Regulatory Auditing at the Office of Information and Regulatory Affairs*

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August 8, 2014

Abstract

The Office of Information and Regulatory Affairs (OIRA) is the locus for centralized presidential efforts to control agency rulemaking, predominately through the process of selectively auditing and then ordering the revision of regulatory proposals. We develop a theoretical model that centers the ideological conflict in rulemaking between conservative under-regulators and liberal over-regulators. The model predicts that Republican administrations target large proposals from overzealous liberal agencies and Democratic administrations focus on scaling up modest proposals from conservative agencies. To test our model, we conducted the first systematic analysis of OIRA's targeting decision, using data across three presidential administrations and over 30 regulatory agencies. Our analysis reveals that Republican OIRAs disproportionately targeted large proposals from liberal agencies, whereas Democratic OIRAs uniformly audited large proposals across the ideological spectrum. We speculate what objective (if any) might lead Democratic administrations to rationally employ such a regulatory auditing strategy.

Manuscript Word Count: 7,983

*We thank David Lewis and Joshua Clinton for generously sharing data on agency ideologies and staffing patterns, and Jeremy Miller at the General Services Administration and Anne Joseph O'Connell for sharing the Unified Agenda data. We thank participants in seminars at Emory University, New York University School of Law, the University of Michigan, CELS 2011, Texas A&M, Duke Law School, and Princeton University for their helpful comments, especially Greg Huber, Alan Wiseman, Matt Stephenson, Mike Ting, Stu Jordan, Leslie Johns, Ryan Bubb, John Ferejohn, Lewis Kornhauser, Chuck Shipan, Jowei Chen, Rick Hall, Rachel Potter, Dan Wood, George Edwards, Paul Kellstedt, Jim Rogers, Jon Bond, Anne Joseph O'Connell, Bill Eskridge, John de Figueiredo, Tony Bertelli, Jeff Cohen, Jennifer Nou, Art Fraas, and most particularly John Graham. Any errors and deficiencies are our own.

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1 Introduction

The emergence of a vast administrative and regulatory state is a hallmark—arguably *the* hallmark—of modern government. As was quickly understood by Woodrow Wilson and other early students of American political development, the presence of gigantic standing bureaucracies with enormous scope and power of action presents not merely a problem in public administration; it presents a problem in brute politics. The crux of the matter, as a leading scholar of public management rather dryly notes, is that "whoever controls the bureaucracy controls a key part of the policy process" (Lewis 2008, p.6).

The problem of political control is acute for Congress. Not surprisingly, it became an analytical focus of the "new institutionalist" revolution in scholarship on Congress and the administrative state (McCubbins, Noll, and Weingast 1987; Ferejohn and Shipan 1990; Epstein and O'Halloran 1999). But the problem of control is equally if not more acute for America's chief executive officer, the President: How can one man, aided by a relative handful of confederates, exert effective control over rulemaking in the agencies?

Presidents, working diligently and with considerable ingenuity, have responded to the challenge by developing a remarkable set of tools for controlling policy making in the administrative state. Perhaps the most important is "politicization," the systematic placement of loyal subordinates into supervisory positions within the agencies (Lewis 2008). But others include: centralized budgeting (Tomkin 1998), direct command through executive orders (Howell 2003), centralized review and direction of the agencies' legislative programs (Rudalevige 2002; Neustadt 1991), and reorganizing or terminating agencies (Lewis 2003).

One of the newest tools, and potentially a puissant one, is *direct centralized review and forced revision of the agencies' proposed rules.* This tool—innovated by the Nixon Administration, institutionalized during the Reagan Administration, and then retained by every subsequent president—can be seen as the apotheosis of the centralizing tendencies of the

American presidency, noted so crisply in Moe's classic analysis (Moe 1985). The locus for the President's centralized review of agency rules is the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB). In effect, OIRA is the point of the spear in the President's battle to exert direct centralized control over the content of federal regulations.

In this paper, we undertake what appears to be the first systematic review of OIRA's regulatory targeting decisions. Our empirical analysis examines OIRA's treatment of 15,407 regulatory proposals issued between 1995 and 2012, that is, six years of the Clinton Administration, eight years of the Bush Administration, and the first four years of the Obama Administration. Which rules did OIRA pick to audit, from the plethora of available ones? How did this change with the shift between Republican and Democratic presidents? What elements of regulations seemed to cue OIRA's attention?

We begin our analysis by formulating a formal game-theoretic model of regulatory auditing by partisan technocrats. The starting place is a recognition that the auditing problem facing OIRA is somewhat similar to that facing the Internal Revenue Service (Graetz, Reinganum, and Wilde 1986), or the case selection problem facing the U.S. Supreme Court (Cameron, Segal, and Songer 2000; Spitzer and Talley 2000). However, as many observers have noted, a distinctive feature of the strategic interaction between OIRA and agencies is the critical role played by cost-benefit analysis.[1] In particular, agencies undertaking big-ticket regulations must undertake a "regulatory impact analysis" (RIA), a cost-benefit study of the regulation. The models suggests that OIRA, acting as a faithful agent of such a President, will adopt an auditing strategy that recognizes agency bias and attempts to counter-act it. But, the appropriate targeting strategy is quite different, depending on whether OIRA serves

[1]It is important to note that OIRA employees are not subject matter experts but economists and policy analysts whose expertise lies in cost-benefit analysis. Though OIRA "desk officers" surely acquire subject-specific knowledge over time, they cannot devise technical regulations themselves. Their focus necessarily is a regulation's cost-benefit justification.

a conservative or liberal President. In that sense, OIRA's auditors will appear "partisan."

The model also indicates that auditing regimes are not simply error correcting; they create incentive systems for the agencies. Thus, auditing strategies have multiplier effects that go far beyond revision of specific regulations. This observation is hardly novel: some commentators have recognized that agencies may engage in "OIRA avoidance" or even strategic "inaction" (Anonymous 2011; Livermore and Revesz 2012).[2] The game-theoretic model systematically extends these observations and casts them in a new light.

Our empirical analysis of OIRA's targeting decisions reveals a politically-motivated office, albeit only when under Republican control. The data display distinctly different targeting patterns between the Bush Administration OIRA and the Clinton and Obama ones. The Bush OIRA targeted costly regulations, particularly from liberal agencies. In addition, the Bush OIRA spent some effort targeting less costly regulations from liberal agencies. The Clinton and Obama OIRAs also targeted costly regulations much more intensively than other regulations. Strikingly, however, this targeting was not directed at regulations from conservative agencies. Rather, it was ideologically "flat."

The paper is organized in the following way. In the next section, we provide some basic information about OIRA. Section 3 presents a theory of regulatory auditing by partisan technocrats. Section 4 reviews the data, indicating sources, measurement issues, and basic descriptive features of the data. Section 5 investigates OIRA's auditing strategies in the three administrations. Section 6 discusses our results and concludes.

[2]More generally, the legal literature considers some of the incentive effects of regulatory oversight, particularly by judges, under the rubric of "regulatory ossification." See inter alia Yackee and Yackee (2010) and O'Connell (2008).

2 Background

2.1 The History of Regulatory Central Clearance

Attempts by presidents to exert systematic, centralized control of agency rulemaking began during the presidency of Richard Nixon (Conley 2006). John Ehrlichman, Nixon's chief domestic policy aide, initiated a program of "Quality of Life" reviews within OMB. The reviews specifically targeted the new regulatory agencies, such as OSHA and EPA, whose proposed rules could impose huge costs on business. To conduct the regulatory reviews, White House Chief of Staff H.R. Haldeman recruited a group of systems analysts from the Department of Defense. Beginning in 1971, these professional analysts brought cost-benefit analysis to bear on proposed regulations, particularly those from EPA. At this early stage, participation by the agencies was at least nominally voluntary, and OMB did not impose explicit benchmarks for passing a cost-benefit scrutiny. The Ford Administration continued the Quality of Life reviews, requiring agencies to prepare inflation impact statements on proposed rules.

Perhaps surprisingly, the Carter Administration continued OMB's regulatory review. In fact, in 1978 Carter issued Executive Order 12044, "Improving Government Regulations," requiring agencies to provide a regulatory analysis for large-ticket regulations. A handful of regulations were then selected for intense review by an inter-agency task force, staffed by economists from the Council on Wage and Price Stability. Thus, regulatory review reflected the President's commitment to reducing inflation.

The Reagan administration created OIRA through Executive Order 12291 in early 1981. The move reflected Reagan's deregulatory approach to government and his desire to constrain the growth of government. OIRA represented the most muscular mandate for regulatory review yet.

The contemporary era of OIRA's regulatory review began in 1993 when President Clinton

issued Executive Order 12,866. The new order significantly reduced the number of pending regulations in OIRA's review docket. Prior to EO 12,866, OIRA reviewed all regulations, irrespective of their costs, resulting in over 2,000 audits per year. Clinton's new order developed a more focused approach toward regulatory review by allowing the administration to target their resources toward reviewing select proposals. Under the new order, agencies were required to submit a list of their planned regulatory actions to OIRA detailing some information about the regulation, including whether it imposed over $100 million in annual costs. From the list of submitted regulations, OIRA selected regulations for agencies to submit for detailed review, irrespective of costs. According to the administrator's implementing memorandum when EO 12,866 was introduced, a central purpose of the new order was "greater selectivity in the regulations reviewed by OIRA" (Croley 2003).

Both the second Bush administration and Obama issued their own executive orders since 12,866, though for the purposes of our analysis these revisions have not affected the core function of OIRA's selective review process.[3] The focus of our study is on how OIRA used its review-and-revise authority under EO 12,866 and its successors.

2.2 Centralized Review of Agency Rule-Making

OIRA's role as a reviewer of pending regulations does not give it authority to reject a regulation outright—only an agency head can do so. But it does empower OIRA to change the scope of a regulation or flag a regulation so that a department head can reject or modify a regulation. When OIRA selects a regulation to review, we refer to this as "auditing," whereby OIRA requests that the agency hand over all relevant documents related to a particular rule for closer examination.

Figure 1, drawn from Copeland (2005), presents a schematic of the process. For a typical

[3]Bush's Executive Order 13,422 required the placement of a Regulatory Policy Officer (RPO) in each agency, as well as OIRA review of regulatory guidance documents.

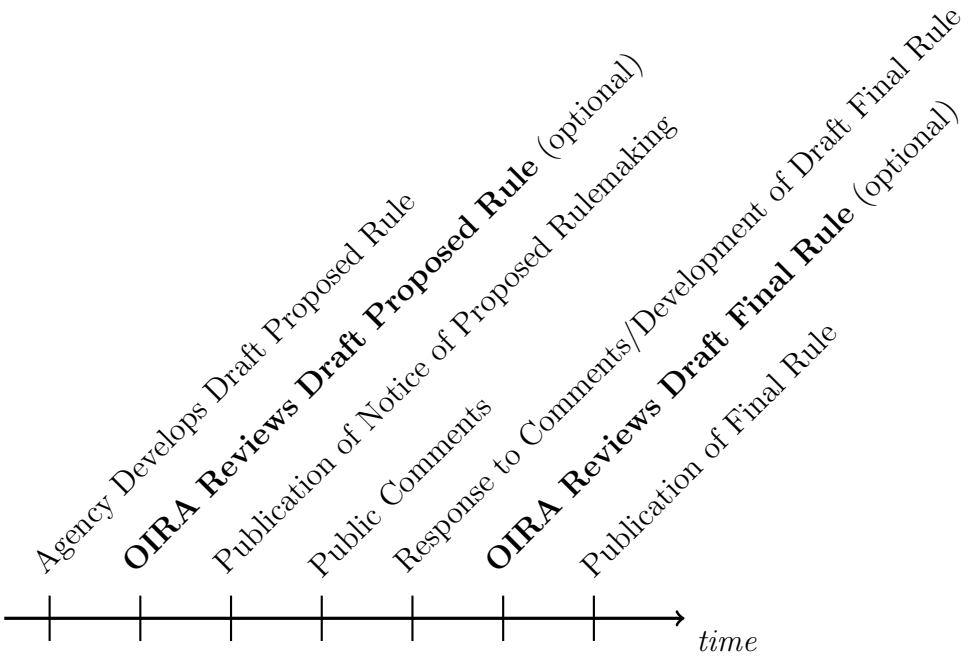


Figure 1: Standard Procedures of the Rulemaking Process

rule that passes through the standard rulemaking procedures, OIRA is afforded two "bites at the apple." The first occurs before the draft Proposed Rule is sent out for public comment and the second occurs before the final rule goes to print in the *Federal Register*.[4] As we discuss more in the data section below, OIRA learns about which regulations agencies are working on—and thus which regulations to audit—from the Unified Agenda of Regulatory and Deregulatory Actions (Unified Agenda).[5]

2.3 Literature Review

OIRA is a controversial agency. Not surprisingly, it has sparked a considerable literature among legal scholars and political scientists. Broadly speaking, this literature has three

[4]In most cases, OIRA's first audit occurs during the proposed rule stage, however sometimes the first audit is at the final rule stage. In our analysis, we focus on the first audit, regardless of the stage in which it occurs.

[5]Of course, OIRA could learn about agency activity from other sources, such as an external "fire alarm" sounded by an interest group, but the Unified Agenda is at least the official record and, by design, provides information to Congress and the President about the regulatory activities of federal agencies.

streams: normative, positive, and empirical. Within the normative branch, scholars have noted OIRA's potentially revolutionary impact on administrative procedures and the operation of government agencies (see inter alia Kagan (2001) and Cooper and West (1988)). Within this line of scholarship, conservative legal scholars have offered a variety of public interest justifications for OIRA, some drawing on notions from positive political theory (DeMuth and Ginsburg 1986). In turn, liberal legal scholars have debunked those justifications while sometimes noting the possible benefits of centralized regulatory review by liberal presidents (Bagley and Revesz 2006).

A handful of studies use positive political theory to examine different aspects of OIRA. Jordan (2008) suggests that presidents might discipline the heads of agencies whose regulations frequently flunk OIRA audits. Bueno de Mesquita and Stephenson (2007) examine how oversight by a supervisor with veto power—for example a court, but also OIRA—may distort an agency's regulatory efforts. Wiseman (2009) focuses on the delegation decision of Congress, raising the possibility that joint oversight of an agency by OIRA and Congress might benefit both overseers, as the agency seeks to curry favor with one overseer or the other. Patty (2009) focuses on the relationship between a principal and an agent who can invest in multiple projects and finds that an unbiased agent's choice of investment will change with the bias of the overseer. Although regulatory auditing by the Executive is implicit in these studies, none examines OIRA's targeting problem in much detail nor considers the incentive effects of different auditing regimes (though Bueno de Mesquita and Stephenson (2007) is relevant here).

As several scholars have noted, empirical analysis of OIRA's decision making has been limited. Indeed, systematic empirical analysis of agency rulemaking is surprisingly rare.[6] Using data from the General Services Administration's Regulatory Information Services Center

[6]O'Connell (2008) uses data from the published Unified Agenda of regulations to provide an empirical portrait of agency rule-making; the paper also reviews the empirical literature in both legal scholarship and political science.

(the RISC data), as well OIRA's log of ex parte contacts for each reviewed regulation, Croley (2003) provides a useful descriptive overview of the rules audited by OIRA between 1981 and 2000. Dragu (2011), also employing the RISC data, models the empirical probability of revisions conditional on selection for auditing. Jordan (2008), also employing the RISC data, examines the impact of OIRA rule revisions on the tenure of agency heads. He finds longer tenures for agency heads whose audited regulations were treated favorably by OIRA. None of these studies identifies the universe of regulations at risk of auditing nor estimates audit probabilities for regulations, and none considers the impact of OIRA review on agency production of regulations.

3 A Theory of Regulatory Auditing

Our point of departure is the following insight: the results of a cost-benefit analysis sometimes speak clearly, pointing definitely to a decision; but sometimes, the results of a cost-benefit analysis are ambiguous or hinge delicately on questionable assumptions. If so, reasonable people may draw different conclusions about the best choice of action, depending on the credence or weight they place on different parts of the analysis. In the model, the tension between OIRA and an agency arises exactly in these ambiguous situations and leads to a auditing game with particular properties.

Before turning to the model, two points require elaboration. First, the model focuses purely on the interaction between OIRA and the agencies. It ignores the possibility that Congress might side with an agency against the President, and reverse OIRA's modification of a proposed rule through legislation. Of course, the OIRA-Agency Game is played within the context of the separation of powers system. But, we see the SOP considerations as likely to be minor. During unified party government, Congress is apt to approve of the President's revisions of agency regulation. During divided party government, it may not. But, effective

action requires coordination across two chambers, securing very expensive floor time, and then beating filibusters and presidential vetoes. So it is, at a minimum, extremely costly for Congress to act, and in many cases impossible for it to do so. While these arguments may not hold for every regulation, we choose to focus on the understudied auditing/rule-setting interaction that does affect every regulation.

Second, the model implicitly assumes that ideological conflict between the President and the career civil servants who write regulations cannot be solved entirely through politicization, that is, via political appointments into the agency. Otherwise, every regulation coming from every agency would already be in conformance with presidential preferences and there simply would be no role for OIRA to play.[7] The "limited impact of appointments" assumption stands in contrast to that made in some notable models of separation of powers games, which assume the president can bring agency ideology into perfect alignment with his own (see e.g. Ferejohn and Shipan (1990)). We justify this assumption on three grounds. First, recent empirical work on the ideological orientation of top appointees finds that many in fact are somewhat distant from the president (Bertelli and Grose 2011). This ideological gap may reflect congressional resistance to ideologically distant presidential appointments (Warren 2010); it may also reflect a dearth of ideologically compatible appointees in some fields. Second, seemingly compliant appointees may "go native." For example, an appointee's shared professional identity or career concerns post-government service may limit her willingness to impose the president's preferences on the bureaucrats. Third, even if the president can appoint an ideological clone who vigorously enforces the president's preferences, the sheer complexity of many regulations as well as the magnitude of the task facing appointees in some agencies may lead to failures. Despite these arguments, we see the interaction between politicization and centralized control as a fruitful avenue for future work. A sharper

[7]In the conclusion, we discuss OIRA's role of coordinating regulatory activity across agencies, a function of the office we view as under-studied and worth future investigation.

understanding of the logic of centralized control is a prolegomenon for that work.

The regulatory auditing game studied here has some similarities to the tax compliance and judicial settlement games analyzed by Graetz, Reinganum, and Wilde (1986), Reinganum and Wilde (1985), and an agency budget game analyzed by Banks (1989), and Banks and Weingast 1992. But those models feature separating equilibrium, in which the agency's (or tax payers') report actually reveals its private information. The audit is set to induce the revelation but implicitly, the models assume a commitment by the potential auditor not to use the revealed information absent an audit. This cannot be sequentially rational in the Agency-OIRA game. In a situation in which an agency's and OIRA's preferred response to ambiguous cost-benefit studies differ, if OIRA knew the agency was acting "badly," OIRA would simply order the agency to re-set policy without the audit. This precludes the separating equilibrium identified in those papers and implies only pooling or partial pooling equilibria can exist in situations of conflict.

3.1 Sequence of Play, Actions, and Utilities

There are two players, OIRA (denoted P for President) and an Agency A. Both are parameterized by a preference or bias parameter β_i. The objective of both OIRA and the Agency is to maximize the net benefits of regulation, as they evaluate those net benefits. However, bias affects how they evaluate the benefits of regulation. The parameters β_i are a measure of OIRA's and the Agency's *policy bias*: in our baseline model higher values of β indicate greater value afforded to the benefits of regulation relative to costs, while lower values of β indicate lower value afforded to the benefits relative to costs. We also consider an extension (the spatial model), where the distance between the President and Agency's policy bias simply decreases the weight the President puts on the benefits of the Agency's proposals. In the baseline model β_i is strictly non-negative $\beta \in B = \Re_+$ for $i = (P, A)$ whereas in the spatial model β_i is a point on policy space $\beta \in B = \Re$.

While OIRA's policy bias β_P reflects the ideological posture of its principal the President, one may rationalize Agency policy bias as reflecting agency culture, identification with agency mission, distributional concerns, philosophical commitments embodied in different discount rates, or interest group pressures. Regardless of the exact source of agency policy bias, we view it as a basic fact of bureaucratic politics, and treat agency policy bias as both stable and unmanipulable by the President.[8]

The sequence of play is as follows. First, Nature determines the state of the world $\theta \in \{L, H\}$, choosing H with common knowledge probability p. (As explained below, the state of the world affects the benefits attainable via regulation). Second, the Agency attempts to discover the state of the world via a cost-benefit analysis. With common knowledge probability π the cost-benefit analysis successfully reveals the state of the world; with probability $1 - \pi$ the analysis reveals nothing. We denote the resulting private information of the Agency as its "type" $t \in T = \{L, H, \varnothing\}$, where the third element $\varnothing$ indicates an uninformative cost-benefit analysis. The Agency then chooses a proposed level of regulation $x_A \in X_A = \{0, L, H\}$. That is, it may decline to issue a regulation at all ($x_A = 0$); it may propose a "small" regulation ($x_A = L$); or it may propose a large "significant" regulation ($x_A = H$). We denote by s a probability distribution over the elements of X_A. If the Agency declines to regulate, there is no regulation to be audited and the game ends. However, if the Agency proposes either a small or large regulation, OIRA may audit the proposed regulation. Denote the audit actions available to OIRA as $a \in \{0, 1\}$ and a probability distribution over those elements as r. If OIRA declines to audit the regulation ($a = 0$) then the proposed regulation becomes the final regulationx_F and the game ends. However, if OIRA decides to audit the regulation it pays an audit cost k and discovers Agency's type t. That is, OIRA learns whether the Agency sets the regulation on the basis of a "dispositive" cost-benefit

[8]An extension of the model might allow the President to shift Agency policy bias somewhat, through appointments. But so long as the President could not eliminate the gap between Agency bias and his own, the following analysis would go through.

analysis, or an ambiguous or uninformative one. Note that, as a generalist agency, OIRA cannot independently obtain additional information about the state of the world itself; but, as an expert in cost-benefit analysis it can understand the Agency's analysis and hence discover the Agency's type. Following an audit, OIRA may order the Agency to re-set the level of regulation to $x_P \in \{ L, H\}$ and this re-set value becomes the final level of regulation, so that $x_F = x_P$. If OIRA orders a re-set, the Agency pays a re-set cost or penalty κ. This reflects degraded career concerns, loss of favor with the President, and so on.

It will be seen that this is a signaling game, in which the Agency's proposed level of regulation may reveal information about its private knowledge of the benefits of regulation. In the equilibrium considered below, Agency type $t = L$ and $t = H$ separate; but Agency type $t = \varnothing$ partially pools with types L or H. And, OIRA probabilistically audits the regulation depending on the ideology of the Agency and its proposed level of regulation. The prospect of auditing may have a *chilling effect* on Agency type $t = \varnothing$, driving it to choose no regulation ($x_A = x_F = 0$); auditing may have a *deterrence effect* driving a type-$\varnothing$ Agency to choose $x_A = L$ rather than $x_A = H$; and it may have a *stimulative effect* incentivizing a type-$\varnothing$ Agency to choose $x_A = H$ rather than $x_A = L$.

A level of regulation x brings benefits $b_P(x; \theta)$ to OIRA, $b_A(x, \theta)$ to the Agency, and costs $c(x)$ to both parties. We provide more detail on these functions in the appendix and state them here. OIRA's utility is

$$u_p(x_F, \theta, I_P) = b_P(x_F, \theta) - c(x_F) - I_P k$$

where I_p is an indicator function that takes a value of 1 if OIRA audits the Agency's proposed rule. The Agency's utility is

$$u_A(x_F, \theta, I_A; \beta) = b_A(x, \theta) - c(x) - I_A \kappa$$

where I_A is an indicator functions that takes a value of 1 if OIRA re-sets the agencies rule.

Note that in our baseline model, b_A and b_P are functions of the policy bias parameters β_A and β_P, respectively. In the spatial model, however, b_P is a function of both β_A and β_P, whereas b_A is not a function of either since the Agency does not suffer a spatial penalty from its own proposals.

3.2 Analysis

We begin with an analysis of our baseline model and focus on four propositions that we derive from the model. We then consider our extension, the spatial model. Technical details and proofs of each proposition are left to Section A of the appendix, including formal definitions of *liberal*, *moderate* and *conservative* actors.

Proposition 1. *If both the President and Agency have identical preferences there will be no audits in equilibrium, regardless of whether the cost-benefit analysis is dispositive*

Our first proposition states that audits will not occur in equilibrium if preferences are sufficiently close. That is, if both the Agency and President are liberal, then the Agency will propose $x_A = L$ when the cost-benefit analysis reveals L and will propose $x_A = H$ when the analysis reveals H. If the cost-benefit analysis is ambiguous, the Agency will propose $x_A = H$, since this is the preference of liberal agencies. When the President sees $x_A = H$, no audit is conducted since a liberal President also prefers H to L when the analysis is ambiguous. When both actors are conservative, each prefers to set $x = L$ when the cost-benefit analysis is ambiguous, and to set x equal to the state of the world otherwise.

The remaining three propositions consider how presidents respond to proposals from agencies that are not ideological allies. We start with the case when the President is conservative and finish with two cases when the President is liberal, which is a situation where

the model suggests some additional nuance.

Proposition 2. *With a conservative President and a liberal Agency, when the cost-benefit analysis is ambiguous the Agency will mix between offering large ($x_A = H$) and small ($x_A = L$) proposals. The President will probabilistically audit large proposals and ignore small ones.*

First, if the Agency receives a dispositive cost-benefit analysis, it takes the action indicated by the analysis, either L or H. If it does not, it probabilistically "cheats" – that is, it sometimes offers $x_A = H$ even though OIRA would prefer it to offer $x_A = L$ absent a clear-cut cost-benefit study. In turn, OIRA never audits after the proposal $x_A = L$ (small regulations) and probabilistically audits after the proposal $x_A = H$ (large regulations). OIRA keys the audit rate to the policy bias of the Agency so that large regulations from more liberal agencies are audited at a higher rate than large regulations from less liberal agencies. Sometimes OIRA catches cheating and re-sets a large regulation, making it small.

The Proposition implies that OIRA's auditing regime results in fewer proposals of large regulations than the Agency would enact if unconstrained. In other words, OIRA auditing creates a "deterrence effect" in the Agency. This is a separate impact of OIRA's reviews from simply revising audited proposals. Further note that auditing by a conservative OIRA does not induce a "chilling effect" in liberal agencies in which they refuse to issue regulations at all: they may "go small," but they still offer a regulation rather than do nothing.

We now turn to a liberal OIRA facing a conservative Agency. There are two cases, a liberal OIRA facing a moderately conservative Agency, and liberal OIRA facing a solidly conservative Agency.

Proposition 3. *With a liberal President and a moderate Agency, when the cost-benefit analysis is ambiguous the Agency will mix between offering large ($x_A = H$) and small ($x_A = L$) proposals. The President will probabilistically audit small proposals and ignore large ones.*

First, consider the interaction between a liberal OIRA and a moderately conservative

Agency. If the Agency receives a dispositive cost-benefit analysis, it takes the action indicated by the analysis, either L or H. But if the Agency does not receive a dispositive analysis, it sometimes "cheats" and offers $x_A = L$ (which is its preferred action) but sometimes offers $x_A = H$. In other words, OIRA's auditing regime induces a *stimulative effect* on the production of large rules in these moderately conservative agencies, compelling them to offer large regulations when they would not do so if left to their own devices. For these agencies, OIRA does not audit large regulations at all (since either the Agency received a dispositive analysis or it did not but is acting as OIRA would wish it to). This is an example of the "Nixon goes to China Principle" evident in other auditing games. Rather, OIRA directs its audits toward *small* regulations. And, it keys its audit rate to the bias of the Agency, more frequently auditing more conservative agencies.

Now suppose OIRA faces a solidly conservative Agency. Again, if the Agency receives a dispositive cost-benefit analysis, the Agency takes the appropriate action; so even these agencies sometimes offer large regulations. But if such an Agency did not receive a dispositive cost-benefit analysis, it sometimes offers $x_A = L$ (its preferred action) but sometimes offers $x_A = 0$; it does not offer $x_A = H$. This leads to our final proposition

Proposition 4. *With a liberal President and a conservative Agency, when the cost-benefit analysis is ambiguous the Agency will mix between offering small ($x_A = L$) proposals and not regulating ($x_A = 0$). The President will probabilistically audit small proposals and ignore large ones.*

In other words, OIRA's audit regime does not have a stimulative effect on large regulations and sometimes has a *chilling effect* on small regulations, inducing the Agency to avoid issuing a regulation at all in order to escape auditing. Despite this, auditing regulations from these agencies is worthwhile for OIRA, because it will find small regulations that it will re-set into large ones. However, the chilling effect acts as a brake on OIRA's audits of these agencies, so much so that OIRA's audit rates actually fall for more conservative agencies.

We briefly summarize our predictions that are relevant to the upcoming empirical analysis. Proposition 1 predicts that conservative presidents should not audit conservative agencies and liberal presidents should not audit liberal agencies. More generally, this implies that audit rates should be lower for ideological allies. Proposition 2 predicts that a conservative OIRA should not audit small proposals from the liberal agencies, but rather focus on auditing large proposals from these agencies. Propositions 3 and 4 predict that a liberal OIRA, when facing either a conservative or moderate Agency, should not audit large proposals, but instead audit small proposals, with the intent of making these proposals large.

3.3 Extension: the Spatial Model

Before turning to the data, we introduce an extension to our model and offer one additional proposition with empirical implications. We consider a setup without *liberal* and *conservative* actors, per se, that result from differing preferences for over- and under-regulation. Rather, the actors are merely *allies* and *adversaries* in the familiar sense of the spatial model. We provide detail on the model in the appendix, although the adjustments we make are relatively minor. We treat the bias parameter β_i as existing on the real line and we set the President's benefits from regulation to be a decreasing function of the spatial distance between β_A and β_P. When β_A and β_P are sufficiently far apart, the actors are adversaries and when preferences are sufficiently close the actors are allies. More technically, allies and adversaries are differentiated by whether or not they would prefer $x = H$ when the cost-benefit analysis is ambiguous, with allies preferring $x = H$ and adversaries preferring $x = L$.

We state our key finding from the allies and adversaries extension here.

Proposition 5. *The President probabilistically audits adversaries and never audit allies. When the two actors are adversaries and the cost-benefit analysis is ambiguous, the Agency will mix between offering large ($x_A = H$) and small ($x_A = L$) proposals. The President will*

probabilistically audit large proposals and ignore small ones.

The implications from this proposition are similar to those from Proposition 2, where conservative presidents audit large proposals from liberal agencies. Proposition 5 can be thought of as a symmetric version of Proposition 2 where presidents of *either* party should audit large proposals from ideologically distant agencies. Empirically, the key implication is that the audit rate should increase with preference divergence, but only for the large proposals.

4 Data

4.1 Sources

Our empirical study focuses on OIRA's auditing activities under EO 12,866 and its successors over a 16-year period from 1995 to 2012.[9] In order to identify which rules OIRA audited, we relied on two data sources. The first is the Unified Agenda of Federal Regulatory and Deregulatory Activity (Unified Agenda), which is a record of all federal rulemaking activities from an agency's initiation of a proposal to the promulgation of a final rule. The Unified Agenda data lets us know which rules have been initiated and thus could potentially be targeted by OIRA.[10] Our second source is the Regulatory Information Service Center's database of OIRA activity (the OIRA data), which keeps a record of all rules audited by OIRA.

We merged the two datasets by each rule's unique "RIN" identifier as follows.[11] We took the first mention of each RIN in the Unified Agenda and coded whether it occurred during

[9] We start with 1995 because this is the first year in which reliable data on the "economic significance" of regulations exists, which is a critical part of our analysis.

[10] Under EO 12,866, OIRA does not review proposals from independent regulatory commissions. Therefore, we removed the relevant rules from our Unified Agenda data.

[11] Both datasets use the unique Regulation Identification Number (RIN) to identify all regulatory proposals.

the Clinton, Bush, or the Obama administration. We then took the OIRA data and similarly selected the first instance of OIRA review for each proposal and coded the administration under which the review occurred. We then merged our two datasets by administration and RIN number. Note that our method makes the implicit assumption that proposals initiated by one administration, but not audited until the next administration, are "un-audited" rules.[12]

4.1.1 Rule-Specific Covariates

Our theoretical model analyzes two sizes of rules: small and large. Empirically, we also only observe the size, or scope, of a proposal in discrete categories. The largest category is for *economically significant* rules, or those that are estimated to have annual economic costs in excess of $100 million annually. Next are the *significant* rules, which may "adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities." And finally there are *substantive, but not significant* rules which have the smallest potential impact on society and the economy.[13] We created an indicator variable for each of the three size categories.

From the Unified Agenda, we also collected 3 additional covariates specific to each proposal, including whether: (1) a "regulatory flexibility" analysis was required due to the rule's potential impact on small firms, (2) the proposal would impose unfunded costs on state and local government and (3) the agency voluntarily initiated the proposal as an Advanced Notice of Proposed Rulemaking (ANPRM) in order to solicit additional feedback from interest groups.[14] In our view, each of these three variables is a plausible marker for the intensity,

[12] Analyzing these "overlooked" proposals that are eventually audited by a subsequent administration is a promising topic for future research and could potentially complement the on-going study of rulemaking and presidential transitions (O'Connell 2011).

[13] We excluded rules that we designated as "routine and frequent" or "administrative."

[14] For more detail on the first two categories, see the Regulatory Flexibility Act of 1980 and the Unfunded

or impact, of a regulation and thus a cue for regulatory auditing.

4.1.2 Agency Ideology

A critical variable is agency ideology. We employ the measures developed in Clinton and Lewis (2008). The data are derived from a large survey of expert observers and specifically inquired about perceived agency culture, thus the variable may be interpreted as a measure of the liberal/conservative nature of the agency's mission. Because agency cultures should be stable over time, we employ this measure across the entire time period under study.

The Clinton-Lewis data reveal several distinct ideological clusters or groupings. About a dozen agencies stand out as particularly liberal. These include such "likely suspects" as the Commission on Civil Rights, the EEOC, and the National Endowment for the Arts. Among this group, heavy regulators include the Labor Department, HUD, the Department of Health and Human Services, the Department of Education, and the Environmental Protection Agency. Five agencies (aside from OMB itself) stand out as particularly conservative: the Department of Defense (in a class by itself), the Commerce Department, the Small Business Administration, the Treasury Department, and the Department of Homeland Security. The remainder of the agencies fall into an intermediate, moderate spectrum, ranging from the Agency for International Development (on the more liberal side) to the Interior Department (on the more conservative). In our view, the Clinton-Lewis estimates have a high degree of face plausibility.

Tables 1 and 2 indicate summary data on the variables used in the analysis. In Table 1, we report the min, max and mean values across the entire dataset. The variables refer to: (1) whether a regulation was reviewed by OIRA; (2) the ideology of each agency; (3) whether a regulation was reported by the agency as significant or (4) economically significant; (5) whether the regulation required a regulatory flexibility analysis; (6) whether any level

Mandates Reform Act of 1995, respectively.

Table 1: Summary Statistics

	min	max	mean
Agency Ideology	-2.0	2.21	0.16
Audited by OIRA (rule)	0.0	1.0	0.3
Economically Significant (rule)	0.00	1.00	0.05
Significant (rule)	0.0	1.0	0.3
Regulatory Flexibility Analysis (rule)	0.00	1.00	0.05
Affects Multiple Levels of Government (rule)	0.00	1.00	0.25
Advance Notice of Proposed Rulemaking (rule)	0.00	1.00	0.04
Year	1995	2012	2003

Notes: Rule-specific variables are noted.

of government (state, local, federal etc.) was expected to be affected by the regulation; (7) whether the agency first issued the regulation as an Advanced Notice of Proposed Rulemaking (ANPRM) (8) the year that the regulation was initiated. In Table 2 each column represents per-year averages. For example, the number of regulations (n.regs) is simply the average number per year. The ideology column is each agency's ideology, which does not vary over time. The remainder of the columns correspond to the variables described in Table 1.

Table 2: Summary Statistics by Agency

Agency	Ideology Score	Annual Count	Audit Rate	Significant	Econ. Significant	ANPRM	Reg. Flex. Analysis	Gov. Levels Affected
Agency for International Development	-0.54	2.00	0.61	0.43	0.00	0.09	0.00	0.05
Commission on Civil Rights	-2.01	1.00	0.00	0.00	0.00	0.00	0.00	0.50
Corporation for National and Community Service	-1.72	2.00	0.40	0.46	0.00	0.08	0.00	0.64
Department of Agriculture	0.16	82.00	0.35	0.39	0.07	0.06	0.04	0.20
Department of Commerce	1.25	134.00	0.12	0.10	0.01	0.05	0.11	0.12
Department of Defense	2.21	55.00	0.19	0.17	0.01	0.01	0.02	0.62
Department of Education	-1.22	10.00	0.70	0.64	0.13	0.07	0.00	0.04
Department of Energy	0.35	14.00	0.19	0.16	0.11	0.05	0.00	0.22
Department of Health and Human Services	-1.32	68.00	0.68	0.57	0.21	0.04	0.09	0.32
Department of Housing and Urban Development	-1.33	28.00	0.52	0.60	0.03	0.03	0.01	0.14
Department of Justice	0.37	31.00	0.46	0.57	0.01	0.05	0.02	0.21
Department of Labor	-1.43	22.00	0.56	0.65	0.08	0.06	0.05	0.24
Department of State	-0.27	10.00	0.32	0.32	0.03	0.03	0.01	0.31
Department of Transportation	0.07	94.00	0.17	0.21	0.04	0.05	0.02	0.10
Department of Veterans Affairs	0.23	28.00	0.48	0.36	0.03	0.00	0.01	0.04
Department of the Interior	0.47	80.00	0.17	0.19	0.02	0.06	0.02	0.34
Department of the Treasury	1.07	35.00	0.08	0.11	0.03	0.06	0.07	0.12
Environmental Protection Agency	-1.21	76.00	0.35	0.34	0.06	0.04	0.02	0.40
Equal Employment Opportunity Commission	-1.58	2.00	0.50	0.46	0.04	0.00	0.00	0.76
Federal Mediation and Conciliation Service	-0.46	1.00	0.40	0.40	0.00	0.00	0.00	0.00
General Services Administration	0.26	18.00	0.14	0.16	0.00	0.00	0.01	0.88
National Aeronautics and Space Administration	-0.07	5.00	0.20	0.21	0.00	0.05	0.00	0.08
National Archives and Records Administration	-0.12	4.00	0.20	0.22	0.00	0.03	0.06	0.50
National Endowment for the Arts	-1.00	1.00	0.20	0.00	0.00	0.00	0.00	0.50
National Endowment for the Humanities	-1.00	1.00	0.07	0.00	0.00	0.00	0.00	0.36
National Science Foundation	-0.35	1.00	0.23	0.00	0.00	0.00	0.00	0.55
Office of Government Ethics	-0.10	1.00	0.08	0.75	0.00	0.00	0.00	1.00
Office of Management and Budget	0.85	2.00	0.03	0.00	0.03	0.17	0.04	0.44
Office of Personnel Management	0.24	23.00	0.59	0.33	0.01	0.00	0.00	0.01
Peace Corps	-1.72	2.00	0.20	0.07	0.00	0.10	0.00	0.35
Railroad Retirement Board	-0.12	4.00	0.21	0.22	0.00	0.00	0.03	0.67
Small Business Administration	1.17	12.00	0.55	0.64	0.06	0.04	0.33	0.19
Social Security Administration	-1.32	14.00	0.46	0.53	0.03	0.06	0.01	0.10

4.2 Audit Rates

We define an agency's audit rate as the proportion of proposals appearing in the Unified Agenda that were audited by OIRA. For each agency we calculated

$$A_t = \frac{n_t}{N_t} \tag{1}$$

where N_t is the number of initiated proposals during administration t and n_t is the number of those proposals that were audited. Figure 2 indicates, for the 35 agencies and 3 presidential administrations we study, the proportion of proposals OIRA reviewed.

Audit rates varied widely across agencies, and often varied dramatically across the three administrations. Agency audit rates were near zero during the Clinton Administration for such liberal agencies as the Commission on Civil Rights and the Peace Corps. But rates were about 75% during the Bush Administration for the Federal Mediation and Reconciliation Service, and nearly that high for a variety of other liberal agencies. The Clinton Administration's overall audit rate of 25% was about one-quarter lower than the overall audit rate during the Bush Administration, 34%.

5 Modeling OIRA's Targeting Decisions

To provide an overview of the key patterns in the data, we start with a graphical display of agency audit rates by presidential administration. We then extend our analysis with two modeling approaches. The first uses a linear model of agency audit rates to corroborate the patterns we present graphically. The second models audit probabilities per regulation, exploiting the multi-level structure of the data. The shift from liberal to conservative president (and back again) affords the opportunity to examine critical comparative static predictions about the relative ideological position of the President and the agencies.

5.1 Agency Audit Rates

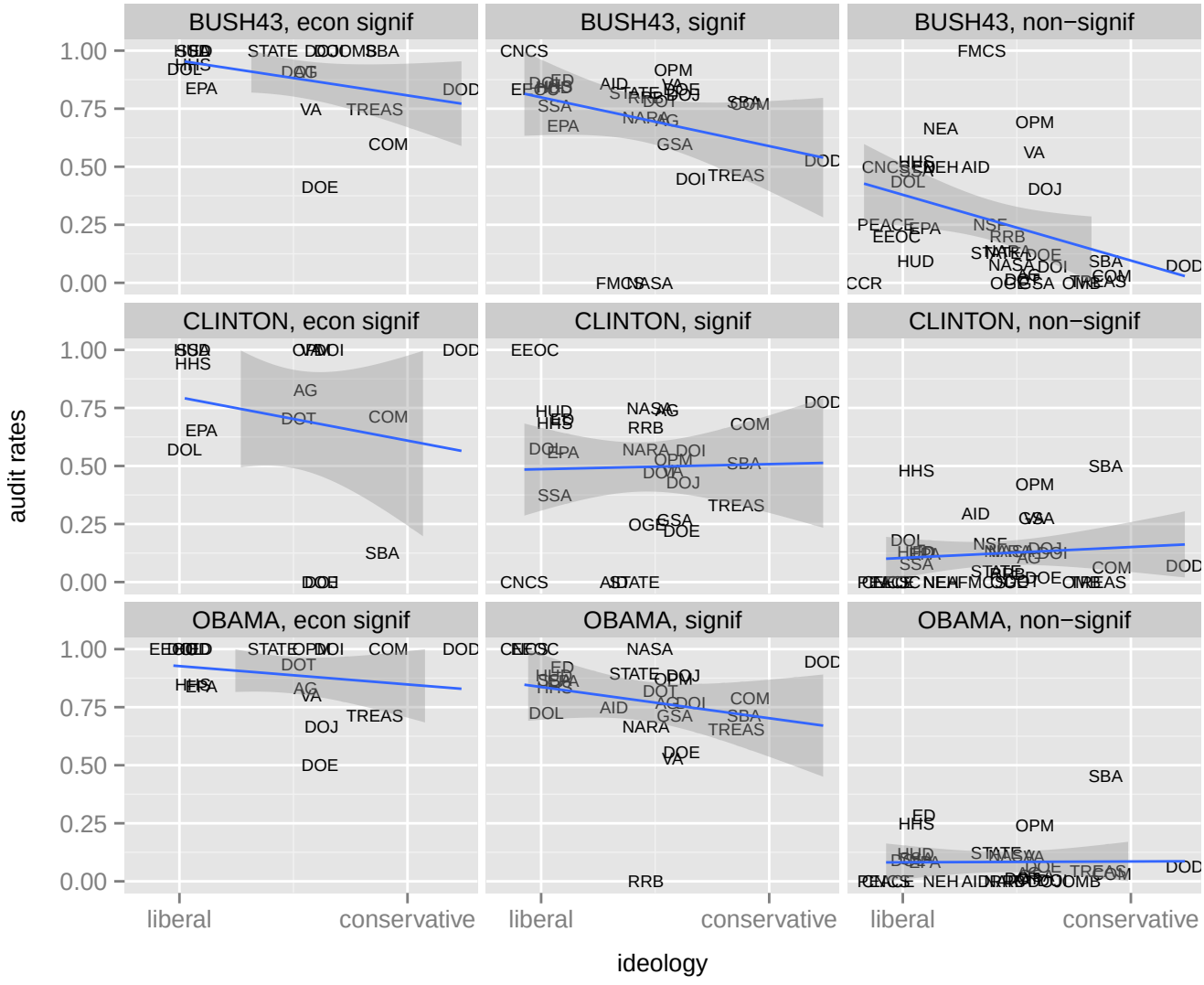
Figure 2 indicates important patterns in the agency auditing data. Indeed, this simple figure displays most of the important structure in the data and provide a good first-order test of the propositions from our theoretical model. Shown in each panel—for a given presidential administration and size of regulatory proposals—is a scatterplot of agency audit rates as a function of agency ideology with the fit line from a linear model. The top row shows the data from the Bush Administration, the middle row the data from the Clinton Administration, and the bottom row the data from the first two years of the Obama Administration. The left-most column includes only *economically significant* proposals, the middle column includes only *significant* proposals and the right-most column includes only *non-significant* proposals.

As shown, the Bush Administration audited liberal agencies more aggressively than conservative agencies, and larger proposals more heavily than less intrusive ones. The audit rates for large regulations (both significant and economically significant) from liberal agencies were particularly high. We interpret these findings as support for Propositions 2, which predicts that conservative presidents will audit large proposals from liberal agencies and Proposition 5, which predicts that a president of either party will audit large proposals from *adversarial* agencies.

Interestingly, Bush also audited the comparatively small *non-significant* proposals from liberal agencies (see the top-right panel). The empirical implications from either Proposition 2 or 5 are that Bush should ignore these proposals, in part because the model assumes that agencies never misrepresent the size of a regulation. Our interpretation of Bush's auditing pattern for these non-significant proposals is that OIRA was engaged in an effort to go after "cheating," or to investigate whether small proposals were actually large proposals in disguise.

In stark contrast to the Bush Administration, the Clinton and Obama Administrations did not appear to key agency audit rates to agency ideology. Instead, Figure 2 reveals the

Figure 2: Audit Rates by Agency Ideology and Priority of Regulation



Democratic administrations to be ideologically "flat." The linear trend lines show either no relationship between auditing and ideology, or a weak relationship measured with considerable error.[15] As a result, we find no support for Propositions 3 and 4, which predict that the Democratic administrations should target on under-regulation by auditing small proposals from the conservative agencies. We also find no support for Proposition 5 that suggests an alternative strategy for the Democrats, whereby they target large proposals from conservative agencies. Instead, the Democrats appear to target large proposals full stop, without a consideration for agency ideology, and to virtually ignore small non-significant proposals.

We extend our analysis of agency audit rates by estimating the following equation.[16]

$$A_{at} = \alpha + \beta_1 I_a + \beta_2 P_t + \beta_3 I_a \times P_t + \beta_4 X_{at} + \epsilon_{at} \tag{2}$$

where A_{at} is administration t's the audit rate for agency a, as previously defined in equation (1). Our explanatory variables of interest include the ideology of agencyI_a and an indicator for Republican presidential administration P_t. The vector X_{at} is a vector of controls that includes the number of rules promulgated by the agency and the percent of rules that are either significant or economically significant. The intercept is captured by α and ϵ_{at} is an error term. We estimate equation (2) for all rules, major rules (economically significant and significant), and for non-major rules (substantive, but not significant).

The results are shown in Table 3 largely underscore the pattern of audit rates shown in Figure 2. Across all three models—whether we are looking at all of the data, or only those regulations that are economically significant or insignificant—the Bush Administration audited more proposals more intensely than did the Clinton and Obama Administration. Consider Model 1 in Table 3. Strikingly, agency ideology strongly affects audit rates during the Bush Administration. The negative coefficient on the interaction term $I_a \times P_t$ indicates

[15]The shaded area designates a 95% pointwise confidence band.

[16]We used weighted least squares to estimate (2) with the number of rules proposed by each agency-administration pair used as weights.

Table 3: Audit Rate Regressions

	Dependent variable: Audit Rate (A_{at})		
	All Rules	Non-Major Rules	Major Rules
	(1)	(2)	(3)
Agency Ideology × Republican President	-0.052^{***}	-0.050^{*}	-0.061^{*}
	(0.018)	(0.026)	(0.033)
Agency Ideology (I_a)	0.011	-0.011	0.020
	(0.013)	(0.016)	(0.021)
Republican President (P_t)	0.050^{**}	0.043	0.082^{**}
	(0.019)	(0.028)	(0.035)
Historic Rule Production	-0.040^{*}	-0.102^{***}	0.189^{**}
	(0.024)	(0.034)	(0.092)
Percent Rules Major	0.717^{***}		
	(0.051)		
(Intercept)	0.063^{**}	0.155^{***}	0.597^{***}
	(0.030)	(0.024)	(0.031)
Observations	96	94	81
R^2	0.830	0.240	0.171

Notes: The variable *Historic Rule Production* is the mean annual number of rules promulgated over the previous ten years, measured in hundreds of rules. The variable *Percent Rules Major* is the percentage of rules that are either "significant" or "economically significant" for each agency-year pair. As always, conservative agencies take on larger values on *Agency Ideology*.
*p<0.1; **p<0.05; ***p<0.01

that the Bush OIRA audited liberal agencies more intensely than it did conservative agencies. (Recall that the variable for ideology is coded so that conservative agencies take on larger values.) The ideology variable has a mean of about 0, so for a moderate agency at the midpoint of the distribution, Bush's overall audit rate is about 13 percentage points higher than that of the two Democratic administrations. The difference, however, is even more striking when one varies the ideology of the agency. For an agency roughly one standard deviation more liberal than the average agency, the model indicates that the Bush OIRA audited that agency at an average rate 19 percentage points higher than did the Democratic administrations. For an extremely liberal agency, some two standard deviations from the mean, the model indicates that Bush audited at a rate 25 percentage points higher than the Democratic administrations.

5.2 Per Regulation Audit Rates

Our final analysis makes use of the multi-level structure of the data, where regulatory proposals are clustered within agencies and years. We use a multi-level model (a random effects model) to estimate the relationship between agency ideology and the probability of an audit for each presidential administration.[17] An advantage of our modeling approach is that the estimated agency effects borrow from the overall effect estimated across all agencies, proportional to the number of observations for each agency (Gelman and Hill 2006). Thus, inference is improved for those agencies with few observations. Our varying-intercepts model has the form

[17] In order to identify within-agency variation, we make the standard assumption that our covariates are uncorrelated with the unobserved agency effects.

$$\begin{aligned}
\Pr(\text{Audit}_{iat} = 1) = \ & \text{logit}^{-1}(\alpha_a + \delta_t + \beta_1 X_{iat} + \epsilon_{iat}) \\
\alpha_a &= \gamma_0 + \gamma_1 I_a + \eta_a \\
\delta_t &= \mu_0 + \xi_t
\end{aligned} \tag{3}$$

where the probability that OIRA will review regulation i from agency a and year t is a function agency ideology I_a and a number of rule-specific covariates X_{iat}: 1) whether the agency recorded the regulation as economically significant, 2) or just significant, 3) whether the agency was required to complete a regulatory flexibility analysis for the regulation indicating large impacts on small business, 4) whether the agency recorded that the regulation would impose economic costs on lower levels of government and 5) whether the regulation was introduced first through an Advance Notice of Proposed Rulemaking. The "error terms" ϵ_{at}, η_a and ξ_t have mean 0 and variance σ^2_ϵ, σ^2_η and σ^2_ξ, respectively. Equation (3) is estimated separately for each of the three administrations.

The results from estimating equation 3 are shown in Table 4. In short the results confirm the finding presented in Table 3 and suggested by Figure 2 that the Bush Administration targeted liberal agencies disproportionately. As we discuss more in the next section, we view this as supportive evidence for Propositions 2 and 5. The lack of evidence for political targeting from the Democrats suggests little support for Propositions 3 and 4, or for Proposition 5 for Democratic presidents. In general, our theoretical predictions do well to describe OIRA's behavior during Republican administrations, but not during Democratic administrations.

Before concluding, we provide some more detail on the effect sizes from Table 4, which are on the logit scale. A one standard deviation shift in ideology (in the rightward, conservative direction) changes the predicted audit rate in the following ways, after holding the other variables to their means: a shift in ideology from a moderate agency at 0 to a conservative agency at 1 is associated with a decrease of .11 in the audit rate for the Bush Administration, a decrease in the audit rate of .02 for Clinton Administration and no change in either direction

in the Obama Administration's audit rate.

Table 4: Modeling the Probability of an Audit

	Dependent variable: Pr(Audit$_{iat}$ = 1)		
	Bush 43	Clinton	Obama
	(1)	(2)	(3)
Agency Ideology (I_a)	-0.570^{***}	-0.190	-0.170
	(0.170)	(0.170)	(0.150)
(rule) Regulatory Flexibility	0.018	0.150	
	(0.220)	(0.140)	
(rule) Gov Affected	-0.022	0.051	0.470^{***}
	(0.096)	(0.090)	(0.170)
(rule) Advanced Noticed	0.240	0.400^{***}	0.490
	(0.190)	(0.150)	(0.330)
(rule) Econ. Significant	4.400^{***}	3.100^{***}	4.700^{***}
	(0.210)	(0.200)	(0.250)
(rule) Significant	3.200^{***}	2.300^{***}	4.400^{***}
	(0.087)	(0.081)	(0.160)
(Intercept)	-2.000^{***}	-2.300^{***}	-3.200^{***}
	(0.270)	(0.190)	(0.260)
Agency RE	yes	yes	yes
Year RE	yes	yes	yes
Observations	6,728	6,436	2,754

Notes: The rule-level controls are identified with the "rule" prefix. The regulatory flexibility indicator (regflex) is missing for Obama because none of Obama's proposals were listed as needing one.
*p<0.1; **p<0.05; ***p<0.01

6 Discussion and Conclusion

In this paper, we analyzed two models of auditing. Our baseline model highlights an asymmetry in the strategies of regulatory auditing for conservative and liberal presidents. The model suggests that both should use OIRA to offset policy biases in the agencies—or the extent to which agencies tend to over- or under-regulate relative to the desires of an informed

president. The model shows that accomplishing this aim is much more straightforward for a conservative president than a liberal one. In particular, auditors serving a conservative president should target large regulations from liberal agencies, mostly eschewing review of conservative agencies and small regulations across the board. In contrast, auditors that serve liberal presidents should aim instead at a stimulative effect on moderately conservative agencies, induced by targeting small regulations that might better serve the president's policy goals if they were more ambitious.

Our modified model (the spatial model) allows for the possibility that agencies are not liberal or conservative due to proclivities for over- and under-regulation, but rather because of a preference for setting policy at a particular location on the ideological spectrum.[18] The spatial model formally divides agencies into allies and adversaries, relative to the president, and predicts that OIRA should only target large proposals from adversarial agencies.

Both models also highlight that the payoff from centralized review is not simply "fixing" specific rules. Rather, the aim is to create deterrence effects so that agencies do not propose undesirable rules in the first place, such as by over- or under-regulating, or clinging to a distant point on the ideological spectrum.

We find empirical patterns in regulatory auditing by the Bush Administration's OIRA that broadly resembles what one might expect from a conservative president, in light of both theoretical models. We find that liberal agencies committed to their mission sometimes pushed forward even in the face of uncertain evidence, and a conservative president used OIRA as a means to restrain them. Given Republican auditing strategy, an obvious question becomes: Did it actually create a deterrence effect in liberal agencies? We see this as an important topic for future research (Acs and Cameron 2013).

In contrast to the strategy identified by our baseline model, the Clinton and early Obama OIRAs did not appear to use OIRA review to offset under-regulation by conser-

[18]This is arguably a more traditional view of "liberal" and "conservative" in political science.

vative agencies—the Democratic OIRAs did not target small regulations from moderately conservative agencies. Furthermore, we also found no support for our spatial model from the Democrats. Neither of the two administrations disproportionately targeted large proposals from conservative agencies, as predicted. Rather, OIRA's strategy under Democratic control was focused on targeting large proposals across the board without particular regard to the ideological orientation of the agency.

One might argue that our lopsided results are unsurprising given that centralized review at OIRA was initially envisioned as a conservative counterweight to costly social regulation from decidedly liberal agencies. While we are sympathetic to this perspective, Democrats would not have maintained OIRA if this were the only political goal the office could deliver.[19]

One explanation for our findings is that Democrats have put OIRA to alternative uses, such as correcting errors in regulatory proposals and facilitating coordination amongst agencies with overlapping jurisdictions and expertise. These apparently *non-ideological* strategies are consistent with anecdotal evidence from Democratic OIRA administrators who tend to downplay the centrality of cost-benefit analysis in regulatory review (Sunstein 2012), and amongst observers who claim that OIRA review has been more collegial during Democratic administrations (Kagan 2001; West 2005).

Another explanation for why OIRA may appear less ideological during Democratic administrations is that the office—with its small staff and narrow focus on economic analysis—may be poorly equipped to unilaterally root out under-regulation in agency proposals and expand their scope (Livermore and Revesz 2012). Thus, a strategy of targeting reluctant regulators may not be practical, even if it could theoretically deliver political victories. Stimulating regulation has certainly been a goal of Democratic administrations, as evidenced by Clinton's "administrative presidency" and his frequent deployment of policy directives to

[19]Incidentally, some observers questioned whether the Clinton Administration would even continue with centralized review (West 2005).

agency heads in order to spur them into action (Kagan 2001). While it is reasonable to imagine that OIRA could have had a supportive role in this process, the office may have simply played second fiddle to an otherwise bilateral dialogue between the White House and the agencies. As a result, OIRA's relative value-add to Democrats may actually have been less in targeting under-regulation and more in navigating the complexities of the inter-agency review process, as discussed, and fostering coordination amongst otherwise disparate agency fiefdoms.

Democrats may also be more ideologically inclusive than Republicans in the areas of regulatory policy. Our empirical analysis identifies a select group of liberal agencies that were disproportionately targeted by the Bush Administration, many of which were also the initial targets of OIRA during the Reagan Administration (Harris and Milkis 1996). One interpretation of our finding is that the parties are in basic agreement about agency policymaking, with the exception of a handful of liberal agencies. Democrats do not appear to possess an equal distrust of the so-called conservative agencies. Indeed, it is hard to imagine Democrats being anti-Defense or anti-Commerce (two "conservative" agencies) in the same way many Republican politicians have been anti-EPA. As a result, Democrats may feel pressure to satisfy more disparate constituencies in the regulatory state, such as by developing the types of policies that, for example, please environmentalists but do not anger coal miners and unions, or satiate liberal populists but do not alienate Wall Street and hedge fund managers. This bias toward inclusiveness also provides an explanation for why Democratic OIRAs have claimed to focus on "coordination," a word that could be interpreted as a euphemism for diffusing conflict amongst divergent viewpoints within the party.

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A Details of Baseline Model

We fully develop the baseline model first and prove the relevant propositions. We then turn to our extension, the spatial model, providing detail on how that model differs and a proof of the relevant proposition.

We start with a formal definition of the strategies. A strategy for Agency is a proposed regulation level function $s : B^2 \times T \rightarrow X_A$, or $s : B^2 \times T \rightarrow \Delta(X_A)$. (Recall $X_A = \{0, L, H\}$). Here, $\Delta(.)$ denotes the set of probability distributions over a set. So in the former case, the function $s(t; \beta_A, \beta_P)$ yields a proposed level of regulation x_A. In the latter case, the function $s(t; \beta_A, \beta_P)$ yields a probability distribution over proposed levels of regulation $(0, L, H)$. Note that different agencies, as parametrized by policy bias β_A, may employ different distributions for drawing from X_A for the same t (and of course may employ different distributions in the face of different OIRAs, as parameterized by its policy bias β_P).

A strategy for OIRA is, first, an auditing strategy, and second, a re-set strategy conditional on auditing.[20] The audit strategy has the form $r_1 : B^2 \times X_A \rightarrow \Delta(A_P)$, where $A_P = \{0, 1\}$. Thus, the function $r_1(x_A; \beta_A, \beta_P)$ yields an audit probability conditional on the proposed level of regulation, Agency bias, and OIRA bias. A re-set strategy conditional on a audit depends on what OIRA learned from the audit. A re-set strategy has the form $r_2 : B^2 \times X_A \times T \rightarrow X_P$.

For both parties, we assume for simplicity and ease of exposition $c(x) = cx$, $c > 0$. The state-contingent benefit function has following form:

$$b(x, \theta) = \begin{cases} \beta_i \bar{b} x \text{ if } x \leq \theta \\ \beta_i \bar{b} \theta \text{ if } x > \theta \end{cases}$$

where the common knowledge parameter $\bar{b} > c$. In words, regulation brings positive

[20] One may allow OIRA to order re-sets absent an audit, but this is a relatively uninteresting extension of the game form studied here.

marginal benefits (which exceed marginal costs) *but only up to level* $x = \theta$. Beyond that level, regulation brings zero marginal benefits. This function is rather stark but captures in a clear and tractable way the essential idea of state-contingent, declining marginal benefits from regulation.

Using theses assumptions about the functional form of $b(x, \theta)$ and $c(x)$, we re-write the auditor's utility function as

$$u_p(x_F, \theta, a_P) = \begin{cases} (\beta_P \bar{b} - c)x_F \ - a_p k & \text{if } x_F = L \text{ or } x_F = H = \theta \\ \beta_P \bar{b} L - c x_F \ - a_p k & \text{if } x_F = H \neq \theta \\ 0 & \text{if } x_A = x_F = 0 \end{cases}$$

and the agency's utility function

$$u_A(x_F, \theta, a_P) = \begin{cases} (\beta_A \bar{b} - c)x_F \ - I\kappa & \text{if } x_F = L \text{ or } x_F = H = \theta \\ \beta_A \bar{b} L - cH \ - I\kappa & \text{if } x_F = H \neq \theta \\ 0 & \text{if } x_A = x_F = 0 \end{cases}$$

The intuition here is straightforward. A low level of regulation brings a low level of benefits but also a low level of costs, and hence is not particularly risky (in the somewhat simplified world of the model, not at all risky). Of course, a low level of regulation may be undesirable because it leaves valuable social benefits on the table. On the other hand, a high level of regulation necessarily brings high levels of costs. In states of the world ($\theta = H$) the benefits of regulation are so high that these costs are worthwhile. But in other states of the world ($\theta = L$) the benefits of a high level of regulation are not worth the costs. Notably, if there is uncertainty about the levels of benefits (e.g., when $t = \varnothing$) then the uncertainty induces a lottery in net benefits, specifically a lottery over $(\beta b - c)H$ (which occurs when $\theta = H$) and $\beta b L - cH$ (which occurs when $\theta = L$).

It proves extremely useful to characterize agencies in terms of their policy bias, since OIRA's optimal auditing strategy will vary dramatically across different classes of agencies. First, note that absent knowledge of the state of the world, the expected value of the lottery induced by a high level of regulation $x = H$ is $p(\beta b - c)H + (1 - p)(\beta bL - Hc)$. The value of $x = L$ is $(\beta b - c)L$. Equating the two and solving for the implied value of bias

$$p(\beta b - c)H + (1 - p)(\beta bL - Hc) = (\beta b - c)L$$

$$\Rightarrow \frac{c}{bp} \equiv \beta_3$$

Agencies with policy bias $\beta \geq \beta_3$ prefer the lottery induced by $x = H$ to the "sure thing" return induced by $x = L$. We will call these agencies "liberal": in the absence of definitive evidence to the contrary, the agencies (if they could act freely) would prefer to undertake a high level of regulation. Conversely, agencies with policy bias $\beta < \beta_3$ prefer the sure thing $x = L$ to the lottery induced by $x = H$. Call these agencies "conservative": if they were able to act freely, they would be willing to undertake a high level of regulation only if definitive evidence warranted the choice.

Now consider conservative agencies in more detail, in particular, consider those agencies that are indifferent between the sure-thing $x = L$ and issuing no regulation at all, $x = 0$ (yielding utility 0):

$$(\beta b - c)L = 0$$

$$\Rightarrow \frac{c}{b} \equiv \beta_1$$

Agencies with $\beta < \beta_1$ – call these "ultra-conservative agencies" – value the benefits of

regulation so lightly that they will never issue regulations. As this level of conservatism seems implausible we do not consider these agencies any further. Now consider the agency for whom the low level of regulation brings positive benefits but is indifferent between the lottery and $x = 0$ (no regulation, resulting in payoff 0):

$$p(\beta b - c)H + (1 - p)(\beta bL - Hc) = 0$$

$$\Rightarrow \frac{c}{b}\frac{H}{pH + (1 - p)L} \equiv \beta_2$$

Agencies with $\beta_1 < \beta < \beta_2$ prefer the low level of regulation to no regulation, but prefer no regulation to the lottery induced by a high level of regulation (absent knowledge of the sate of the world). Call these agencies "solidly conservative." Agencies with $\beta_2 < \beta < \beta_3$ prefer the low level of regulation to the lottery induced by the high level of regulation, but prefer both to no regulation. Call these agencies "moderately conservative."

Figure V shows the characterization of agencies by policy bias. The flatter curve indicates the value of $x = L$ for agencies as policy bias increases (in the figure $\beta = 0$ at the origin); the steeper curve shows the expected value from the lottery induced by $x = H$.[21] The value of no regulation is simply zero. The cross-over point for the L-valuation and the H-valuation occurs at β_3. Liberal agencies – those with $\beta > \beta_3$–thus prefer the lottery to the low level of regulation, while conservative agencies – those with $\beta < \beta_3$– prefer the low level of regulation to the lottery induced with the high level (absent information about the state of the world). As shown, below β_1 the values of both the low regulation and high regulation curves are negative. In the interval $[\beta_1, \beta_2]$ (defining the solidly conservative agencies) only the value of the $x = L$ curve is positive. In the interval $[\beta_2, \beta_3]$ both the L-valuation and the H-valuation are greater than zero, but the L-valuation is superior to that of the H-valuation. Thus, these

[21]Some algebra shows that the slope of the $x = L$ curve is bL while that of the $x = H$ curve is $b(pH + (1 - p)L)$. The latter must be greater than the former for all positive value of p.

moderately conservative agencies prefer regulation to no regulation, but prefer the low level to the high level, if the latter produces a lottery.

It is important to note that *both OIRA and the Agency wish to set* $x_F = \theta$. In this sense, the model assumes both liberals and conservatives are public-regarding and wish to "do the right thing," and in fact will agree upon what to do provided both have access to clear-cut and definitive scientific evidence concerning the costs and benefits of regulation. (Some may see this assumption as naive but it lies at the heart of the rational, policy-analytic tradition placing cost-benefit analysis at the center of decision-making.) In addition, absent dispositive evidence liberal agencies and liberal OIRAs ($\beta_P, \beta_A > \beta_3$) will agree what to do, as will conservative agencies and conservative OIRA ($\beta_P, \beta_A < \beta_3$). But, absent dispositive evidence, liberal agencies and conservative OIRAs, and conservative agencies and liberal OIRAs, will *not* agree about the appropriate level of regulation. This tension places the two actors in a strategic situation, which we now characterize.

A.1 Proof of Baseline Model Propositions

We begin by establishing the intuitive points made in the previous paragraph. First, the players have dominant strategies when the state of nature θ is known.

Lemma 1. *Agency type-L and agency type-H have dominant proposal strategies, to wit,* $x_A(t = L) = L$ *and* $x_A(t = H) = H$. *Similarly, if auditing reveals the state of nature, OIRA has a dominant re-set strategy:* $x_P = \theta$.

Proof. Comparison of utilities. □

The lemma implies that in all equilibrium strategy profiles, if the state of nature is known the two agency types play their dominant strategy ($x_A = \theta$) , which will be supported by OIRA in the event of an audit. This simplifies the analysis considerably.

Second, when the state of nature is not known but the agency and OIRA are either both liberal or both conservative (as defined earlier), they agree on the correct action.

Lemma 2. *If $\beta_A, \beta_P < \beta_3$ then agency type-$\varnothing$ proposes $x_A = L$ and if OIRA audits $x_P = L$. If $\beta_A, \beta_P > \beta_3$ agency type-$\varnothing$ proposes $x_A = H$ and if OIRA audits $x_P = L$.*

Proof. Comparison of utilities. □

Combining the two lemmata yields a form of the "ally principle" found in many principal-agent games.

A.1.1 Proposition 1

(Ally principle in regulatory auditing) 1) If $\beta_A, \beta_P < \beta_3$ then the following constitutes a perfect Bayesian equilibrium:

$$s(t) = \begin{cases} cx_A = L & \text{if } t = L \\ x_A = L & \text{if } t = \varnothing \\ x_A = H & \text{if } t = H \end{cases}$$

$$r_1 = 0 \forall x_A$$

$$r_2 = \begin{cases} cx_P = L & \text{if } t = L \\ x_P = L & \text{if } t = \varnothing \\ x_P = H & \text{if } t = H \end{cases}$$

2) If $\beta_A, \beta_P \geq \beta_3$ then the following constitutes a perfect Bayesian equilibrium:

$$s(t) = \begin{cases} cx_A = L & \text{if } t = L \\ x_A = H & \text{if } t = \varnothing \\ x_A = H & \text{if } t = H \end{cases}$$

$$r_1 = 0 \forall x_A$$

$$r_2 = \begin{cases} cx_P = L & \text{if } t = L \\ x_P = H & \text{if } t = \varnothing \\ x_P = H & \text{if } t = H \end{cases}$$

And OIRA's beliefs are determined where possible by Bayes's Rule.

Proof. See Appendix //Type everything out carefully. But, Agency always takes the same action that OIRA itself would. Hence, no auditing. Note that if $t = \varnothing$, Agency posterior belief about the state of the world $\mu_A(\theta = h) = p$. There is an unused message: $x_A = 0$ (recall we assume no ultra-conservative agencies). But in this event OIRA cannot act so its beliefs are irrelevant. □

A.1.2 Proposition 2

We now turn to our central theoretical results, which concern the situations when OIRA and the Agency do *not* share the same ideological orientation. Note that a strategy for Agency is a probability distribution over its available actions, to wit a strategy is the ordered triple $s(t) = (s_0, s_L, s_H)$ such that $s_0 + s_L + x_H = 1$.

(Conservative OIRA and Liberal Agency)

$$s(t;\beta_P) = \begin{cases} (0,0,1) & \text{if } t = H \\ (0, 1 - \frac{p\pi}{(1-\pi)}\frac{\kappa}{(H-L)(c-p\beta_P b)-\kappa}, \frac{p\pi}{(1-\pi)}\frac{\kappa}{(H-L)(c-p\beta_P b)-\kappa}) & \text{if } t = \varnothing \\ (0,1,0) & \text{if } t = L \end{cases}$$

$$r_1(x_A;\beta_A) = \begin{cases} \frac{(H-L)(p\beta_A b-c)}{(H-L)(p\beta_A b-c)+k} & \text{if } x_A = H \\ 0 & \text{if } x_A = L \end{cases}$$

$$r_2(t,x_A) = \begin{cases} x_P = L & \text{if } t = L \\ x_P = L & \text{if } t = \varnothing \\ x_P = H & \text{if } t = H \end{cases}$$

OIRA's beliefs about Agency's type are determined by Bayes's Rule where-ever possible.

Proof. Using Lemma 1, $s(t=\theta) = (0,1,0)$ or $(0,0,1)$ as $\theta = L$ or $\theta = H$. OIRA's post-audit re-set strategy is obvious: if $t = \theta$ re-set if and only if $x_A \neq \theta$ in which case set $x_P = \theta$. And, if $t = \varnothing$ re-set if and only if $x_A = H$, in which case set $x_P = L$. This follows from the definition of a "conservative" OIRA ($\beta_P < \beta_3$), so that if $t = \varnothing$ OIRA prefers $x_F = L$ to the lottery induced by $x_F = H$. Now consider OIRA's audit strategy after observing $x_A = L$. From Lemma 1, OIRA posterior belief about Agency's type cannot place any weight on $t = H$. Consequently, either $t = L$ and $x_A = L$ is the correct action (from OIRA's view) or $t = \varnothing$ and again $x_A = L$ is the correct action from OIRA's view. Hence, no auditing if $x_A = L$. We now turn to the mixed strategy portions of the equilibrium profile. OIRA's auditing strategy following the observation of $x_A = H$ must leave agency type $t = \varnothing$ indifferent between playing $x_A = H$ and possibly being audited, and playing $x_A = L$ and

definitely not being audited. That is,

$$(1-r_1)\left(p(\beta_A b-c)H+(1-p)(\beta_A bL-Hc)\right)+r_1\left((\beta_A b-c)L-k\right)=(\beta_A b-c)L$$

$$\Rightarrow r_1=\frac{(H-L)(p\beta_A b-c)}{(H-L)(p\beta_A b-c)+k}$$

Note that the return from $x_A=L$ is positive for liberal agencies so that playing $x_A=0$ is a dominated strategy. Now consider the "cheating" strategy of a type $t=\varnothing$ agency, that is, its s_H of setting $x_A=H$. This probability must leave OIRA indifferent between auditing and not auditing after observing $x_A=H$. Let μ be OIRA's posterior belief that $t=\varnothing$ after observing $x_A=H$. Recall that the prior probability $t=\varnothing$ is $1-\pi$, the prior that $t=H$ is $p\pi$ and the prior that $t=L$ is $(1-p)\pi$. Then via Bayes's Rule and Lemma 1, $\mu=\frac{(1-\pi)s_H}{(1-\pi)s_H+p\pi(1)+(1-p)\pi(0)}=\frac{(1-\pi)s_H}{(1-\pi)s_H+p\pi}$. OIRA's posterior belief that $t=H$ is $\frac{p\pi}{(1-\pi)s_H+p\pi}$. If OIRA does not audit after observing $x_A=H$ it receives in expectation

$$\frac{p\pi}{(1-\pi)s_H+p\pi}(\beta_P b-c)H+\frac{(1-\pi)s_H}{(1-\pi)s_H+p\pi}\left(p(\beta_P b-c)H+(1-p)(\beta_P bL-Hc)\right)$$

If OIRA does audit after observing $x_A=H$ it receives in expectation

$$\frac{p\pi}{(1-\pi)s_H+p\pi}(\beta_P b-c)H+\frac{(1-\pi)s_H}{(1-\pi)s_H+p\pi}(\beta_P b-c)L-\kappa$$

Equating the two and solving for s_H yields

$$s_H=\frac{p\pi}{(1-\pi)}\frac{\kappa}{(H-L)(c-p\beta_P b)-\kappa}$$

□

Corollary 1. *(Effect of increased agency liberalism on auditing). When a conservative OIRA*

faces liberal agencies, OIRA's audit rate increases in Agency liberalism.

Proof. $\frac{\partial}{\partial \beta_A} \frac{(H-L)(p\beta_A b-c)}{(H-L)(p\beta_A b-c)+k} = \frac{(H-L)pbk}{((H-L)(p\beta_A b-c)+k)^2} > 0.$ □

A.1.3 Proposition 3

(Liberal OIRA and moderately conservative Agency ($\beta_2 < \beta_A \leq \beta_3$))

$$s(t;\beta_P) = \begin{cases} (0,0,1) & \text{if } t = H \\ (0, \frac{(1-p)\pi}{(1-\pi)} \frac{\kappa}{(H-L)(p\beta_P b-c)-\kappa}, 1 - \frac{(1-p)\pi}{(1-\pi)} \frac{\kappa}{(H-L)(p\beta_P b-c)-\kappa}) & \text{if } t = \varnothing \\ (0,1,0) & \text{if } t = L \end{cases}$$

$$r_1(x_A;\beta_A) = \begin{cases} \frac{(H-L)(c-p\beta_A b)}{(H-L)(c-p\beta_A b)+k} & \text{if } x_A = L \\ 0 & if x_A = H \end{cases}$$

$$r_2(t,x_A) = \begin{cases} x_P = L & \text{if } t = L \\ x_P = H & \text{if } t = \varnothing \\ x_P = H & \text{if } t = H \end{cases}$$

OIRA's beliefs about Agency's type are determined by Bayes's Rule where-ever possible.

Proof. The logic of the pure strategy portions of the equilibrium are virtually identical to that in the previous proposition so we omit a discussion to focus on the mixed strategy portion. By construction, when $t = \varnothing$ these agencies prefer $x_A = L$ to the lottery induced by $x_A = H$, and prefer both to $x_A = 0$. This means that OIRA's auditing strategy must leave the agency indifferent between playing $x_A = L$ and possibly being audited, and playing $x_A = H$ and not being audited. In other words, auditing strategy solves

$$(1-r_1)\left((\beta_A b-c)L\right)+r_1\left(p(\beta_A b-c)H+(1-p)(\beta_A bL-Hc)-k\right)=p(\beta_A b-c)H+(1-p)(\beta_A bL-Hc)$$

$$\Rightarrow r_1=\frac{(H-L)(c-p\beta_A b)}{(H-L)(c-p\beta_A b)+k}$$

The agency's strategy s_L of playing $x_A=L$ and strategy $s_0=1-s_L$ of playing $x_A=H$ leave OIRA indifferent about about auditing after observing $x_A=L$.Let μ be OIRA's posterior belief that $t=\varnothing$ after observing $x_A=L$. Recall that the prior probability $t=\varnothing$ is $1-\pi$, the prior that $t=H$ is $p\pi$ and the prior that $t=L$ is $(1-p)\pi$. Then via Bayes's Rule and Lemma 1, $\mu=\frac{(1-\pi)s_L}{(1-\pi)s_L+p\pi(0)+(1-p)\pi(1)}=\frac{(1-\pi)s_L}{(1-\pi)s_L+(1-p)\pi}$. OIRA's posterior belief that $t=L$ is $\frac{(1-p)\pi}{(1-\pi)s_L+(1-p)\pi}$. If OIRA does not audit observing $x_A=L$ it receives $(\beta_P b-c)L$. If it does audit, it receives in expectation

$$\frac{(1-p)\pi}{(1-\pi)s_L+(1-p)\pi}(\beta_P b-c)L+\frac{(1-\pi)s_L}{(1-\pi)s_L+(1-p)\pi}\left(p(\beta_P b-c)H+(1-p)(\beta_P bL-Hc)\right)-\kappa$$

Equating the two and solving for s_L yields

$$s_L=\frac{(1-p)\pi}{(1-\pi)}\frac{\kappa}{(H-L)(p\beta_P b-c)-\kappa}$$

□

A.1.4 Proposition 4

(Liberal OIRA and solidly conservative Agency ($\beta_1 < \beta_A \leq \beta_2$))

$$s(t;\beta_P) = \begin{cases} (0,0,1) & \text{if } t = H \\ (1 - \frac{(1-p)\pi}{(1-\pi)} \frac{\kappa}{(H-L)(p\beta_P b - c) - \kappa}, \frac{(1-p)\pi}{(1-\pi)} \frac{\kappa}{(H-L)(p\beta_P b - c) - \kappa}, 0) & \text{if } t = \varnothing \\ (0,1,0) & \text{if } t = L \end{cases}$$

$$r_1(x_A;\beta_A) = \begin{cases} \frac{L(c - p\beta_A b)}{(H-L)(c-p\beta_A b) + k} \text{ if } x_A = L \\ 0 \qquad\qquad\qquad\qquad \text{if } x_A = H \end{cases}$$

$$r_2(t, x_A) = \begin{cases} x_P = L & \text{if } t = L \\ x_P = H & \text{if } t = \varnothing \\ x_P = H & \text{if } t = H \end{cases}$$

OIRA's beliefs about Agency's type are determined by Bayes's Rule where-ever possible.

Proof. Again, the pure strategy portions of the strategy profile follow the earlier discussion. By construction, when $t = \varnothing$ these agencies prefer $x_A = 0$ to the lottery induced by $x_A = H$. This means that OIRA's auditing strategy cannot leave them worse off than would $x_A = 0$, which affords them a utility of 0. This implies that OIRA's auditing strategy after $x_A = L$ solves

$$(1 - r_1)\left(\beta_A b - c)L\right) + r_1\left(p(\beta_A b - c)H + (1-p)(\beta_A bL - Hc) - k\right) = 0$$

$$\Rightarrow r_1 = \frac{(c - p\beta_A b)L}{(H-L)(c - p\beta_A b) + k}$$

The agency's strategy s_L of playing $x_A = L$ and strategy $s_0 = 1 - s_L$ of playing $x_A = 0$ must leave OIRA indifferent about auditing after observing $x_A = L$.Let μ be OIRA's

posterior belief that $t = \varnothing$ after observing $x_A = L$. Recall that the prior probability $t = \varnothing$ is $1 - \pi$, the prior that $t = H$ is $p\pi$ and the prior that $t = L$ is $(1 - p)\pi$. Then via Bayes's Rule and Lemma 1, $\mu = \frac{(1-\pi)s_L}{(1-\pi)s_L + p\pi(0) + (1-p)\pi(1)} = \frac{(1-\pi)s_L}{(1-\pi)s_L + (1-p)\pi}$. OIRA's posterior belief that $t = L$ is $\frac{(1-p)\pi}{(1-\pi)s_L + (1-p)\pi}$. If OIRA does not audit after observing $x_A = L$ it receives $(\beta_P b - c)L$. If it does audit, it receives in expectation

$$\frac{(1-p)\pi}{(1-\pi)s_L + (1-p)\pi}(\beta_P b - c)L + \frac{(1-\pi)s_L}{(1-\pi)s_L + (1-p)\pi}\left(p(\beta_P b - c)H + (1-p)(\beta_P bL - Hc)\right) - \kappa$$

Equating the two and solving for s_L yields

$$s_L = \frac{(1-p)\pi}{(1-\pi)} \frac{\kappa}{(H-L)(p\beta_P b - c) - \kappa}$$

□

B Details of Extension

We modify our model to allow for more standard "ally principle" predictions where OIRA and the Agency value the benefits of regulation differently depending on their ideological proximity. We use $\beta_i \in B = \Re$ with $i = (P, A)$ to capture each actor's ideological preference. For the President, the benefits associated with the Agency's proposal x are

$$b_P(x; \theta, \beta_A, \beta_P) = \frac{bx}{1 + |\beta_A - \beta_P|} \tag{4}$$

so that preference divergence decreases the benefits associated with a given regulation. For notational convenience, we define $d(\beta_A, \beta_P) = 1 + |\beta_P - \beta_A|$ where d increases with the preference divergence between the President and the Agency. For the Agency, we set $b_A(x) = bx$. Thus, as preferences diverge, the Agency retains the same degree of benefit from

regulating, while the benefit the President receives decreases.

As before, each actor wants to match x with the state of the world. The cost functions are $c(x) = cx$ and the state-contingent cost-benefit function has the form:

$$f(x,\theta) = \begin{cases} b(\theta) - c\theta & \text{if } x = \theta \\ b(L) - cL & \text{if } x \neq \theta = H \\ b(L) - cH & \text{if } x \neq \theta = L \end{cases}$$

with the assumption $b > c$. The resulting utility function for the President is

$$u_p(x_F,\theta,k) = \begin{cases} \frac{b}{d}x_F - cx_F - I_P k & \text{if } x_F = L \text{ or } x_F = H = \theta \\ \frac{b}{d}L - cx_F - I_P k & \text{if } x_F = H \neq \theta \\ 0 & \text{if } x_A = x_F = 0 \end{cases}$$

where I_P is an indicator function for whether the rule was audited. The Agency's utility function is

$$u_A(x_F,\theta,\kappa) = \begin{cases} (b-c)x_F - I_A\kappa & \text{if } x_F = L \text{ or } x_F = H = \theta \\ bL - cx_F - I_A\kappa & \text{if } x_F = H \neq \theta \\ 0 & \text{if } x_A = x_F = 0 \end{cases}$$

and I_A is an indicator function for whether the Agency is caught cheating.

In our extension, agencies and presidents are not "liberal" or "conservative" relative to each other, but rather are either *allies* or *adversaires*. We define allies as those agencies that the President would prefer to set $x = H$ when the cost-benefit analysis is ambiguous $t = \varnothing$. Setting $\frac{b}{d}L - cL = p(\frac{b}{d}H - cH) + (1+p)(\frac{b}{d}L - cH)$ and solving for d yields

$$\hat{d}(\beta_A, \beta_P) = \frac{pb}{c} \tag{5}$$

where $\hat{d}$ is a cutpoint and we define an Agency as an ally if $d < \hat{d}$ and an adversary if $d \geq \hat{d}$.

B.1 Proof of Extension Proposition

B.1.1 Proposition 5

Note that the sequence of play and strategy sets are the same as before.

$$s(t; \beta_P) = \begin{cases} (0, 0, 1) & \text{if } t = H \\ (0, 1 - \frac{p\pi}{(1-\pi)} \frac{\kappa}{c(H-L)+p\frac{b}{d}(L-H)-\kappa}, \frac{p\pi}{(1-\pi)} \frac{\kappa}{c(H-L)+p\frac{b}{d}(L-H)-\kappa}) & \text{if } t = \varnothing \\ (0, 1, 0) & \text{if } t = L \end{cases}$$

$$r_1(x_A; \beta_A) = \begin{cases} \frac{pb(H-L)-c(H-L)}{pb(H-L)-c(H-L)+k} & \text{if } x_A = H \\ 0 & \text{if } x_A = L \end{cases}$$

$$r_2(t, x_A) = \begin{cases} x_P = L & \text{if } t = L \\ x_P = L & \text{if } t = \varnothing \\ x_P = H & \text{if } t = H \end{cases}$$

OIRA's beliefs about Agency's type are determined by Bayes's Rule where-ever possible. We restrict our analysis to cases where both players prefer regulation to no regulation. Formally

Assumption 1. $c < \frac{b}{d}$

Proof. Using Lemma 1, $s(t=\theta)=(0,1,0)$ or $(0,0,1)$ as $\theta=L$ or $\theta=H$. OIRA's post-audit re-set strategy is obvious: if $t=\theta$ re-set if and only if $x_A \neq \theta$ in which case set $x_F=\theta$. And, if $t=\varnothing$ re-set if and only if $x_A=H$, in which case set $x_F=L$. This follows from the definition of an *adversary*. OIRA's auditing strategy following the observation of $x_A=H$ must leave Agency type $t=\varnothing$ indifferent between playing $x_A=H$ and possibly being audited, and playing $x_A=L$ and definitely not being audited.

By Assumption 1, the return from $x_A=L$ is positive for agencies so that playing $x_A=0$ is a dominated strategy.

The Agency's "cheating" strategy of a type $t=\varnothing$ must leave OIRA indifferent between auditing and not auditing after observing $x_A=H$. Let μ be OIRA's posterior belief that $t=\varnothing$ after observing $x_A=H$. Recall that the prior probability $t=\varnothing$ is $1-\pi$, the prior that $t=H$ is $p\pi$ and the prior that $t=L$ is $(1-p)\pi$. Then via Bayes's Rule and Lemma 1, $\mu=\frac{(1-\pi)s_H}{(1-\pi)s_H+p\pi(1)+(1-p)\pi(0)}=\frac{(1-\pi)s_H}{(1-\pi)s_H+p\pi}$. OIRA's posterior belief that $t=H$ is $\frac{p\pi}{(1-\pi)s_H+p\pi}$. Equating OIRA's expected utility from auditing and not auditing and solving for s_H yields

$$s_H=\frac{p\pi}{(1-\pi)}\frac{\kappa}{c(H-L)+p\frac{b}{d}(L-H)-\kappa} \tag{6}$$

□