# Online Appendix for Rule Significance and Interbranch Competition in Rulemaking Processes 

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## A Appendix A: Rules Universe Data Collection Procedures

The Unified Agenda of Regulatory and Deregulatory Actions is a digest of federal agency rulemaking activity and planned activity, and it is published online at www.reginfo.gov and within distinct entries in the Federal Register twice each year. This document arguably provides the most comprehensive survey of the rules which are being considered or have been acted upon by executive and independent agencies for promulgation since 1995.

Agencies are required to include detailed information on rules they are working on in their contributions to the Unified Agenda, but there is evidence that agencies selectively disclose this information in the period before the first publication of a proposed rule in the Federal Register (Nou and Stiglitz, 2016) ${ }^{1}$ While this would appear to influence the pre-rule stage, Nou and Stiglitz (2016) acknowledge that all agencies must disclose proposed rules when they are published in the Federal Register. At that point an agency's work on a regulation is revealed and an omission from the Unified Agenda is unhelpful, a violation of established procedures, and uncommon in practice.

We argue for the Unified Agenda as a preferable basis for our rules universe rather than the Federal Register. Table A. 1 (Table A.2) below compare the list of rules with regulatory information numbers (henceforth referred to as RINs) present in the Spring and Fall 2000 issues (from 1999-2001) of the Unified Agenda with those rules with RINs present in published proposed and final rules in the Federal Register in $2000{ }^{2}$ First, the Unified Agenda covers a substantially larger number of regulations with RINs and provides more (and more standardized) information on covered regulations than what is available from the Federal Register alone. Second, pub-

[^0]lished 'proposed rule' and final 'rule' documents in the Federal Register without RINs are in all examined cases arguably administrative notices and announcements rather than substantive regulations. Finally, examination of a sample of the relatively small number of RINs which are included in the Federal Register but missing from the Unified Agenda suggest that most are either transcription errors, duplicates, administrative notices or announcements, or corrections of rules present in earlier issues of the Unified Agenda. Only about 10 substantive RINs published in the FR in 2000 appear to be totally missing from the Unified Agenda, and including cases such as these in the rules universe would be highly time consuming while insufficient standardized data would be available for these rules to generate reliable significance estimates ${ }^{3}$

Table A.1: Comparison of RINs in 2000 Federal Register with 2000 Unified Agenda

|  | Absent from UA | Present in UA | Total |
| :--- | ---: | ---: | ---: |
| Absent from FR | 0 | 4224 | 4224 |
| Present in FR | 353 | 3133 | 3486 |
| Total | 353 | 7357 | 7710 |

Table A.2: Comparison of RINs in 2000 Federal Register with 1999-2001 Unified Agenda

|  | Absent from UA | Present in UA | Total |
| :--- | ---: | ---: | ---: |
| Absent from FR | 0 | 7299 | 7299 |
| Present in FR | 230 | 3256 | 3486 |
| Total | 230 | 10555 | 10785 |

Among the 230 proposed rule and rule records published in the Federal Register in 2000, there were only 51 unique RINs which did not include a transcription error or refer to an internal guidance document. A random selection of 5 rules from this group found only 1 RIN to be both substantive and totally missing from all copies of the UA.

These entries (with limited exceptions) report information on several standard variables for a rul ${ }^{4}$. There is little to no variation on these variables across entries, but to the extent there is

[^1]variation and information must be selected among competing sources, we retain the information from the final issue in our dataset in which the rule appears.

Each biannual entry of the Unified Agenda from Fall 1995 onward has been published as an XML document which maintains a consistent tag structure throughout, and is available at https://www.reginfo.gov/public/do/eAgendaXmlReport. As such, it is possible to use these electronic data sources to first compile a list of every rule on the federal regulatory agenda from the 104th Congress through that of the 115th Congress. These files were individually parsed using Python code to extract rater information, and used to produce .csv files for each issue in which the rater information was retained for each rule present in the XML file. These issue-based .csv files were then merged to create the initial rules universe, dropping all but the most recent entry for a rule as a default.

Table A. 3 details the list of agencies which considered rules included in our rules universe. This list separates executive agencies from independent agencies. Several agencies considered rules for which rule significance scores were estimated, but were omitted from the empirical application in the main paper. These agencies are labeled as "Unused in Empirical Application."

The resulting rules universe consists of 39,311 unique rules published in the Unified Agenda's Spring 1995 issue through the issue of the Unified Agenda published in Spring 2019.7 The rules universe substantially expands on prior efforts in two important ways. Among previous efforts to build rules universes (e.g., O’Connell (2008); Yackee and Yackee (2009); Potter (2017); Congres-

[^2]| Executive Agencies | Independent Agencies |
| :---: | :---: |
| Used in Empirical Application |  |
| Agency for International Development (USAID) | Broadcasting Board of Governors (BBG) |
| Coast Guard (USCG) | Commodity Futures Trading Commission (CFTC) |
| Commission on Civil Rights (CCR) | Consumer Product Safety Commission (CPSC) |
| Department of Agriculture (USDA) | Court Services and Offender Supervision Agency (CSOSADC) |
| Department of the Air Force (AF) | Equal Employment Opportunity Commission (EEOC) |
| Department of the Army (ARMY) | Export-Import Bank of the United States (EIBUS) |
| Department of Commerce (DoC) | Farm Credit Administration (FCA) |
| Department of Defense (DoD) | Federal Communications Commission (FCC) |
| Department of Education (Education) | Federal Deposit Insurance Corporation (FDIC) |
| Department of Energy (DoE) | Federal Housing Finance Board (FHFB) |
| Department of Health and Human Services (HHS) | Federal Maritime Commission (FMC) |
| Department of Homeland Security (DHS) | Federal Mediation and Conciliation Service (FMCS) |
| Department of Housing and Urban Development (HUD) | Federal Reserve (FRS) |
| Department of the Interior (DoI) | Federal Trade Commission (FTC) |
| Department of Justice (DoJ) | Interstate Commerce Commission (ICC) |
| Department of Labor (DoL) | National Credit Union Administration (NCUA) |
| Department of the Navy (NAVY) | National Labor Relations Board (NLRB) |
| Department of State (State) | National Transportation Safety Board (NTSB) |
| Department of Transportation (DoT) | National Science Foundation (NSF) |
| Department of the Treasury (TREAS) | Nuclear Regulatory Commission (NRC) |
| Department of Veterans Affairs (VA) | Peace Corps (PC) |
| Environmental Protection Agency (EPA) | Pension Benefit Guaranty Corporation (PBGC) |
| Federal Emergency Management Agency (FEMA) | Railroad Retirement Board (RRB) |
| General Services Administration (GSA) | Securities and Exchange Commission (SEC) |
| National Aeronautics and Space Administration (NASA) | Selective Service System (SSS) |
| National Archives and Records Administration (NARA) <br> Office of Management and Budget (OMB) <br> Office of Personnel Management (OPM) <br> Small Business Administration (SBA) <br> Social Security Administration (SSA) |  |
| Unused in Empirical Application |  |
| Corporation for National and Community Service (CNCS) | Advisory Council on Historic Preservation (ACHP) |
| DOD/GSA/NASA Federal Acquisition Regulation (FAR) | African Development Foundation (ADF) |
| Federal Housing Finance Agency (FHFA) | American Battle Monuments Commission (ABMC) |
| Office of Government Ethics (OGE) | Appraisal Subcommittee of the FFIEC (ASFFIEC) |
| Office of National Drug Control Policy (ONDCP) | Architectural and Transportation Barriers Compliance Board (ATBCB) |
| Office of the U.S. Trade Representative (USTR) | Committee for Purchase From People <br> Who Are Blind or Severely Disabled (CPFPWABSD) |
|  | Consumer Financial Protection Bureau (CFPB) |
|  | Council of the Inspectors General on Integrity and Efficiency (CIGIE) Council on Environmental Quality (CEQ) |
|  | Defense Nuclear Facilities Safety Board (DNFSB) |
|  | Farm Credit System Insurance Corportation (FCSIC) |
|  | Federal Council on the Arts and Humanities (FCAH) Federal Energy Regulatory Commission (FERC) |
|  | Federal Mine Safety and Health Review Commission (FMSHRC) |
|  | Financial Stability Oversight Council (FSOC) |
|  | Gulf Coast Ecosystem Restoration Council (GCERC) Institute of Museum and Library Services (IMLS) |
|  | Morris K. Udall Scholarship and Excellence in National Environmental Policy Foundation (Udall Foundation) |
|  | National Commission on Military, National, and Public Service (NCMNPS) National Council on Disability (NCD) |
|  | National Endowment for the Arts (NEA) |
|  | National Endowment for the Humanities (NEH) |
|  | National Indian Gaming Commission (NIGC) <br> National Mediation Board (NMB) |
|  | Office of Federal Housing Enterprise Oversight (OFHEO) |
|  | Overseas Private Investment Corporation (OPIC) <br> Panama Canal Commission (PCC) |
|  | Postal Regulatory Commission (PRC) |
|  | Presidio Trust (Presidio Trust) |
|  | Privacy and Civil Liberties Oversight Board (PCLOB) <br> Recovery Accountability and Transparency Board (RATB) |
|  | Resolution Trust Corporation (RTC) |
|  | Special Inspector General for Afghanistan Reconstruction (SIG-AR) Surface Transportation Board (STB) |
|  | Tennessee Valley Authority (TVA) |
|  | Thrift Depositor Protection Oversight Board (TDPOB) |
|  | U.S. Chemical Safety and Hazard Investigation Board (USCSHIB) U.S. Information Agency (USIA) |
|  | U.S. International Development Finance Corporation (USDFC) |

Table A.3: List of Agencies Used in Rules Universe
sional Research Service (2019) ${ }^{8}$, Potter's (2017) dataset stands as one of the most comprehensive covering the period for which the electronic source of the Federal Register is available 9 This dataset is composed of rules with NPRM that have been proposed by executive agencies from Fall 1995 to Fall 2014 and 11,022 in total, as indicated in Table A.4. By incorporating rules not only from executive agencies but also from independent ones, extending the number of UA issues included back to Spring 1995 and forward to Spring 2019, and incorporating all rules that have ever been considered by all agencies during this period (i.e., additionally including interim final rules), the number of rules in the dataset for which significance scores are calculated expands by 356 percent over that of Potter (2017). Of the 39,311 rules included in our rules universe, 6489 were considered by independent agencies, and 31,842 were considered by executive agencies ${ }^{10}$. Among these 39,311 rules, 558 were issued as direct final rules, and 2,836 were issued as interim final rules, bypassing the notice-and-comment process ${ }^{11}$ Among the 39,311 RINs in the rules universe, 980 were considered only in Spring 1995, 5675 were considered only in 2015 or later, and 32656 were listed in the Unified Agenda between Fall 1995 and Fall 2014. 1211 RINs were later merged with other RINs in the dataset. A residual of 2093 rules are included in the dataset which were listed in the Unified Agenda between 1995 and 2014, were considered by an executive agency, resulted in an NPRM, and were not merged with another RIN, but were not included in the Potter (2017) dataset, either as a result of being considered administrative notices or otherwise unobserved in the coding process of Potter (2017).

[^3]Table A.4: Rules Universe Component Categories

|  | Category <br> Total | Cumulative <br> Total |
| ---: | :--- | :--- |
| Included in Potter (2017) | 11022 | 11022 |
| RINs Considered Only in Spring 1995 | 980 | 12002 |
| RINs Considered by Independent Agency | 6489 | 18491 |
| RINs Promulgated as Direct Final Rule without NPRM | 416 | 18907 |
| RINs Promulgated as Interim Final Rule without NPRM | 2388 | 21295 |
| RINs Considered without NPRM | 14158 | 35453 |
| RINs Considered by Exec. Agency with NPRM after 2014 | 1757 | 37210 |
| RINs Merged into Other RINs | 8 | 37218 |
| RINs Previously Unobserved | 2093 | 39311 |

The category totals provided in each row denote the number of RINs of that category remaining after RINs falling into the categories above that row have been removed from the rules universe. For example, after the rules used by Potter and RINs considered only in Spring 1995 were removed from the rules universe, there were 6489 RINs considered by independent agencies among the remaining rules universe. The rules in each row category were iteratively removed until 2093 rules were left which were considered by executive agencies between Fall 1995 and Fall 2014, resulted in at least 1 NPRM and were not merged into other rules, but were not included in the Potter (2017) dataset.

For each RIN in our rules universe dataset, the Federal Register as well as the Unified Agenda were parsed to identify the last action taken whose action name included 'inal,' 'irect' and 'egulation' or 'irect' and 'ule.' Actions with names meeting these requirements but referring to interim rules, effective dates or due dates for comments were excluded. The date of this last action taken was recorded as the date of promulgation for the rule. If the date of the last action taken differed between the Federal Register and the Unified Agenda, the later option was recorded. These rule promulgation dates were then used to calculate how many rules were promulgated during each Congress for each available agency in the dataset.

## B Appendix B: Rater Variable Description

As detailed in Section 2 of the paper, we estimate the significance of 39,311 rules with 15 raters and explain why we propose these raters for our new measurement and how some of them have been employed by existing measures. Among these raters, the first ten ones are binary while the
last five are count responses. The rest of this appendix details how each of the rater variables is coded, their source data, and descriptive statistics (Table A.5).

Major. This dichotomous variable captures whether or not a proposed rule is reported as 'major' in the Unified Agenda. The criteria for reporting as a 'major' rule include a variety of impacts such as expected influence on costs or prices for a variety of entities, as well as adverse effects on competition, innovation, international trade, and investment, among others. This variable was only available for RINs included in the Unified Agenda in Fall 1995 and after, and from Fall 1995 to Spring 2019, RINs whose 'Major' status were reported as 'Undetermined' or 'NA' were coded as missing.

Priority. This dichotomous variable captures the significance of the regulation based on its reported priority category in the Unified Agenda. If a rule's priority category is reported to be either 'Economically Significant' or 'Other Significant,' it is coded as significant. It is important to note that the Introduction to the Unified Agenda explicitly states that the definition of an 'economically significant' rule is different from the definition of a 'major' rule, due to the provisions included in 5 U.S.C. 801 (Regulatory Information Service Center, 2019).$^{12}$ The definition of an 'other significant' rule includes rules which are a priority of the agency head, or expected to be put under scrutiny by OIRA. A rule with any other priority category is not coded as significant. Accordingly, there are several components of this rater which are not captured by the Major rater. This variable was available for RINs included throughout the study period, but was not widely reported for RINs only appearing in the Spring 1995 Unified Agenda issue.

Regulatory Plan. This dichotomous variable captures whether or not a rule is included in an agency's Regulatory Plan, as listed in the Unified Agendd ${ }^{13}$. This variable is abbreviated as Regulatory in the analysis below. This variable was only available for RINs appearing in the

[^4]Fall 1995 Unified Agenda issue or later.
Statutory Deadline. The Unified Agenda entry for each rule reports any statutory deadlines for agency action. To be precise, these entries indicate "whether any action taken on a rule is subject to a statutory or judicial deadline, the date of that deadline, and whether the deadline pertains to an NPRM, a Final Action, or some other action" (Regulatory Information Service Center, 2019). In instances in which a statutory deadline is reported for an RIN, this is reported as an indicator variable named Statutory Deadline in the text below and was available for all rules in the dataset.

Judicial Deadline. As stated above, the Unified Agenda entry for each rule reports any statutory or judicial deadlines for agency action. In instances in which a judicial deadline is reported for an RIN, this is reported as an indicator variable named Judicial Deadline in the text below and was available for all rules in the dataset.

New York Times. This dichotomous variable indicates whether the proposed rule's publication was covered in the New York Times. New York Times coverage data was obtained for roughly 11,000 of the rules in our rules universe through Potter's (2017) dataset. Totally there are only 122 of these rules mentioned in this newspaper's Section on "National Desk." We code NA for the rules excluded in Potter's dataset but included in ours.

Hearing. Rule entries in the Unified Agenda include a timetable of actions taken. If the timetable includes an action description with the string "earing" or "eeting" within it, as well as a defined date of occurrence associated with the action description, the rule was recorded as having a hearing occur. This variable was available for every rule in the dataset.

ANPRM Count. The timetable of actions taken on a rule in the Unified Agenda includes ANPRMs, and the presence of an associated citation to the Federal Register indicates that an ANPRM was actually published. One count was created which captures the number of ANPRMs listed in a rule's UA timetable of actions taken which have a corresponding citation in the Federal Register. The Federal Register API also returns the number of ANPRM documents associated with a rule, and this was used to create a second count of the number of ANPRMs returned by
the API. This variable captures the larger value of the two counts of ANPRMs. This variable is abbreviated as $A N P R M$ in the analysis below. This variable was available for every rule in the dataset.

NPRM Count. The timetable of actions taken on a rule in the Unified Agenda includes NPRMs, and the presence of an associated citation to the Federal Register indicates that an NPRM was actually published. One count was created which captures the number of NPRMs listed in a rule's UA timetable of actions taken which have a corresponding citation in the Federal Register. Federal Register API also returns the number of NPRM documents associated with a rule, and this was used to create a second count of the number of NPRMs returned by the API. This variable captures the larger value of the two counts of NPRMs, and subtracts one from the count. This variable is abbreviated as $N P R M$ in the analysis below. This variable was available for every rule in the dataset.

Public Comments. The U.S. federal government maintains Regulations.gov as a repository of regulatory materials, including public comments made on federal regulations. This count variable captures the number of public comments attached to the rule's docket on Regulations.gov, as returned by the Regulations.gov API. While most public comments collected through Regulations.gov are in response to an NPRM, public comments are also collected in response to other comment opportunities such as ANPRMs, interim and direct final rules, and more ad hoc requests for comments published in the Federal Register. It is exceedingly rare for public comments collected through Regulations.gov to be unconnected with an official request for public comment (which appears in both the Federal Register and Unified Agenda). There were 28116 rules which did not have docket ID numbers associated with them as returned by the Regulations.gov API, and for these RINs, this variable was coded as missing.

According to multiple conversations with individuals working with the Regulations.gov Help Desk, the creation of dockets on Regulations.gov is not standard and is done at the discretion of individual agencies and their leadership. As such, there is a high degree of variation in the availability of public comment data based on seemingly idiosyncratic decisions made by
individual agency leaders over time within each agency whose rules are included in our dataset. Additionally, the current docket system was mandated by the E-Government Act of 2002, which allowed the OMB to set a deadline of September 2005 for agencies to accept public comments via Regulations.gov (E-Government Act of 2002, 2002; U.S. Government Accountability Office, 2004) ${ }^{14}$ The gradual implementation of Regulations.gov between 2004 and 2006 led to a higher number of rules being given dockets after 2006. However, for a large number of rules included in the Unified Agenda before 2004, dockets were assigned and data were retroactively made available on Regulations.gov. As a result of the unpredictable availability of public comment data for a rule on the basis of agency or time of inclusion in the UA, we treat these data as missing-at-random.

Washington Post Front Page. This count variable captures the number of articles on the front page of the Washington Post in a given Congress which mentioned a particular rule. A ProQuest advanced search of articles in The Washington Post was conducted for those articles published from January 1, 1994 through December 31, 2020, which were listed by document type as being 'Front Page/Cover Story' and which contained both of the keywords 'rule' and 'regulation.' These articles were then examined by human coder using careful reading to assign the article to a specific rule if the article referred to one.

Washington Post Total. This count variable captures the number of articles which mentioned a particular rule among all articles published in the Washington Post in a given Congress. A ProQuest advanced search of articles in The Washington Post was conducted for those articles published from January 1, 1994 through December, 2020, which contained the keywords 'rule' and 'regulation.' These returned articles were then examined by a human coder to assign the article to a specific rule when a match is observed based on information from the UA and FA, timing, and the content of the article. Since our empirical application explored in section 3 of the paper concentrates on the opposition or implicit vetoes of political actors, we exclude news

[^5]articles focusing on the opposition of the President, Congress, and the court in our count to be consistent. These excluded articles occupy only about 5 percent of news articles collected for the raters of Washington Post Total and Washington Post Front Page, so including or excluding them does not greatly affect our significance scores.

Page Count. This count variable captures the length (in pages) of a regulation's first proposed rule, interim final rule, or direct final rule which was published in the Federal Register. For every RIN in the rules universe, a call to the Federal Register API was made to pull Federal Register entries of the "RULE" and "PRORULE" type published for that RIN. Among the "RULE" documents, those entries including either 'nterim' or 'irect' in the action field were preserved, and other "RULE" documents were excluded. The document with the earliest publication date among the preserved documents was identified and the "page_length" value for that document was recorded as the rater value for the RIN.

Legal Citations. This count variable captures the number of times an RIN is cited in Hein Online ScholarCheck's Law Journal Library. For every RIN in the rules universe, the eight digits of the RIN were entered in as a search term on Hein Online's ScholarCheck search of their Law Journal Library. All results were screened by human coders to exclude false positives, such as RIN numbers appearing as years, or as citations from the SEC Docket, which is SEC's regulatory and enforcement releases and considered as a journal in Hein Online's Law Journal Library. The resulting screened number of citations was recorded as the rater value for the RIN.

OMB Lobbying. This count variable assesses the number of times lobbyists met with OMB officials on the subject of a rule, according to meeting logs required by Executive Order 12866. These logs are available in XML format for all meetings occurring after March 2014 on Reginfo.gov, and these logs are available in HTML format for meetings which occurred between September 26, 2001 and March 31, 2014 at https://obamawhitehouse.archives.gov/omb/oira_meetings/. A team of human coders examined each meeting log and compared that information against the set of proposed rules included by an agency on the issue of the Unified Agenda concurrent with the meeting date, and a search of proposed rules in the Federal Register. The number of meetings
identified for each RIN was tabulated and used as the rater value for the RIN.
Table A.5: Descriptives on Rater Variables

| Rater | Type | Min.\# Coded  <br>   <br>  $\geq 1^{\prime}$ | Max. | NAs |  |
| ---: | :--- | :--- | :--- | :--- | :--- |
| Major | Dichotomous | 0 | 1652 | 1 | 4731 |
| Priority | Dichotomous | 0 | 10868 | 1 | 832 |
| Regulatory | Dichotomous | 0 | 562 | 1 | 980 |
| Statutory Deadline | Dichotomous | 0 | 3901 | 1 | 980 |
| Judicial Deadline | Dichotomous | 0 | 896 | 1 | 980 |
| NYT | Dichotomous | 0 | 122 | 1 | 26578 |
| Hearing | Dichotomous | 0 | 936 | 1 | 963 |
| ANPRM | Count | 0 | 1657 | 4 | 2 |
| NPRM | Count ${ }^{\dagger}$ | 0 | 1321 | 36 | 19707 |
| Public Comments | Count | 0 | 6213 | 325767 | 29096 |
| Page Count | Count | 1 | 18411 | 820 | 20900 |
| OMB Lobbying | Count | 0 | 1084 | 158 | 12054 |
| Legal Citations | Count | 0 | 641 | 23 | 0 |
| Washington Post Total Pages | Count | 0 | 1320 | 73 | 0 |
| Washington Post Front Pages | Count | 0 | 336 | 18 | 0 |

$\dagger$ We subtract the number of NPRM of a RIN by one.

## C Appendix C: Item Response Model and Validation

As some of our raters are dichotomous and the others are count outcomes, our item response model allows for both types of outcomes. Specifically, our item response model has $M$ raters. For the first $M_{0}$ rater, $y_{i j} \in\{0,1\}$ is a dichotomous response of rule $i(i=1, \cdots, N)$ on rater $j$ $\left(j=1, \cdots, M_{0}\right)$. For $j=1, \cdots, M_{0}$,

$$
y_{i j}^{*}=\alpha_{j}-\beta_{j} \theta_{i}+\epsilon_{i j}, \text { where } \epsilon_{i j} \sim N(0,1)
$$

where $y_{i j}^{*}$ denotes the latent variable of $y_{i j}$, with $y_{i j}=1\left(y_{i j}=0\right)$ corresponding to $y_{i j}^{*} \geq 0$ $\left(y_{i j}^{*}<0\right)$. We denote $\alpha_{j}$ and $\beta_{j}$ as the difficulty and discrimination parameters of rater $j$, while $\theta_{i}$ denotes the significance level of rule $i$.

For rater $j=\left(M_{0}+1\right), \cdots, M, y_{i j}$ is assumed to negative binomial distribution with the parameters of $p_{i j} \in(0,1]$ and $\gamma_{j} \geq 0$.

$$
\begin{aligned}
\operatorname{Pr}\left(y_{i j} \mid p_{i j}, \gamma_{j}\right) & =\binom{y_{i j}+\gamma_{j}-1}{y_{i j}} p_{i j}^{\gamma_{j}}\left(1-p_{i j}\right)^{y_{i j}} \\
p_{i j} & =\frac{\gamma_{j}}{\gamma_{j}+\mu_{i j}} \\
\mu_{i j} & =\exp \left(\alpha_{j}+\beta_{j} \theta_{i}\right)
\end{aligned}
$$

where $\gamma_{j}$ is the dispersion parameter and allowed to be different across raters. As mentioned in the paper, for each of two Washington Post raters, we additionally include an exogenous variable to control for the time for a rule's development length. For these raters, $\mu_{i j}=\exp \left(\alpha_{j}+\beta_{j} \theta_{i}+\right.$ $\delta W_{i}$ ), where $W_{i}$ is the number of UA issues mentioning a rule and $\delta$ is its coefficient.

We estimate an IRT model with two types of outcome variables (i.e., binary and count outcomes) in JAGS by running MCMC for 10, 000 iterations, throwing out the first results from the first 4,000 iterations and then saving the results every 30 iterations ${ }^{15}$ This rest of this appendix contains additional validation information for the significance estimates (see Section 2.2 of the paper for our main validation information). We establish convergent construct validity by comparing our estimates against several prior measures of regulatory significance. We build further face validity on that by examining three examples of high significance rules. Appendix C also contains tables of the ten most and ten of the least significant rules in the dataset.

The construct validity of a measure is established by examining its relationships with other measures of the same concept, and comparisons between our measures and existing binary and continuous measures of regulatory significance are discussed in Section 2 of the main paper. Figures A. 1 and A. illustrate these correlations in graphical form.

We may also build additional support for the validity of these measures by listing our top ten rules with brief descriptions in Table A.6. Deeper investigation of a few rules with partic-

[^6]

Figure A.1: Correlations between estimated scores and existing binary significance measures
ularly high significance estimates suggests that our measure is identifying noteworthy federal regulations. The rule with the highest significance score in the dataset is RIN 0938-AT72, "CY 2020 Revisions to Payment Policies Under the Physician Fee Schedule and Other Revisions to Medicare Part B." This regulation made extensive changes to medicare payment policies to conform to President Trump's Executive Order 13890, "Protecting and Improving Medicare for Our Nation's Seniors." This executive order was originally titled "Protecting Medicare from Socialist Destruction" and was President Trump's primary effort to cast his administration as a defender of traditional Medicare in the absence of a major health care reform bill (Simmons, 2019) ${ }^{16}$

The rule with the third highest significance score in the dataset is RIN 1218-AB36, "Ergonomics Programs: Preventing Musculoskeletal Disorders." This regulation was published in

[^7]

Figure A.2: The correlation between two alternative measures
the Federal Register as a final rule on November 14, 2000, and went into effect on January 16, 2001. This regulation set an OSHA standard which required employers to implement an ergonomics program for a specific job if musculoskeletal disorder (MSD) risk factors are present, and an employee in that position reports an MSD. This regulation broadly affected relationships between workers and employers across the entire economy, and was supported by organized labor and opposed by business advocates (Allen, 2001) ${ }^{17}$ It became the target of a resolution of

[^8]disapproval, passed by the U.S. House and Senate, and signed into law by President George W. Bush. This marked the first use of the Congressional Review Act to repeal a rule, and was the subject of considerably public controversy (Grayson-Mathis, 2001) ${ }^{18}$

A second example is RIN 2060-AR33, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units" which has a significance score in the top 15. This rule was published as a final rule on October 23, 2015, and was made effective on December 22, 2015. The regulation set greenhouse gas emissions standards for existing power plants, and was labeled as the Clean Power Plan (Environmental Protection Agency, 2015) ${ }^{19}$ The Clean Power Plan was hailed as the Obama Administration's most ambitious climate change proposal, was a subject of a campaign by Organizing for Action, Obama's grassroots lobbying organization, and drew immediate opposition (Plumer, 2015;Klingler 2020). ${ }^{20}$

These three examples illustrate the political relevance of regulations with extraordinarily high significance scores. The regulations with the highest significance scores handle matters of broad social and economic significance, drew significant media coverage despite having an impact on disparate areas of policy, and involved policies which provoked or paralleled intervention by the legislative and judicial branches of government. Extremely broad and costly workplace rules, Medicare pricing reform, and climate policy are all highly significant areas of policymaking.

The least significant regulations, as listed in Table A.7, tend to be highly technical and administrative in nature, making them somewhat opaque.

[^9]Table A.6: Ten Most Significant Regulations

| RIN | Title and Brief Description | Sig. Scores |
| :---: | :---: | :---: |
| 0938-AT72 | CY 2020 Revisions to Payment Policies Under the Physician Fee Schedule and Other Revisions to Medicare Part B; <br> Trump Administration regulation which implemented elements of EO 13890, which sought to reform Medicare. | $\begin{aligned} & 3.527 \\ & (0.322) \end{aligned}$ |
| 0938-AP17 | Changes to the Hospital Outpatient Prospective System and Ambulatory Surgical Center Payment System for CY 2009 Bush Administration regulation which altered the Medicare outpatient payment system to implement the 2003 Medicare reform bill | $\begin{aligned} & 3.454 \\ & (0.320) \end{aligned}$ |
| 1218-AB36 | Ergonomics Programs: Preventing Musculoskeletal Disorders; Clinton Administration regulation which was the first rule repealed by the Congressional Review act in 2001. | $\begin{aligned} & \hline 3.441 \\ & (0.273) \end{aligned}$ |
| 3170-AA40 | Payday, Vehicle Title, and Certain High-Cost Installment Loans; Obama Administration regulation to restrict payday loans which was ultimately rescinded by the Trump Administration before taking effect. | $\begin{aligned} & 3.334 \\ & (0.258) \end{aligned}$ |
| 2127-AL52 | Fuel Efficiency Standards for Medium- and Heavy-Duty Vehicles and ; Work Trucks; <br> Obama Administration regulation which set fuel efficiency standards for large trucks and implemented the president's Climate Action Plan. | $\begin{aligned} & \hline 3.297 \\ & (0.333) \end{aligned}$ |
| 1205-AB85 | Apprenticeship Programs, Labor Standards for Registration; Trump Administration rule which sought to deregulate and fund apprenticeship within an industry-recognized system. | $\begin{aligned} & 3.278 \\ & (0.253) \end{aligned}$ |
| 0938-AT31 | CY 2019 Revisions to Payment Policies Under the Physician Fee Schedule and Other Revisions to Medicare Part B and the Quality Payment Program; Trump Administration regulation which implemented elements of EO 13890, which sought to reform Medicare. | $\begin{aligned} & \hline 3.271 \\ & (0.301) \end{aligned}$ |
| 2060-AS16 | Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and; Heavy-Duty Engines and Vehicles; Obama Administration regulation which sought to limit greenhouse gas emissions for large trucks. | $\begin{aligned} & 3.248 \\ & (0.339) \end{aligned}$ |
| 2060-AR33 | Greenhouse Gas New Source Performance Standard for Electric Generating Units; Obama Administration's well-known unilateral "Clean Power Plan" policy to regulate greenhouse gases. | $\begin{aligned} & \hline 3.239 \\ & (0.260) \end{aligned}$ |
| 0938-AP82 | Changes to the Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System for CY 2011; Obama Administration regulation implementing elements of the Affordable Care Act and altering the payment structure for outpatient care within Medicare. | $\begin{aligned} & 3.217 \\ & (0.321) \end{aligned}$ |

Standard deviations for significance scores are listed in parentheses below the relevant score.

Table A.7: Ten Examples of Least Significant Regulations

| RIN | Title | Description |
| :--- | :--- | :--- |
| 0750-AF42 | Aviation Into-Plane | 2007 policy authorizing the use of an <br> "AIR" card instead of a Standard Form <br> 44 for aviation fuel and oil purchases. |
| 3095-AB77 | Use of Meeting Rooms and <br> Public Space | Obama-era National Archives rule <br> clarifying instances in which the public <br> may be charged fo NARA building use. |
| 0648-AT98 | Amendment 19 to the Pacific Coast | 2006 proposal to establish a program <br> to protect the essential fish habitat <br> Groundfish Fishery Management Plan |
|  | for the Pacific Coast Groundfish. |  |

## D Appendix D: Variable Summary Statistics

This appendix includes supplemental summary statistics describing the dependent and independent variables used in the regression models in the main body.

Table A.8: Summary statistics

| Variable | Mean | Std. Dev. | Min. | Max. | N |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Rule Productivity (All) | 19.251 | 30.368 | 0 | 155 | 442 |
| Rule Productivity (T=-0.25) | 9.378 | 14.345 | 0 | 72 | 442 |
| Rule Productivity (T=0) | 7.269 | 11.082 | 0 | 52 | 442 |
| Rule Productivity (T=0.25) | 5.222 | 8.408 | 0 | 47 | 442 |
| Rule Productivity (T=0.50) | 3.348 | 5.770 | 0 | 38 | 442 |
| Rule Productivity (T=0.75) | 2.446 | 4.559 | 0 | 33 | 442 |
| Rule Productivity (T=1) | 1.790 | 3.633 | 0 | 27 | 442 |
| Rule Productivity (T=1.25) | 1.195 | 2.610 | 0 | 20 | 442 |
| Rule Productivity (T=1.50) | .805 | 1.884 | 0 | 14 | 442 |
| Rule Productivity (T=1.75) | .473 | 1.269 | 0 | 10 | 442 |
| Rule Productivity (T=2) | .285 | .878 | 0 | 7 | 442 |
| Rule Productivity (T=2.25) | .156 | .552 | 0 | 4 | 442 |
| Agency Gridlock Interval (Model P) | .495 | .317 | .004 | 1.203 | 442 |
| Agency Gridlock Interval (Model C) | .294 | .163 | .015 | .740 | 442 |
| Agency Gridlock Interval (Model S) | .398 | .197 | .001 | .875 | 442 |
| Agency Gridlock Interval (Model CP) | .663 | .209 | .17 | 1.203 | 442 |
| Agency Gridlock Interval (Model PS) | .750 | .141 | .452 | 1.203 | 442 |
| Agency Gridlock Interval (Model CS) | .447 | .161 | .053 | .875 | 442 |
| Agency Gridlock Interval (Model CPS) | .775 | .119 | .504 | 1.203 | 442 |
| Divided Government | .660 | .474 | 0 | 1 | 442 |
| Employment | 8.755 | 2.246 | 3.970 | 12.677 | 442 |
| Independent Agency | .389 | .488 | 0 | 1 | 442 |
| Congress | 108.054 | 2.574 | 104 | 112 | 442 |
| Congress Squared | 11682.34 | 556.147 | 10816 | 12544 | 442 |

## E Appendix E: The Proof of Proposition 1

This appendix includes a proof of Proposition 1.
The Proof of Proposition 1: Denote $V_{L}=\min \left\{x_{V}\right\}$ and $V_{R}=\max \left\{x_{V}\right\}$. Clearly, $V_{L} \leq V_{R}$. Without loss of generality, we can focus on three scenarios for the relative location of $x_{A}$ to $V_{L}$ and $V_{R}$.

Scenario 1: $x_{A}<V_{L}$
For $q_{j}<x_{A}$, $A$ will move it to her ideal point in equilibrium, as each of the veto players will benefit from this policy shift. For $x_{A} \leq q_{j} \leq V_{R}$, any attempts to move the status quo closer to the ideal point of the agenda setter will be blocked by at least one of the veto players. For $q_{j}>V_{R}$, the agenda setter will move the status quo to $2 V_{R}-q$, keeping each of the veto players indifferent or better off from this move. In other words, the equilibrium will be the same as the status quo, if and only if $x_{A} \leq q_{j} \leq V_{R}$.

Scenario 2: $V_{L} \leq x_{A} \leq V_{R}$
For $q_{j}<2 V_{L}-x_{A}$, the agenda setter will move the status quo to her ideal point, which is closer to the ideal point of each of the veto players. For $2 V_{L}-x_{A} \leq q_{j}<V_{L}$, the agenda setter will propose $2 V_{L}-q_{j}$, which makes each of the veto players either indifferent or better off. For $V_{L} \leq q_{j} \leq V_{R}$, any intention to move the status quo will encounter the opposition of at least one of the veto players. Finally, for $q_{j}>V_{R}$, the agenda setter can move the status quo successfully, with the logic similar to the situation where $q_{j}<V_{L}$. Under this case, the status quo cannot be altered in equilibrium when it is between $V_{L}$ and $V_{R}$.

Scenario 3: $x_{A}>V_{R}$
The scenario is very similar to Scenario 1: the status quo cannot be changed in equilibrium when $V_{L} \leq q_{j} \leq x_{A}$.

The conclusions of these three scenarios lead to the result of this proposition.

## F Appendix F: Regression Results of the Third Model

Our main text provides regression results for the model where the president is the only veto player (Model P) and the model where Congress is the only veto player (Model C). This Appendix offers the regression results for the other third competing model.

Table A.9: Congress and the President as the Only Veto Players (Lowest to High Thresholds)

|  | $\begin{gathered} \hline(1) \\ \mathrm{T}=-1 \end{gathered}$ | $\begin{gathered} \hline(2) \\ \mathrm{T}=-.25 \end{gathered}$ | $\begin{gathered} \hline \hline(3) \\ \mathrm{T}=0 \end{gathered}$ | $\begin{gathered} \hline(4) \\ \mathrm{T}=.25 \end{gathered}$ | $\begin{gathered} (5) \\ \mathrm{T}=.50 \end{gathered}$ | $\begin{gathered} \hline(6) \\ \mathrm{T}=.75 \end{gathered}$ | $\begin{gathered} \hline(7) \\ \mathrm{T}=1 \end{gathered}$ | $\begin{gathered} \hline(8) \\ \mathrm{T}=1.25 \end{gathered}$ | $\begin{gathered} \hline(9) \\ \mathrm{T}=1.50 \end{gathered}$ | $\begin{gathered} (10) \\ \mathrm{T}=1.75 \end{gathered}$ | $\begin{aligned} & \hline \hline(11) \\ & \mathrm{T}=2 \end{aligned}$ | $\begin{gathered} \hline(12) \\ \mathrm{T}=2.25 \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Agency Gridlock <br> Interval (Model CP) | $\begin{gathered} 0.215 \\ (0.153) \end{gathered}$ | $\begin{gathered} 0.269 \\ (0.188) \end{gathered}$ | $\begin{gathered} 0.212 \\ (0.211) \end{gathered}$ | $\begin{gathered} 0.103 \\ (0.223) \end{gathered}$ | $\begin{gathered} -0.023 \\ (0.260) \end{gathered}$ | $\begin{gathered} -0.100 \\ (0.253) \end{gathered}$ | $\begin{aligned} & -0.507^{*} \\ & (0.272) \end{aligned}$ | $\begin{gathered} -0.872^{* * *} \\ (0.258) \end{gathered}$ | $\begin{gathered} -1.118^{* * *} \\ (0.292) \end{gathered}$ | $\begin{gathered} -1.341^{* * *} \\ (0.327) \end{gathered}$ | $\begin{gathered} -0.835^{*} \\ (0.380) \end{gathered}$ | $\begin{gathered} -0.089 \\ (0.569) \end{gathered}$ |
| Divided Government | $\begin{aligned} & -0.117^{*} \\ & (0.063) \end{aligned}$ | $\begin{gathered} -0.110 \\ (0.078) \end{gathered}$ | $\begin{gathered} -0.106 \\ (0.094) \end{gathered}$ | $\begin{gathered} -0.122 \\ (0.112) \end{gathered}$ | $\begin{gathered} -0.051 \\ (0.124) \end{gathered}$ | $\begin{gathered} -0.076 \\ (0.136) \end{gathered}$ | $\begin{gathered} 0.040 \\ (0.144) \end{gathered}$ | $\begin{gathered} 0.338^{* *} \\ (0.130) \end{gathered}$ | $\begin{gathered} 0.360^{* *} \\ (0.141) \end{gathered}$ | $\begin{gathered} 0.188 \\ (0.252) \end{gathered}$ | $\begin{gathered} -0.003 \\ (0.285) \end{gathered}$ | $\begin{gathered} -0.331 \\ (0.282) \end{gathered}$ |
| Employment | $\begin{gathered} 0.412^{* *} \\ (0.136) \end{gathered}$ | $\begin{gathered} 0.473^{* * *} \\ (0.137) \end{gathered}$ | $\begin{gathered} 0.520^{* * *} \\ (0.150) \end{gathered}$ | $\begin{gathered} 0.507^{* * *} \\ (0.144) \end{gathered}$ | $\begin{gathered} 0.529^{* * *} \\ (0.140) \end{gathered}$ | $\begin{gathered} 0.526^{* * *} \\ (0.133) \end{gathered}$ | $\begin{gathered} 0.563^{* * *} \\ (0.145) \end{gathered}$ | $\begin{gathered} 0.580^{* * *} \\ (0.178) \end{gathered}$ | $\begin{gathered} 0.643^{* * *} \\ (0.191) \end{gathered}$ | $\begin{gathered} 0.571^{* *} \\ (0.196) \end{gathered}$ | $\begin{gathered} 0.618^{* *} \\ (0.225) \end{gathered}$ | $\begin{gathered} 0.471^{* *} \\ (0.189) \end{gathered}$ |
| Independent Agency | $\begin{gathered} -0.314 \\ (0.591) \end{gathered}$ | $\begin{gathered} -0.298 \\ (0.564) \end{gathered}$ | $\begin{gathered} -0.224 \\ (0.630) \end{gathered}$ | $\begin{gathered} -0.130 \\ (0.625) \end{gathered}$ | $\begin{gathered} -0.142 \\ (0.643) \end{gathered}$ | $\begin{gathered} -0.065 \\ (0.647) \end{gathered}$ | $\begin{gathered} 0.162 \\ (0.713) \end{gathered}$ | $\begin{gathered} 0.098 \\ (0.926) \end{gathered}$ | $\begin{gathered} -0.118 \\ (1.019) \end{gathered}$ | $\begin{gathered} -0.027 \\ (1.034) \end{gathered}$ | $\begin{gathered} 0.386 \\ (1.094) \end{gathered}$ | $\begin{gathered} 0.133 \\ (0.887) \end{gathered}$ |
| Congress | $\begin{gathered} -1.832 \\ (1.147) \end{gathered}$ | $\begin{gathered} -0.970 \\ (1.541) \end{gathered}$ | $\begin{aligned} & -0.384 \\ & (1.556) \end{aligned}$ | $\begin{gathered} -0.829 \\ (1.514) \end{gathered}$ | $\begin{gathered} 1.142 \\ (2.179) \end{gathered}$ | $\begin{aligned} & 5.844^{*} \\ & (2.617) \end{aligned}$ | $\begin{aligned} & 7.248^{*} \\ & (3.173) \end{aligned}$ | $\begin{gathered} 9.194^{* *} \\ (3.647) \end{gathered}$ | $\begin{gathered} 9.818^{* *} \\ (4.118) \end{gathered}$ | $\begin{aligned} & 9.256^{*} \\ & (5.613) \end{aligned}$ | $\begin{gathered} 6.905 \\ (6.858) \end{gathered}$ | $\begin{gathered} -5.132 \\ (6.967) \end{gathered}$ |
| Congress Squared | $\begin{gathered} 0.008 \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.005 \\ (0.007) \end{gathered}$ | $\begin{gathered} 0.002 \\ (0.007) \end{gathered}$ | $\begin{gathered} 0.004 \\ (0.007) \end{gathered}$ | $\begin{gathered} -0.005 \\ (0.010) \end{gathered}$ | $\begin{aligned} & -0.027^{*} \\ & (0.012) \end{aligned}$ | $\begin{gathered} -0.033^{*} \\ (0.015) \end{gathered}$ | $\begin{gathered} -0.042^{* *} \\ (0.017) \end{gathered}$ | $\begin{gathered} -0.045^{* *} \\ (0.019) \end{gathered}$ | $\begin{gathered} -0.042 \\ (0.026) \end{gathered}$ | $\begin{gathered} -0.032 \\ (0.032) \end{gathered}$ | $\begin{gathered} 0.024 \\ (0.032) \end{gathered}$ |
| Constant | $\begin{gathered} 98.418 \\ (62.179) \end{gathered}$ | $\begin{gathered} 46.867 \\ (83.410) \end{gathered}$ | $\begin{gathered} 14.385 \\ (84.233) \end{gathered}$ | $\begin{gathered} 39.505 \\ (82.147) \end{gathered}$ | $\begin{gathered} -70.077 \\ (117.903) \\ \hline \end{gathered}$ | $\begin{gathered} -326.826^{*} \\ (141.450) \end{gathered}$ | $\begin{gathered} -404.364^{* *} \\ (171.358) \end{gathered}$ | $\begin{gathered} -510.984^{* *} \\ (196.583) \\ \hline \end{gathered}$ | $\begin{gathered} -545.350^{* *} \\ (222.354) \end{gathered}$ | $\begin{gathered} -513.654^{*} \\ (304.097) \end{gathered}$ | $\begin{aligned} & -384.141 \\ & (371.718) \end{aligned}$ | $\begin{gathered} 268.401 \\ (377.667) \\ \hline \end{gathered}$ |
| $\ln$ (alpha) Constant | $\begin{gathered} -2.194^{* * *} \\ (0.249) \end{gathered}$ | $\begin{gathered} -1.731^{* * *} \\ (0.246) \end{gathered}$ | $\begin{gathered} -1.771^{* * *} \\ (0.253) \\ \hline \end{gathered}$ | $\begin{gathered} -1.674^{* * *} \\ (0.283) \\ \hline \end{gathered}$ | $\begin{gathered} -1.571^{* * *} \\ (0.304) \\ \hline \end{gathered}$ | $\begin{gathered} -1.601^{* * *} \\ (0.388) \\ \hline \end{gathered}$ | $\begin{gathered} -1.432^{* * *} \\ (0.403) \\ \hline \end{gathered}$ | $\begin{gathered} -1.507^{* *} \\ (0.492) \end{gathered}$ | $\begin{gathered} -1.967^{* *} \\ (0.715) \end{gathered}$ | $\begin{gathered} -1.363^{* *} \\ (0.442) \end{gathered}$ | $\begin{gathered} -1.037^{* *} \\ (0.396) \end{gathered}$ | $\begin{gathered} -0.426 \\ (0.571) \end{gathered}$ |
| Agency Level var(Constrant) | $\begin{gathered} 2.452^{* * *} \\ (0.524) \\ \hline \end{gathered}$ | $\begin{gathered} 2.691^{* * *} \\ (0.592) \\ \hline \end{gathered}$ | $\begin{gathered} 2.933^{* * *} \\ (0.692) \\ \hline \end{gathered}$ | $\begin{gathered} 2.662^{* * *} \\ (0.589) \\ \hline \end{gathered}$ | $\begin{gathered} 2.979^{* * *} \\ (0.814) \\ \hline \end{gathered}$ | $\begin{gathered} 2.796^{* * *} \\ (0.730) \\ \hline \end{gathered}$ | $\begin{gathered} 3.354^{* * *} \\ (0.969) \\ \hline \end{gathered}$ | $\begin{gathered} 4.577^{* * *} \\ (1.346) \\ \hline \end{gathered}$ | $\begin{gathered} 5.025^{* * *} \\ (1.527) \\ \hline \end{gathered}$ | $\begin{gathered} 4.013^{* * *} \\ (1.232) \\ \hline \end{gathered}$ | $\begin{aligned} & 4.118^{* *} \\ & (1.446) \\ & \hline \end{aligned}$ | $\begin{gathered} 2.858^{* *} \\ (1.127) \\ \hline \end{gathered}$ |
| $N$ | 442 | 442 | 442 | 442 | 442 | 442 | 442 | 442 | 442 | 442 | 442 | 442 |
| BIC | 2614.272 | 2188.230 | 1998.736 | 1792.872 | 1519.604 | 1334.342 | 1155.002 | 940.662 | 743.374 | 603.307 | 478.749 | 371.876 |

Standard errors in parentheses. Each model's dependent variable is the number of eligible final rules with NPRMs and a significance score of at least T (defined in the column labels), promulgated by an agency within a Congress. Models include agency-level random effects and agency-clustered S.E.s.
One-tailed test: * $p<0.05,{ }^{* *} p<0.01,{ }^{* * *} p<0.001$

## G Appendix G: The Judicial Branch as a Veto Player

An ideal examination of interbranch competition and rulemaking would examine the importance of judicial constraints on agency rulemaking. Courts have several tools at their disposal to impose costs on agencies which displease them, including requiring agencies to divert resources to redevelop regulatory proposals which are struck down, setting precedents which invite future costly legal action from outside groups, and forcing additional, time-consuming bureaucratic review (Shipan 2000; Hume 2009). ${ }^{21}$

However, judicial forces on rulemaking are much more complicated than those exercised by the other two branches. The theoretical grounding for judicial influence over rulemaking carries several complications in comparison with Congress and the president. First, there is simply far less extant work establishing judicial involvement in the rulemaking process prior to promulgation than for the other two branches. While the ability of courts to impose costs on agencies suggest that agencies may act strategically to avoid such sanction, this literature is relatively underdeveloped. Second, agencies do not interact with only the Supreme Court when making rules, but (potentially) with several appellate courts and the Supreme Court, creating a more complicated and shifting set of potential veto players. Third, some courts may have an implicit veto over very significant rules, and others may have an implicit veto over only less significant rules, which further complicates the development of theory.

On an empirical level, it is particularly challenging to capture judicial preferences that each agency may face. Ideally, we would want to employ the institutional preference of the circuit courts to first examine the importance of judicial constraints on agency rulemaking. However, the random selection of three judge panels across many judicial circuits complicates the measurement of corresponding judicial preferences for each agency. With this difficulty, we use the ideal point of the Supreme Court median as the judicial branch veto pivot for robustness checks for our

[^10]main results ${ }^{22}$.
The theoretical framework we adopt in the paper can be expanded by evaluating the following four models:

1. Supreme Court as the only veto player (Model S)
2. Congress and Supreme Court as the only veto players (Model CS)
3. The president and Supreme Court as the only veto players (Model PS)
4. Congress, the president and Supreme Court as the veto players (Model CPS)

We can conduct similar analyses reported in Tables 3-6 and evaluate seven competing models (i.e., our three theoretical models and the four models above). We find that the models that incorporate the the Supreme Court median (i.e., the four models laid out above) do not receive any empirical support, regardless of significance thresholds. ${ }^{233}$. In other words, the model comparison reported in Tables 5 and 6 remains the same even if we include the court as one of the veto players.

Overall, we find that, even when focusing on very significant regulations, measures of the gridlock interval which use the ideal point of the median Supreme Court justice do not correlate with counts of promulgated rules by parent agencies. This suggests that agencies are not deterred by the Supreme Court's preferences when producing rules, but such a claim would require more investigation to make confidently.

While we find that AGIs incorporating the judiciary through the Supreme Court alone are not correlated with agency regulatory productivity, other judicial actors arguably possess an ability to impose costs on agencies which promulgate rules which harm their interests. These would include the D.C. Circuit, where many legal challenges to regulations are decided, as well

[^11]as the U.S. Circuit Courts of Appeals, and lower courts more generally. Full consideration of multiple alternative models of court influence over rulemaking cannot be conducted in this paper due to space constraints, but we believe it is a promising next step.


[^0]:    ${ }^{1}$ Jennifer Nou and Edward H Stiglitz. "Strategic Rulemaking Disclosure". In: S. Cal. L. Rev. 89 (2016), p. 733.
    ${ }^{2}$ Table A. 1 and Table A. 2 illustrate that a substantial number of FR RINs found missing from the 2000 issues of the Unified Agenda are present in the 1999 or 2001 issues, reflecting instances in which a rule promulgated in 1999 was removed from the UA but had a later correction published in the FR, and instances in which an agency began working on a rule following the publication of the Fall 2000 issue leading to the first UA issue for that rule to appear in 2001.

[^1]:    ${ }^{3}$ Unified Agenda rater data are not consistently reported in the Federal Register, so they (along with deadlines, public comment numbers, and newspaper mentions) cannot be checked against the record of the Federal Register, but we do check counts of advance notices of proposed rulemaking (ANPRMs) and notices of proposed rulemaking (NPRMs) as this is possible.
    ${ }^{4}$ These standard variables are described in detail in the Introduction to the Unified Agenda which is published by the Regulatory Information Service Center along with each issue of the Unified Agenda. The introduction for the Fall 2019 issue is available at https://www.reginfo.gov/public/jsp/eAgenda/StaticContent/201910/ RiscPreamble.pdf

[^2]:    ${ }^{5}$ The Spring 1995 issue of the Unified Agenda is not available in XML format, and was processed using human coding of PDF copies of that issue.
    ${ }^{6}$ On rare occasions, the Unified Agenda has reported that two separate RINs are associated as a 'parent' and 'child' RIN. That is, a separate new RIN was created to manage some element of policy which was previously begun in the parent rule. The Regulatory Information Service Center's computing system no longer supports the designation of 'parent' and 'child' RINs (Regulatory Information Service Center. "Justice Department Spring 2004 Semiannual Agenda". In: Federal Register 69.123 [2004], pp. 37733-37783). We define a rule by the existence of an independent RIN, as this unit is used to govern listing on the UA as well as the satisfaction of notice, comment, and publication requirements. As such, we treat parent and child RINs in our rules universe as fully separate regulations.
    ${ }^{7}$ Rules published in issues of the Unified Agenda subsequent to Spring 2019 may also be incorporated in future work. The choice to exclude these later rules was made in pursuit of consistency as this project has progressed, not due to any substantive change in the nature of the data.

[^3]:    ${ }^{8}$ Anne Joseph O'Connell. "Political Cycles of Rulemaking: An Empirical Portrait of the Modern Administrative State". In: Virginia Law Review 94.4 (2008), pp. 889-986; Jason Webb Yackee and Susan Webb Yackee. "Is the Bush Bureaucracy Any Different? A Macro-Empirical Examination of Notice and Comment Rulemaking under " 43 "". In: President George W. Bush's Influence over Bureaucracy and Policy. Ed. by Colin Provost and Paul Teske. New York: Palgrave MacMillan, 2009; Rachel Augustine Potter. "Slow-Rolling, Fast-Tracking, and the Pace of Bureaucratic Decisions in Rulemaking". In: The Journal of Politics 79.3 (2017), pp. 841-855; Maeve P. Carey. Counting Regulations: An Overview of Rulemaking, Types of Federal Regulations, and Pages in the Federal Register. CRS Report No. R43056. Washington, DC: USA, 2019. URL: https: //sgp.fas.org/crs/misc/R43056.pdf.
    ${ }^{9}$ The electronic source of the Federal Register starts to be available from 1994. We focus on this period partly because most of our raters for significance become systematically available after 1994.
    ${ }^{10}$ This is missing for 980 observations collected from the Spring 1995 issue of the Unified Agenda.
    ${ }^{11}$ Five of these rules were issued as both direct and interim final rules at some point in their workflow. These five rules are included in both of the counts listed in the main text.

[^4]:    ${ }^{12}$ Regulatory Information Service Center. "Introduction to the Unified Agenda of Federal Regulatory and Deregulatory Actions". In: Federal Register 84.121 (2019), pp. 21592-21596.
    ${ }^{13}$ Variables included in the Unified Agenda are described in detail in the Introduction to the Unified Agenda of Federal Regulatory and Deregulatory Actions. This document is typically published with every issue of the Unified Agenda, and the Introduction for Spring 2019 may be found at https://www.reginfo.gov/public/jsp/eAgenda/StaticContent/201904/RiscPreamble.pdf.

[^5]:    ${ }^{14}$ E-Government Act of 2002; U.S. Government Accountability Office. Electronic Government: Federal Agencies Have Made Progress Implementing the E-Government Act of 2002. [Online; posted 23 December 2004, accessed 27 July 2021]. Dec. 2004. URL: http://www.gao.gov/cgi-bin/getrpt?GAO-05-12.

[^6]:    ${ }^{15}$ Gelman-Rubin convergence diagnostic on our two MCMC chains reveals good evidence for the convergence of the parameters we simulate.

[^7]:    ${ }^{16}$ Selena. Simmons-Duffin. Targeting 'Medicare for All' Proposals, Trump Lays Out His Vision for Medicare. NPR, https://www.npr.org/sections/health-shots/2019/10/03/766816709/targeting-medicare-for-all-proposals-trump-lays-out-his-vision-for-medicare. Posted 3 Oct 2019. [Online; posted 3 Oct 2019]. Oct. 2019. URL: https://www.npr.org/sections/health-shots/2019/10/03/766816709/targeting-medicare-for-all-proposals-trump-lays-out-his-vision-for-medicare.

[^8]:    ${ }^{17}$ Mike Allen. Bush Signs Repeal of Ergonomics Rules. The Washington Post https://www.washingtonpost.com/archive/politics/2001/03/21/bush-signs-repeal-of-ergonomics-rules/55a82697-d83c-491c-95f4-709730c2fc27/; posted 11 March 2001]. Mar. 21, 2001. url: https : / / www . washingtonpost . com / archive/politics / 2001/03/21/bush - signs - repeal - of - ergonomics -rules/55a82697-d83c-491c-95f4-709730c2fc27/

[^9]:    ${ }^{18}$ M.D. Grayson-Mathis Charlotte E. Bush Set to Repeal Clinton's Ergonomics Rule. WebMD, https://www.webmd.com/pain-management/carpal-tunnel/news/20010307/bush-set-to-repeal-clintons-ergonomics-rule. Posted 7 Mar 2001. [Online; posted 7 Mar 2001]. Mar. 2001. url: https://www.webmd.com/ pain-management/carpal-tunnel/news/20010307/bush-set-to-repeal-clintons-ergonomics-rule.
    ${ }^{19}$ Environmental Protection Agency. "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units". In: Federal Register 80.205 (2015), pp. 64662-64964.
    ${ }^{20}$ Brad Plumer. How Obama's Clean Power Plan actually works - a step-by-step guide. Vox.com. Aug. 2015. URL: https://www.vox.com/2015/8/4/9096903/clean-power-plan-explained; Jonathan D. Klingler. "Political Capital in the 21st Century: Presidential Grassroots Lobbying Organizations in the Obama Administration". In: Congress \& the Presidency 47.3 (2020), pp. 301-337.

[^10]:    ${ }^{21}$ Charles R. Shipan. "The legislative design of judicial review: a formal analysis". In: Journal of Theoretical Politics 12.3 (2000), pp. 269-304; Robert J Hume. How courts impact federal administrative behavior. Routledge, 2009.

[^11]:    ${ }^{22}$ The composition of the Supreme Court changes only in 2005, 2009, and 2010 during the period we study, so its median tends to be constant or vary little within a Congress. We measure the median ideal point of the Supreme Court by drawing from the Judicial Common Space ideal points introduced in (Epstein et al. 2007)(Lee Epstein et al. "The Judicial Common Space". In: The Journal of Law, Economics, and Organization 23.2 [2007], pp. 303-325), and these data were obtained from https://www.epstein.wustl.edu/jcs on January 8, 2021.
    ${ }^{23}$ With space constraint, we do not report the results, which are available in the APSR Dataverse files

