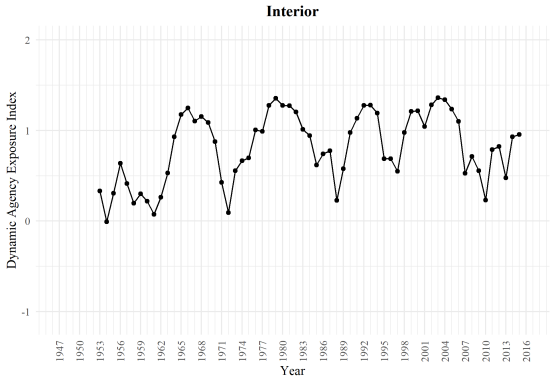

Social Security Administration
Dynamic Agency Exposure Index
Year

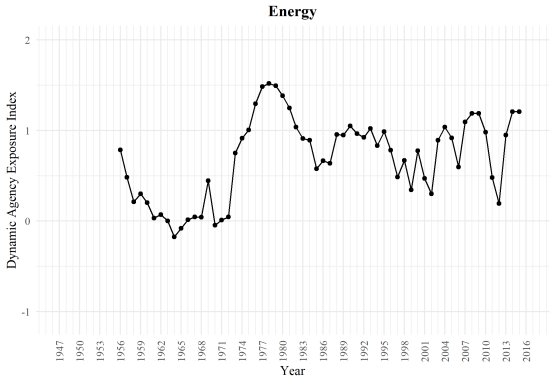

National Aeronautics and Space Administration
Dynamic Agency Exposure Index
Year

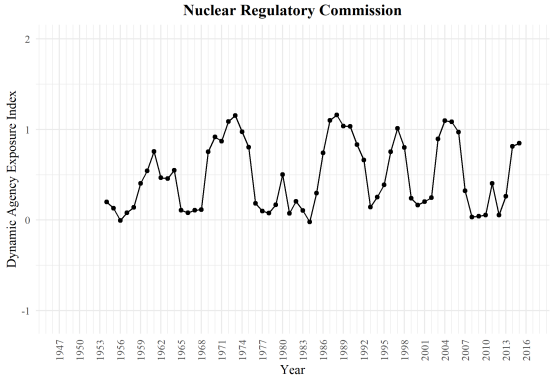

Homeland Security
Dynamic Agency Exposure Index
Year

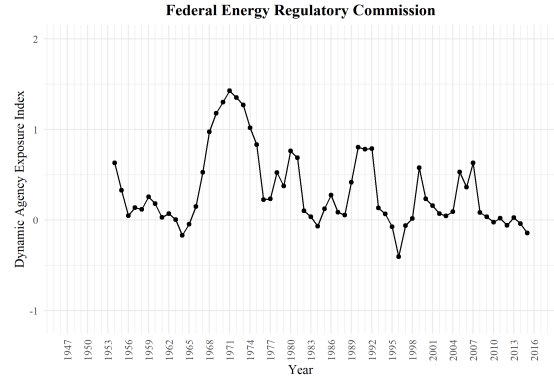

Federal Emergency Management Agency
Dynamic Agency Exposure Index
Year

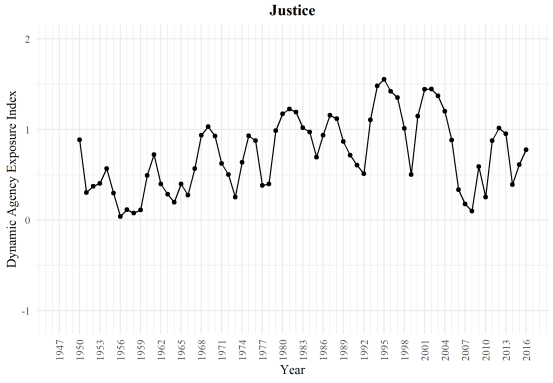

Agriculture
Dynamic Agency Exposure Index
Year

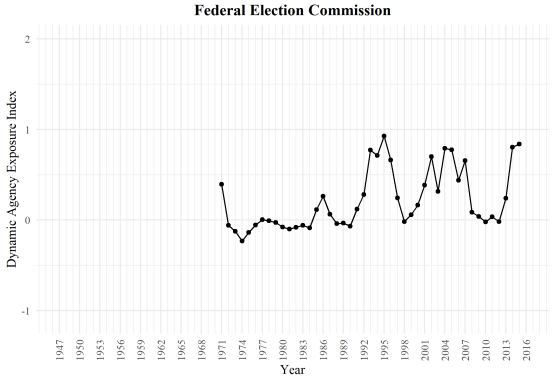

Interior
Dynamic Agency Exposure Index
Year

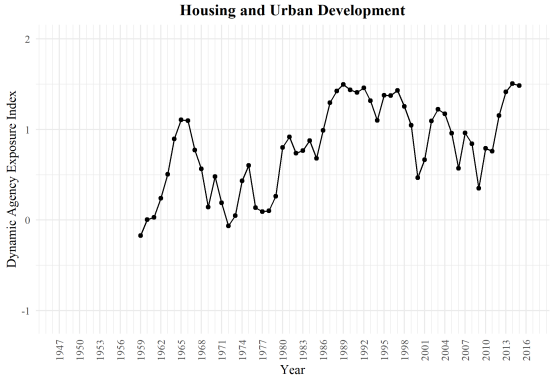

Energy
Dynamic Agency Exposure Index
Year

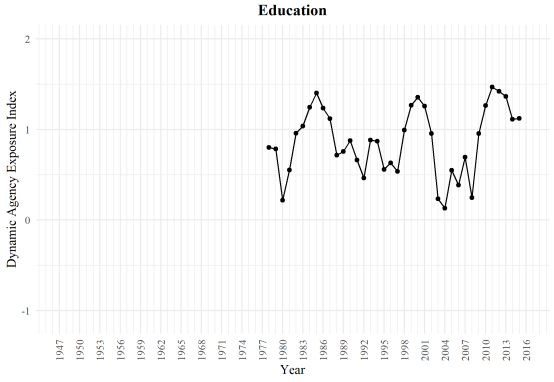

Nuclear Regulatory Commission
Dynamic Agency Exposure Index
Year

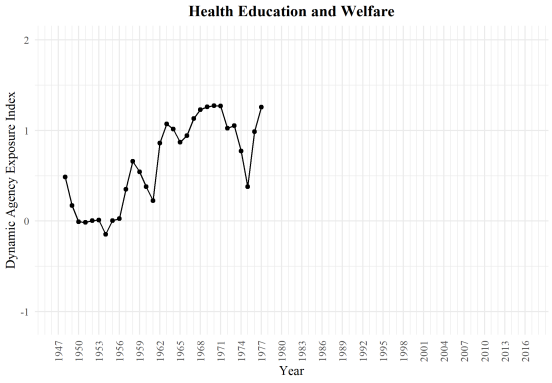

Federal Energy Regulatory Commission
Dynamic Agency Exposure Index
Year


Justice
Dynamic Agency Exposure Index
Year


Federal Election Commission
Dynamic Agency Exposure Index
Year


Housing and Urban Development
Dynamic Agency Exposure Index
Year


Education
Dynamic Agency Exposure Index
Year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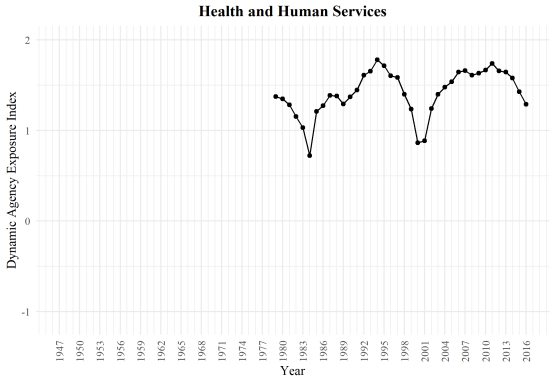
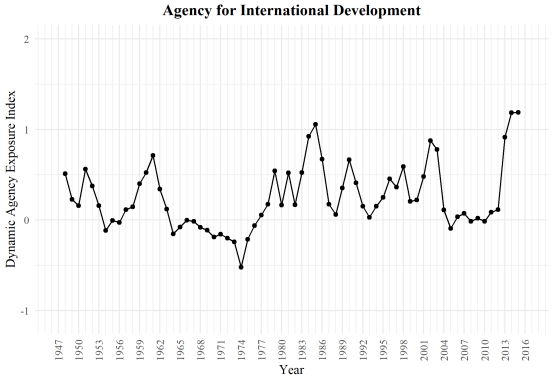
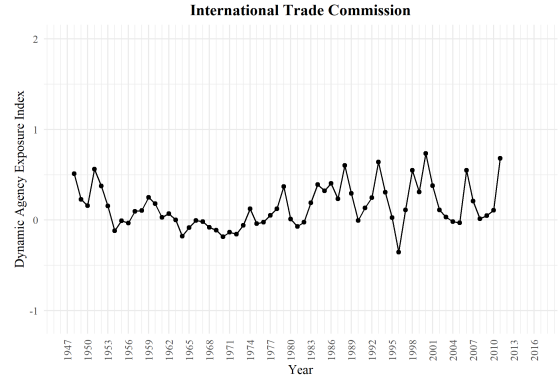
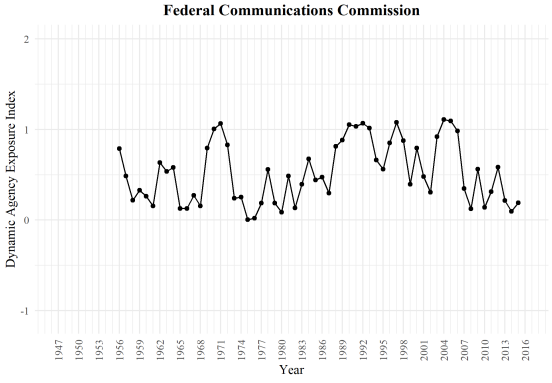
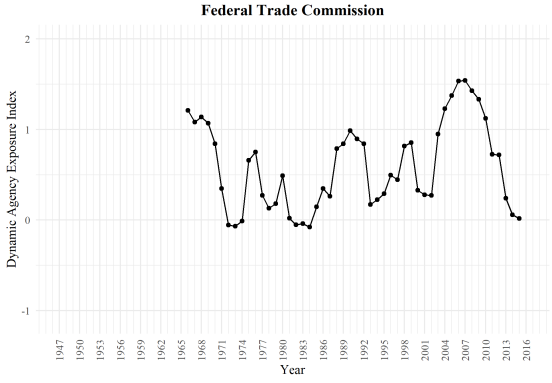
Dynamic Agency Exposure Index
Year

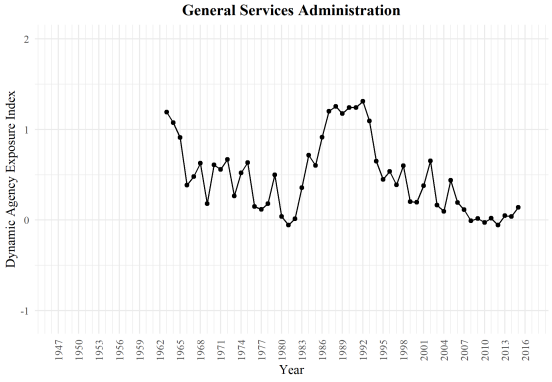

Health and Human Services
Dynamic Agency Exposure Index
Year

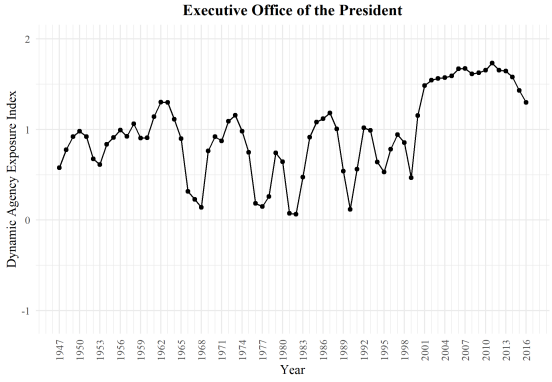

Agency for International Development
Dynamic Agency Exposure Index
Year


International Trade Commission
Dynamic Agency Exposure Index
Year


Federal Communications Commission
Dynamic Agency Exposure Index
Year


Federal Trade Commission
Dynamic Agency Exposure Index
Year


General Services Administration
Dynamic Agency Exposure Index
Year


Executive Office of the President
Dynamic Agency Exposure Index
Year

APPENDIX C: Additional Validation

Exposure to Judicial Review and Inter-institutional Agreement

When deciding how much exposure to judicial review to include in a law, Congress may also take into account the relative preferences of courts and the executive branch. For example, if Congress's preferences align more closely with those of the courts (i.e., a sympathetic judiciary) than with those of the executive branch, it is plausible to expect that it will increase the opportunities for judicial review. Conversely, if Congress's views are more similar to those of the executive branch than to those of the courts (i.e., a sympathetic agency), it might insulate agencies from review.[‡] Thus, an additional validation check of our approach is that we should expect to see an increase in our exposure scores (i.e., increased opportunities for review) when Congress is more aligned with the judiciary, and a decrease in our scores when Congress is more aligned with the executive branch.

Because no reliable, consistent, and comparable measures of ideology exists for Congress, courts, and agencies during the period we examine, we rely on political parties. In addition, we rely on the president's party, given his role as the head of the executive branch, to capture the partisan leaning of that branch. While acknowledging that these are blunt measures, we also contend that they provide good insight into whether Congress's views that match up more closely with the partisanship of the courts or the executive branch. Our measure is coded as a 1 when the partisan difference with the judiciary is smaller and a 0 when this difference with the executive branch is smaller.[§]

Our tests reveal a positive correlation between our separation-of-powers measure (i.e., whether the courts are closer to Congress than is the executive branch, based on party) and our agency-level index of exposure to the judiciary. In other words, this provides additional validation for our measure, as it is consistent with the idea that when Congress trusts the courts more, it increases opportunities for review, and when it trusts agencies more, it acts to protect those agencies from the courts. As a t-test reveals, we

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[‡] This corresponds to Shipan's (2000) concepts of *sympathetic judiciary* and *sympathetic agency*, respectively.

[§] More specifically and in line with many scholars operationalizing cross-institutional preferences, we use the party of the appointing president to assign a partisanship value for each judge on the DC Appellate Court and take the average of this value for each year in our dataset (using a -1 for Democrats and a +1 for Republicans) (e.g., in Boyd and Boldt 2017; Hubert and Copus, forthcoming). The party of the current president in each year is our proxy for the preferences of the executive branch and we average the majority party in power in each chamber of Congress to determine its preference measure (e.g., Clouser McCann 2016; Thrower 2017). We take the absolute value of the difference between Congress and the court and Congress and the executive branch and, given the measurement error in our approach, assign an indicator variable a value of zero when the difference with the executive branch is smaller and a one when the difference with the judiciary is smaller.

find a statistically significant 0.08 unit increase in exposure when we move from an agency that is closer to Congress to when the judiciary is closer (approximately a 2.1% increase). While we hesitate to make too much of this finding, given the lack of a nuanced measure of which other institution is closer to Congress, it suggests that our measure captures the idea that when Congress has a greater partisan affinity with the courts than with agencies, it acts to increase the likelihood of review.

Table C1: Preferences and Agency-level Exposure

Two-Sample T-Test of Constraints

	Agency-level exposure
Sympathetic Agency N=1,251	-0.109 (0.018)
Sympathetic Judiciary N=1,106	-0.029 (0.021)
Difference:	-0.080 (0.027)**

Notes: Standard errors are reported in parentheses. Significance is ** $p < 0.01$.

Supplemental Appendix References

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[1] In developing this measure, we focus exclusively on Congress's option to include such provisions in law. Once this is established and we construct our measure, future studies can then use the measure to investigate the separate question of the extent to which these provisions constrain judges. We return briefly to this issue in Section 3.4.

[2] Replication files and all scores will be made available upon publication.

[3] We also conduct an additional and informative validation exercise that, for reasons of space, we present in the Supplemental Appendix. In this validation exercise, we show that, as expected, our agency exposure scores increase (i.e., show increased opportunities for review) when Congress is more aligned with the courts than with the executive branch, and decrease when the reverse is true.

[4] Legal case books also discuss these and other types of provisions, although without attempting to appraise their frequency or variation across laws (e.g., Strauss et al. 2018).

[5] See also Heise (2011) and, more generally, Clark (2009; 2011), who show that Congress often attempts to strip the courts of jurisdiction to influence future policy outcomes.

[6] Smith (2005) also considers other provisions that make it easier or harder for citizens to bring suit (e.g., requiring plaintiffs to post bonds before filing a suit, allowing the courts to award monetary damages or award attorney fees).

[7] We follow Cameron's (2000) sensible admonition to establish basic empirical regularities before developing theory. There have been few theoretical studies that examine when Congress gives courts the power to review agencies, which is not surprising given the lack of understanding of even basic patterns of review. Two

exceptions include Shipan (2000) and Turner (2017). Note that we focus on administrative judicial review and not constitutional judicial review (e.g., Rogers 2001), which may not involve an agency.

[8] The Administrative Procedures Act, which provides guidelines for the structure of judicial review, clearly designates that Congress gets to decide which agency actions are or are not reviewable (Rodriguez 1992). We discuss the role of the APA below.

[9] A typical example is Section 1553 of the American Recovery and Reinvestment Act of 2009, which states "Any person adversely affected or aggrieved by an order issued under paragraph (2) may obtain review of the order's conformance with this subsection, and any regulations issued to carry out this section" (Pub. L. 111-5).

[10] Legal studies generally conclude that preclusion is rare (e.g., Cass and Diver 1987; Verkuil 2002). In addition, as Strauss et al. (2018) document, even Congress itself (and in particular its judiciary committees) has noted that preclusion is very rare. More generally, Greenfest (2013) notes the conventional wisdom that jurisdiction stripping is rare. Again, however, there has been no systematic evidence on this point, or on the inclusion of provisions that, while falling short of full preclusion, can limit opportunities for review.

[11] A related, albeit separate, issue concerns the government's strategic use of time. See, for example, Potter's (2019) examination of the ways agencies can manipulate the amount of time involved in, and the timing of, the notice and comment period.

[12] As Verkuil (1983, 739) notes, Congress "has occasionally compromised between wide-open judicial review and absolute preclusion of judicial review by limiting review narrowly in time."

[13] Many legal scholars consider arbitrary and capricious and substantial evidence as equivalent standards. Here we make no assumption about equivalence or ranking between these two (and many of the other attributes). Instead, as we describe in our coding process, we simply code the language Congress uses in the statutory text.

[14] As O'Connell (2008) has pointed out, the courts have been inconsistent in deciding how much they should defer to agency expertise. Congress can reduce this uncertainty by directly specifying that the courts either do or do not have to engage in such deference.

[15] Standing is often viewed as having both a constitutional (Article III) basis and a prudential basis. In 2013, however, Justice Scalia questioned the legitimacy of basing standing decisions on prudential guidelines. More specifically, he argued for the need to "replace general, judge-made notions of prudence with a substantive inquiry into the intent of particular statutory provisions" (Young, 2014, 153). Although statutory provisions regarding standing would not outweigh clear Article III applications, in cases where the Article III application is less certain Congress can use the sorts of statutory provisions we identify to clarify its intent.

[16] Additionally, Congress can explicitly identify *which* person or persons can seek review, as it did in the Toxic Substances Control Act of 1977 when it gave standing to only an "employee or employer."

[17] These terms included the following: judi, appeal, appel, court, district, suit, action, legal, civil, and review.

[18] We carefully compared our categorization to those of previous authors, including Epstein and O'Halloran (1999) and Farhang and Yaver (2015), to ensure we did not overlook any laws with delegation. Given our extensive full-text reading of the laws in

our dataset, we find more instances of delegation than previous studies. From Mayhew's extended list (http://campuspress.yale.edu/davidmayhew/datasets-divided-we-govern/) we dropped laws with no executive branch implementation or delegation (see Appendix A of our supplemental materials). When Mayhew coded laws separately even though they were enacted as a package (i.e., omnibus bills), we merged them into a single law.

[19] We excluded seven laws from Mayhew's list, including laws that established Alaska and Hawaii statehood, D.C. Self-Rule, and Martin Luther King Jr. Birthday as a national holiday, as well as three laws that delegate solely to the states or courts for implementation. Details are provided in Appendix A of our Supplemental Appendix.

[20] Of course, statutes often contain multiple provisions. For now, we discuss how we code each provision. Later we explain how we aggregate across provisions.

[21] We coded each provision for each attribute separately. For example, if a provision specifically allowed for review, then "Allow" was coded as a 1 (and was otherwise 0), while "Limit" and "Preclude" were coded as a 0. If another section in the same law specifically precluded review, then "Preclude" was coded as a 1 for that section and "Allow" and "Limit" were coded as a 0. Thus, these codes were mutually exclusive within each section. If a law allowed for review, but only of specific types of agency actions, we coded it as limiting review.

[22] When review is precluded, we coded the time limit to file a petition for review as zero days. When no time limit is provided, we coded the time limit as six years (2,190 days).

[23] Furthermore, courts tend not to interpret the absence of review provisions as implying preclusion (Breyer et al. 2017). Courts do, however, have the option of reviewing actions

on constitutional, rather than statutory, grounds, which could allow them to elide specific review provisions (Verkuil 1983).

[24] Statutory language often chooses among multiple options (e.g., which standard to apply) that are listed in the APA as possibilities.

[25] Any law that addressed judicial review in any way also specified reviewability. Thus, the 36% figure also represents the percentage of delegating laws within our dataset that addressed judicial review in any form.

[26] For example, in the 82nd and 86th Congresses no laws included reviewability provisions of any type; in the 84th and 105th Congresses an equal number of laws allowed and precluded review; and in five congresses preclusions or limitations were more frequent than provisions allowing review (87th, 99th, 101st, 104th, and 107th).

[27] Laws that include reviewability provisions may do so in more than one section in the law, as we discuss below. Thus, the 564 identified provisions were spread across 152 separate laws.

[28] For example, a law might allow for review but then constrain it by requiring review to be initiated within the short period of 30 days; or it might limit review to only certain types of agency actions, but then grant the judiciary the right to conduct review *de novo*.

[29] In Figures B1a-d in Appendix B of our Supplemental Appendix, we consider alternative assumptions in our modeling approach (e.g., relying on an IRT model, one versus two dimensions, inclusion and exclusion of various attributes). We find that our index is highly robust to these changes and that one dimension provides a better fit than assuming two dimensions.

[30] For the sake of explication, we refer to segments of laws (often called titles or provisions) as "sections" and reserve the term "provision" for our coded judicial review attributes.

[31] ProQuest Regulatory Insight provides a searchable regulatory history for each law passed by Congress from 1936 to 2020 by drawing on a human review of all Federal Register documents and the Code of Federal Regulations, along with a final review by the editorial team. For additional information, see https://proquest.libguides.com/reginsight/whatis. A few laws' histories were not yet completed by ProQuest staff; for those we constructed the delegated agencies by searching the full text of the law for the following terms, and then denoted any agency involved: secretary, director, commission, department, agency, and chair(man).

[32] For this agency-level analysis, we identified 2,523 agency-sections in laws.

[33] In other words, the dataset shows that each agency receives delegation, but without any judicial review provisions attached to that delegation, other than relying on the APA.

[34]For convenience and simplicity, we will refer to this dataset as the "agency-level" dataset. More accurately, it is an agency-section-level dataset (i.e., the data is at the section level, but is disaggregated by agency).

[35] We center our time in days at its mean value (i.e., a z-score). Given the distribution of our time limit variable, we also examine an ordered, categorical version of this variable with three categories: 1 for preclusions (i.e., no days), 2 for 90 to 2189 days (i.e., six years), and 3 for those sections that do not include a specified time limit (implying the default six-year limit will be in effect). The results reported here are robust to this

alternative version of our latent variable and are reported in Appendix B of our supplemental materials.

[36] We rely on MCMCmixfactanal within the MCMCpack package for R, which assumes normal priors on factor loadings and factor scores and an inverse gamma prior on the error variances for our static models (following Selin 2015 and Jackman 2009). After initial tests, we use a burn in of 1,000 and 25,000 iterations for the sampler.

[37] The error term (ε_i) is assumed to be distributed normally with mean of zero and variance of Ψ, which is assumed to be diagonal and equal to one for our dichotomous attributes.

[38] We obtain very similar results if we base identification only on the "Allow" and "Preclude" attributes (i.e., we do not constrain the time variable) or if we simply constrain preclusions to be negative. See Appendix B for our robustness results.

[39] Table A2 in Appendix A of our Supplemental Appendix summarizes our included attributes.

[40] Additional details on our assumptions and modeling strategy are found in Appendix B.

[41] Thus, instead of ignoring changes between time periods from our static measure (or assuming linear increases or decreases), we assume that an agency enters our sample the first year it receives delegated authority from one of our significant laws. Note that, until the agency receives an additional grant of authority in another law, we assume the attribute codes remain the same. As a new law delegates authority to the agency, we include the new row of judicial review attributes to account for possible changes.

[42] As such, these loadings provide some initial validation for our measures and approach. However, as we discuss below, we do not place too much emphasis on these loadings.

[43] In Appendix B, Figures B1e-f we report the influence of each attribute for the dynamic agency-level exposure index. As with our static measures, we find that the loadings are positive for measures other than preclusion.

[44] Pub. L. 104-001 (Congressional Accountability Act of 1995) and Pub. L. 94-553 (the Copyrights Act), respectively.

[45] Rows with zero-coded attributes have a baseline level of judicial review, which is estimated by our latent model as ranging from -0.5 to 0.6.

[46] The dynamic agency measure contrasts with the static agency index that provides a measure for an agency only in the years it received delegated authority in the laws enacted in that year.

[47] We provide graphs of our dynamic measures for agencies in Appendix B, Figure B1g.

[48] Given that the primary purpose of our paper is to create a new measure of exposure to administrative judicial review, a complete test falls well outside the scope of this paper. Similarly, we are not assessing theoretically-based causal claims about the effect of other political variables on exposure to judicial review. Such an approach also is beyond the scope of this paper, since, as we have pointed out, there is little in the way of theoretical understanding that would allow us to make such specific predictions, and developing such theories would require entirely separate papers. Rather, by demonstrating the validity of our measure by learning whether it is correlated with these other measures, we can facilitate future theoretical and empirical research about these relationships, as well as providing initial illustrations of how our measures can be used in empirical work.

[49] http://artsandsciences.sc.edu/poli/juri/appct.htm

[50] If we consider a regression-based (OLS) approach and include policy area indicators and time trends as predictors for the yearly number of court cases by agency, as well as cluster standard errors by agency, we find a positive and significant coefficient of 3.21 (or 1.14 for a Poisson estimator). Moreover, if we allow for a lag in the timing between agency exposure to the courts and cases to wind their way through the system, we find stronger correlations: 9.16 and 1.30 for the OLS and Poisson estimators, respectively using a rolling three-year(forward) cumulative sum of the number of cases.

[51] See also Epstein and O'Halloran 1999 for an exploration of the link between delegation and ex post oversight.

[52] We follow several other scholars (Clinton et al. 2012; Huber, Shipan, and Pfahler 2001; Randazzo and Waterman 2011; Vakilifathi 2019) in using a version of word counts as a measure of discretion. Although this is a blunt measure, Denny (2018) shows it is highly correlated with more nuanced, machine-learning based measure of discretion. Based on Huber and Shipan's (2002) caution about using raw word counts across policy areas, we account for the possibility that laws in some policy areas are inherently longer than those in other areas. We do so by measuring constraint as the length of a statute relative to the average length of all other statutes in that same policy domain – that is, the number of words in the law divided by the mean number of words in laws in that policy area. We then take its inverse as our relative measure of discretion. For each section with a coded judicial review provision, we utilize the Comparative Agendas Project (CAP) master codebook to code the major topic of the policy area. For all other sections, we rely on the major topic code in the CAP Public Law dataset.

[53] Because laws often delegate to multiple agencies simultaneously (e.g., Farhang and Yaver 2015), it would be extremely difficult to disentangle which words are connected to which agencies. Thus, we use the standard approach of calculating constraint (and thus discretion) at the law level.

[54] Our law-level index is 3.09 units in length. To further investigate this relationship, we utilized ordinary least squares with our exposure index as the left-hand-side variable and discretion on the right, along with fixed effects for Congress and policy area, time trends, and robust standard errors clustered by public law number. We find a statistically significant negative coefficient on our dichtomous discretion variable (-0.29 with a standard error of 0.08, or a 9.4% decrease), which again indicates that increased discretion goes with decreased exposure to review.

[55] Calculating law-level scores by aggregating across agencies, rather than across sections, produces very similar results. We also find similar results if we do a correlation between a four-category (i.e., quartiles) version of our discretion measure and our exposure index. A simple correlation between the measures is likewise negative, although it does not reach statistical significance.

[56] Selin's dimension related to political review includes whether the agency has the independence to litigate on its own instead of through the Attorney General – which is itself a political choice that Congress makes. On the topic of conflict across agencies, see Farber and O'Connell 2017.

[57] As discussed earlier, in Appendix C we provide further validation by showing that Congress increases exposure to judicial review when it is more aligned with the courts than the executive branch. In addition, we also have explored whether our indexes change

in predictable ways following significant judicial decisions, and find some evidence that they do: in the decade following the Supreme Court's Abbott Labs decision, our dynamic measure of agency exposure decreases by 0.05 units, and in the decade following their Chevron decision, agency exposure increases by 0.14 units, both statistically significant differences via a two-sample t-test.

[58] Using the mean of the distribution as a cut-point instead of the median results in similar findings, with a statistically significant -2.65 unit difference between agencies with higher than average exposure (1,450 agency-years) and those less than average (1,826 agency-years).