

Auditing Politics or Political Auditing?

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Abstract

I investigate the relationship between Congress and the Government Accountability Office (GAO). The GAO is the federal legislature's primary auditor of the administrative state, evaluating agency programs on its own initiative, by statutory mandate, and at the request of members of Congress. I begin with a basic two-period principal-agent model between a legislature and an auditor, where the auditor must choose between two opportunities for self-initiated oversight in each period. The model identifies how the auditor, who must consider how neutrality or political bias, or the perceptions of either, acts given her own interests and the objectives of the legislature. The model also shows how the legislature can create socially optimal as well as socially perverse incentives for its auditor. I then explore empirically some of the model's assumptions and implications with data on the GAO's self-initiated investigations from 1978 to 1998. The empirical results support the theory that the GAO is a nonpartisan auditor facing some political constraints.

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Our agency takes a professional, objective, fact-based, nonpartisan, nonideological, fair, and balanced approach to all activities. Integrity is the foundation of reputation

—Government Accountability Office, *2006 Performance and Accountability Report*

In the past ten years, the General Accounting Office has entered into a very comfortable arrangement with Democrats in Congress. A congressional watchdog has become a Democratic lapdog.

—Edward McFadden, “There’s No Accounting for Congress,” *The American Spectator*, 1992

I. INTRODUCTION

The Government Accountability Office (formerly, the General Accounting Office) (GAO) is a key player in the politics of the administrative state. Congress created the GAO in 1921 to take over the Treasury Department’s role in auditing government disbursements. Congress subsequently gave the GAO substantial additional authority after Watergate. Led by the Comptroller General, who is appointed for a 15-year term, the GAO now investigates, culls, and synthesizes stances on a multitude of policy programs and expenditures on its own initiative, by legislative mandate, and at the request of congressional committees and individual members of Congress.

The GAO views itself as an independent and nonpartisan watchdog agency; journalists routinely refer to it as the “nonpartisan investigative arm of Congress” (for example, Lipton 2006). Others have challenged that label. In the early 1990s, Senator Christopher S. Bond (R-MO) complained that the GAO was “like Alice’s Restaurant. Whatever you order is what you get. It’s not so much a professional, independent review as an effort to provide what those in power want to hear” (Carney 1993). Almost all would agree that the GAO is neither a simple accountant of unambiguous financial statements nor an uncontroversial provider of agency information. The auditor is often subject to scathing attacks by administrative agency officials and members of Congress who contest its conclusions. During the tenure of the first President Bush, critics of the

GAO perceived the congressional agency as having advocated for a Canadian-style health care system as well as for increased taxes to ameliorate the deficit (Johnson 1996).

When the Republicans took control of Congress in 1995, the GAO suffered a 25 percent budget cut that pared its personnel roster from approximately 5,300 in 1992 to 3,500 by October, 1996 (GAO 1996).¹ The GAO had faced proposed budget cuts and restrictions on its work before. Republican Representatives and Senators proposed legislation significantly slashing the GAO's budget in 1991. The same year, Senate Republicans also tried to bar the GAO from investigating agency programs without a congressional request (Kuntz 1991). Democrats have also threatened the GAO. In 1965, Representative Chet Hollifield (D-CA), Chairman of the Subcommittee on Military Affairs of the House Government Operations Committee, held two months of hostile hearings challenging the GAO's numerous investigations of the Defense Department and its contractors (Bethell 1980).

These attempted and actual punishments raise the question: Does the GAO choose to audit policy programs as a neutral watchdog for waste or as a political auditor that seeks to advance particular policy objectives? More generally, how do nonpartisan as well as partisan auditors act when they are placed in a political context? This paper provides a theoretical and empirical framework for analyzing these questions.

¹ I heard several explanations during my interviews with GAO officials for this budget cut. The Acting Comptroller General, James Hinchman, stated that there was substantial interest in making significant cuts in the cost of the legislative branch and that the GAO was part of that reduction in Fiscal Years 1995 and 1996. He did not mention any political motivation of legislators. The Office of Technology Assessment was dismantled at this time (Bimber 1996). The Congressional Budget Office, which usually supplies requested information to members of Congress more quickly than the GAO, received boosts to its budget. An Issue Area Director at GAO posited that the 1994 turnover in congressional membership made the GAO an unknown entity, unable to prove its worth before cuts were enacted. An Assistant Comptroller General and other top GAO officials attributed the budget cut to the perceived Democratic bias of past studies. One Issue Area Director lamented, "[i]t is awfully hard to be an honest broker between parties who genuinely hate each other." Detailed summaries of the interviews are available from the author.

By focusing on the choice of policy program for investigation, I depart from the literature in economics and political science explicitly on auditing, drawing instead from reputation and expertise models. In classic models of firm behavior, owners or regulators pay an auditor to oversee workers' effort in order to minimize workers' desire to engage in cost-padding practices. Some of these models assume that although the owner must pay the auditor, the auditor is a perfect agent and thus does not try to extract side payments from the workers. Other models (for example, Kofman & Lawarree 1993, 1996) eliminate this assumption of a perfect agent. In these models, the agent can be bribed by those they are supposed to audit, which creates the possibility of collusion and thus a breakdown in the audit function.²

Political models typically treat official auditors in a less sophisticated manner than economic models that allow the possibility of collusion between an auditor and workers. In these political models (for example, Banks 1989; Banks & Weingast 1992; Bendor et al. 1987), an auditor typically investigates at the whim of a legislature, but the auditor is assumed, explicitly or implicitly, always to assist Congress. Specific work on public auditing institutions, such as the GAO, generally assumes that these institutions do not have political objectives (for example, Schelker 2007) and that they try to avoid work that is perceived as political or controversial (Frey 1994; Power 1997). "Fire-alarm" or protest political models (for example, Epstein & O'Halloran 1995; Lohmann 1993; Lupia & McCubbins 1994; McCubbins & Schwartz 1984; Ting 2006), however, can be seen as permitting something like collusion by allowing interest groups or the public (external fire alarms) as well as whistleblowers (internal fire alarms), all operating as potential auditors, to be quieted by particular decisions by an administrative agency or politician.

² Even though Kofman and Lawarree (1993) treat auditors as potentially corruptible, they cite the GAO as an example of an external auditor that does not collude with any of the players.

My emphasis here is not on potential collusion, but rather on how an auditor selects policy programs to investigate over time. In this vein, the model draws from reputation and expertise models. If a legislature is uncertain about an auditor's true preferences, the auditor's choices may signal information about her type. Industrial organization models (for instance, the chain-store game of Kreps and Wilson (1982) and Milgrom and Roberts (1982)) analyze how uncertainty about one player's goals allows reputation effects to structure equilibrium play. Reputation effects also can create perverse incentives (for classic work, see Holmström 1999; Holmström & Ricart i Costa 1986; Scharfstein & Stein 1990). Reputation models have been developed in a variety of contexts (for example, Barro 1986; Benabou and Laroque 1992; Brandenburger and Polak 1996; Maskin & Tirole 2004; Morris 2001; Prendergast 1993; Prendergast & Stole 1996; Sobel 1985).³

The theoretical part of this paper is most closely related to Morris (2001), which examines a two-period "advice game" between an informed advisor and an uninformed decision maker, where perverse reputational incentives can develop. The advisor either shares the interests of the decision maker, who wants to maximize some form of social welfare, or is biased toward a particular special interest. In each period, the decision maker receives information from her advisor about one state of the world and then takes one action. I consider instead nonpartisan and partisan auditors who know about two different states of the world and must choose which particular state of the world to report. I also allow the decision maker to have nonpartisan or partisan objectives, and permit the decision maker's as well as the auditor's type to change between periods. Some principal-agent

³ There is also a considerable and interesting literature on the transmission of information between informed (and sometimes biased) parties/experts and an uninformed (or less informed) decision maker (for example, Austen-Smith 1990, 1993; Battaglini 2002, 2004; Bendor et al. 1985; Calvert 1985; Dewatripont & Tirole 1999; Gilligan & Krehbiel 1987, 1989; Krishna & Morgan 2001; Lupia & McCubbins 1998; Milgrom & Roberts 1986; Morgan & Stocken 2003; Shin 1998; Swank et al. 1999; Wolinsky 2002), some of which incorporates parties/experts who care about their reputation, rather than a particular policy outcome (Levy 2004; Ottaviani & Sorensen 2006, 2001). This literature follows from the classic "cheap talk" model of information transmission between one sender and one receiver (Crawford & Sobel 1982). The model

models of the bureaucracy examine an agency's choices among projects (for example, Weingast & Moran 1983), but they typically focus on the extent of the principal's authority, rather than the agent's desire to build a particular reputation.

In Section II, I outline a two-period game between an auditor (who is a Democrat, a Republican, or nonpartisan) who chooses a Republican or Democratic project (each of which may have high or low waste) to investigate in each period and a nonpartisan legislature, which can fire the auditor after seeing the auditor's choice in the first period. If there are symmetric priors on an auditor being a Democrat or a Republican, the legislature can use a credible firing rule that creates only socially optimal incentives. If sacrificing her interests in the first period (to establish a particular reputation) is cheap enough, a partisan auditor chooses to investigate high-waste projects affiliated with her own party. If an auditor is more likely to be a Democrat than a Republican, the legislature has credible firing rules that may generate socially optimal as well as socially perverse incentives for an auditor who wants to profit from her reputation in the second period. A nonpartisan auditor may ignore high-waste Republican projects for low-waste Democratic projects in the first period to prevent being perceived as a Democrat. A Democratic auditor, depending on her utility functions, may simply switch from attacking a Republican project with low waste to investigating a Democratic project with low waste in the first period or she may also switch from attacking a low-waste Republican project to investigating a high-waste Democratic project. I extend this analysis by including a cost of firing the auditor, which allows players to mix strategies in equilibrium.

In Section III, I consider a partisan legislature and incorporate an election between the two periods that might change the party affiliation of the legislature. With a partisan principal, the auditor may build a partisan reputation in the first period. Auditing politics, even for the nonpartisan

developed in this paper focuses on the selection between independently truthful pieces of information to transmit, not on whether to conceal or misreport information.

auditor, may become political auditing. According to the model, the more evenly balanced the electoral chances of the parties, the less political auditing occurs. Though quite simple, the model shows how an auditor and a legislature interact strategically. Because the auditor decides which policy program to evaluate, the decision signals revealing information to the legislature about the auditor's objectives. If the legislature can replace its auditor, the auditor may feel constrained in what projects she can oversee without being fired.

In Section IV, I examine some of the model's assumptions and implications empirically using data on investigations by the GAO from 1978 to 1998. The empirical results comport with multiple scenarios permitted by the model. Specifically, the results are consistent with the GAO's image of itself as a neutral watchdog agency, but one facing particular political constraints. Most interesting, since the mid-1980s, the GAO has shifted from mostly self-initiated work to congressionally driven work. The GAO also does not appear to choose what it investigates on its own initiative mainly to please particular congressional majorities. What pleases Congress may, however, be more complicated than it first appears.

II. BASIC MODEL

In this Section, I develop and analyze a two-period model between an auditor (a Democrat, a Republican, or nonpartisan) and a nonpartisan legislature, where only the auditor knows her type and where the legislature can fire the auditor after observing her project choice in the first period.⁴ A legislature could appear nonpartisan if control was essentially evenly divided between the two parties. Also, if incumbents are likely to be reelected, the legislature's composition should be remarkably stable over time. In the next Section, I modify these assumptions by considering a partisan legislature and adding an election between the two periods.

⁴ This timing structure is typical in the game theory literature on reputation. In the first period, an agent can create a reputation that she can use to her advantage in the second period (see, for example, Morris 2001).

A. *Timing*

The timing of the basic model works as follows. In the first period, the legislature hires an auditor. With probability α , the auditor is partisan and favors either the Democrats (with probability λ) or the Republicans (with probability $\alpha - \lambda$). With probability $(1 - \alpha)$, the auditor is nonpartisan.⁵ Parameters α and λ are common knowledge; only the auditor knows her actual type. All projects generate either high waste (H) or low waste (L). Ex ante, both the legislature and the auditor know that it is equally likely that a given project creates high or low waste.⁶ The auditor learns the actual amounts of waste for a Republican and a Democratic project, $w_{1,R}$ and $w_{1,D}$ where $w_{1,*} \in \{H, L\}$.⁷ The legislature, however, does not know the level of waste for the two projects. The auditor chooses to report on only one project, either the Republican program or the Democratic program, and publicly informs the legislature about the level of waste for the chosen project, $w_{1,R}$ or $w_{1,D}$.⁸ The legislature requires the auditor's report to prove the waste of the project.⁹

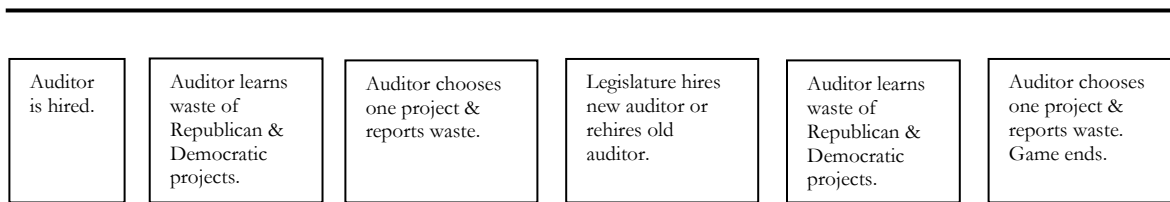
⁵ Other than the distinction between partisan and nonpartisan, auditors are alike. In other words, all nonpartisan auditors are of the same quality. A model could be developed where an auditor can vary on two dimensions: partisanship and competency, permitting trade-offs between bias and efficiency. Further, the partisanship, if any, of the auditor is not connected to the legislature's type; the legislature's type also does not depend on the auditor's type or choice of project.

⁶ This assumption could be changed to analyze how the distribution of waste (for example, high-waste projects may be more prevalent than low-waste projects; high-waste Republican projects may be more prevalent than high-waste Democratic projects) affects the choices by auditors and the firing rule of the legislature. In particular, it would be interesting to examine the tradeoff between asymmetry in the distribution of waste and asymmetry in the partisan affiliation of auditors in equilibrium.

⁷ In other words, the auditor knows the level of waste before she chooses the program on which to report. Imagine that an auditor employs issue specialists who have good information about various projects. The auditor then chooses which project to investigate and report on formally. This knowledge could be viewed as auditors being fully competent. Varying knowledge of the waste levels could map to varying levels of competency in a model with two-dimensional auditors (see note 5).

⁸ Due to resource constraints, the auditor cannot report on both projects. This is a model about self-initiated oversight by the auditor; the legislature cannot make the project choice for the auditor. In addition, any report by the auditor, whether it identifies low or high waste, is assumed to hurt the program on which it focuses. Investigations require time of bureaucratic administrators and the reports such investigations generate provide ammunition for program opponents. Imagine that any given project can generate no waste, low waste, or high waste. There is some mechanism—fire alarms pulled by interest groups, for example—to present only projects that generate waste to the auditor, and these projects include both Republican and

In the second period, the legislature decides whether to fire or rehire the original auditor.¹⁰ If it fires the auditor, it hires a new auditor, whose type is drawn from the same probability distributions as the original auditor.¹¹ As in the first period, both the legislature and the auditor know that it is equally likely that a given project creates high or low waste, and the auditor learns, but the legislature does not, the actual amounts of waste for a Republican and a Democratic project, $w_{2,R}$ and $w_{2,D}$ where $w_{2,*} \in \{H, L\}$. Likewise, the auditor chooses to investigate one project, either the Republican program or the Democratic program, and produces a report for the legislature identifying the level of waste for that project, $w_{2,R}$ or $w_{2,D}$. The game then ends. This sequence of events is illustrated more simply below:



Democratic programs. Consequently, even though it is equally likely that any given project before the auditor has high or low waste, an agency is not pleased with a report showing low waste in one of its projects. If it had generated no waste, the project would not even be up for investigation. An alternative model could be developed that construes an auditor's report as potentially positive or negative, depending on the investigation's finding.

⁹ The model assumes that the auditor provides truthful reports to the legislature. Imagine that the auditor's report must contain evidence to support the level of waste identified. The auditor's discretion derives from the choice of projects, not the reporting of waste. If the auditor can lie about the level of waste, the legislature receives far less information and consequently exercises less control over the auditor's choices. Talk is not always cheap when the auditor can lie about the level of waste, however. If the auditor must accurately convey the partisan affiliation of the program, some information may be conveyed.

¹⁰ This fire or rehire decision is an extreme one, but it applies to an auditor with no principal-agent problems of her own. The real-world equivalent appears to be a significant cut of the GAO's budget. A budget cut may lead to changes in personnel, thereby changing the overall preferences of the GAO.

¹¹ The game ends after the second period, even if a new auditor is hired. If each auditor faces a one period trial period before a rehiring decision, the length of the game becomes endogenous and could conceivably continue forever. One could think of each period as a session of Congress. By restricting the game to two periods, the model departs from our current institutional structures, but it allows for analysis of particular issues concerning auditor reputation.

B. Players' Objectives

Each type of player has distinct objectives. Nonpartisan players, whether an auditor or a legislature, wish to maximize the amount of waste they report from an investigation. Partisan players wish to maximize the amount of reported waste from projects affiliated with the opposing party, and to minimize the amount of reported waste from projects linked to their own party. For example, imagine the two project choices are a missile defense system (Republican project) and an education program for welfare recipients (Democratic project). A Democratic auditor prefers to investigate the missile defense program; a Republican auditor prefers to attack the welfare policy initiative. I use a basic utility maximization framework. Players do not discount expected utility from the second period. A nonpartisan player's utility is

$$(1) \quad U_{\text{NonPartisan}} = U(w_{i \in \{\text{Dem, Rep}\}}).$$

where U is an increasing, nonnegative function in waste w of the selected project. A partisan player's utility from a given project choice is

$$(2) \quad \begin{aligned} U_{i \in \{\text{Dem, Rep}\}} &= U(w_i) \text{ if choose opposing party's project} \\ &= \gamma U(w_i) \text{ if choose own party's project} \end{aligned}$$

where U is an increasing, nonnegative function in waste w of the selected project and $\gamma \leq 0$. For example, a Democratic legislature receives nonnegative utility from an investigation of a Republican project, and nonpositive utility from the selection of a Democratic project. The actual utility functions could differ for the same type of legislature and auditor within these constraints; U^l and U^a refer to the utility functions of the legislature and auditor, respectively.

1. Legislature's Utility Maximization

A legislature that does not face an election after the first period wants to maximize its utility over the two periods, $U^l(w_{1,a}) + U^l(w_{2,b})$, where a and b are projects chosen by the auditor and U^l is defined in (1) if the legislature is nonpartisan and where U^l is defined in (2) if the legislature is

partisan. A legislature fires the original auditor when the expected utility from this auditor in the second period is less than the expected utility from hiring a new auditor. A legislature updates its probabilities on the first period auditor's type using Bayes' Rule.¹² Thus, a nonpartisan legislature fires an auditor with an updated probability of being partisan that is greater than α because in expectation such a legislature anticipates that a new auditor is partisan with probability α . I consider a partisan legislature that faces an election after the first period in Section III.

2. Auditor's Utility Maximization

A strategic auditor hired in the beginning of the first period wants to maximize utility from her choice of evaluation projects, $\max_{x,y} U^a(w_{1,x}) + \beta U^a(w_{2,y})$, where β is the probability that the auditor is rehired. If the auditor is nonpartisan, U^a is defined in (1) above. This auditor does not benefit from waste reported by a different auditor in the second period.¹³ Imagine that a nonpartisan

$$^{12} P(\text{partisan} \mid \text{project choice}) = \frac{P(\text{project choice} \mid \text{partisan})}{P(\text{project choice} \mid \text{partisan}) + P(\text{project choice} \mid \text{nonpartisan})}.$$

¹³ If a nonpartisan auditor receives utility from the level of waste reported in both periods (whether or not she is rehired for the second period), the auditor always chooses a high-waste project if one is available. Because the game ends after the second period, auditors are not constrained in their second period project choices. If the nonpartisan auditor is rehired, she maximizes the amount of waste reported over the two periods. If she is fired, the new auditor, with probability $(1-\alpha)$, is nonpartisan and acts to maximize the level of waste reported in the second period (choosing a high-waste project with probability $3/4$ and a low-waste project with probability $1/4$), maximizing the amount of waste reported over the two periods. If she is fired, with probability α , the new auditor is partisan and chooses a high-waste project affiliated with the opposing party with probability $1/2$ and a low-waste project affiliated with the opposing party with probability $1/2$. The only relevant utility comparison is the following: The first period auditor must weigh choosing a high-waste project and being fired (where in the second period, there may be a partisan auditor who chooses a low-waste project affiliated with the opposing party if the other choice is a high-waste project affiliated with her own party) against choosing a low-waste project and being rehired. The first option gives the nonpartisan auditor the following utility:

$$U^a(H) + \frac{\alpha}{2}U^a(H) + \frac{\alpha}{2}U^a(L) + (1-\alpha)\frac{3}{4}U^a(H) + (1-\alpha)\frac{1}{4}U^a(L)$$

The second option gives the nonpartisan auditor the following utility:

$$U^a(L) + \frac{3}{4}U^a(H) + \frac{1}{4}U^a(L)$$

auditor receives accolades for any waste she reports. Even an efficiency-minded auditor does not want to lose her job to allow another auditor to claim credit for waste reduction. If the auditor is partisan, U^a is defined in (2) above. Like the nonpartisan auditor, a partisan auditor gets utility only from her own project choices. A partisan auditor cares not only about attacking a particular party but also about the credit she receives for such attacks. Partisan and nonpartisan auditors who are not strategic consider only utility from the first period.

Because the game concludes at the end of the second period, an auditor hired in the beginning of the second period (or the rehired auditor in the second period) acts in an obvious manner. A nonpartisan auditor selects a project based solely on waste levels. A partisan auditor investigates the project affiliated with the opposite party.

3. Utility Comparisons of Strategic Auditors

Because a nonpartisan auditor receives equal utility from projects with the same amount of waste, there is only one interesting utility comparison a strategic nonpartisan auditor must consider: whether she should select a low-waste project instead of a high-waste project in the first period so that she is rehired and able to cut a high-waste project with probability $\frac{3}{4}$ in the second period.¹⁴ This comparison depends on the assumption that the legislature fires the auditor if she selects a high-waste project in the first period and rehires her otherwise. She should select a low-waste project in this case only if $U^a(L) + \frac{3}{4}U^a(H) + \frac{1}{4}U^a(L) \geq U^a(H)$ which simplifies to $5U^a(L) \geq U^a(H)$. I label this the *Partisan Imitator* condition. This condition becomes relevant when there are asymmetric priors on the partisanship of the auditor or when the legislature is partisan.

The first option provides more utility to the nonpartisan auditor for any legitimate value of α .

¹⁴ Because the waste level of each project is equally likely to be high or low, each of the following pairs of projects has $\frac{1}{4}$ chance of being presented to the auditor: {High-Waste Democratic Project, High-Waste Republican Project}, {High-Waste Democratic Project, Low-Waste Republican Project}, {Low-Waste Democratic Project, High-Waste Republican Project}, {Low-Waste Democratic Project, Low-Waste Republican Project}.

A strategic partisan auditor faces one of four utility comparisons (corresponding to the four possible project choice pairs, see note 14) where she must decide whether to report on her own party's project instead of on the other party's project so that she is rehired and able to report on the opposing party's project in the second period. Because of symmetric priors on the distribution of waste, a partisan auditor in the second period expects to see a high-waste project affiliated with the opposing party with probability $\frac{1}{2}$ and a low-waste project affiliated with the opposing party with probability $\frac{1}{2}$. All of these comparisons assume that the legislature fires the auditor if she pursues the opposing party's project in the first period. When faced with two low-waste projects, she chooses her party's low-waste project if, by substituting (2) into her utility function, $\gamma U^a(L) + \frac{1}{2}U^a(H) + \frac{1}{2}U^a(L) \geq U^a(L)$, which simplifies to $(2\gamma-1)U^a(L) \geq -U^a(H)$. I label this the *Suffer Small Hit Instead of Dispense Small Hit* condition.

When faced with a low-waste project affiliated with the opposing party that she wants to investigate and a high-waste project affiliated with her party that she does not want to report on, she chooses her least favorite project if $\gamma U^a(H) + \frac{1}{2}U^a(H) + \frac{1}{2}U^a(L) \geq U^a(L)$, which simplifies to $(2\gamma+1)U^a(H) \geq U^a(L)$. Due to the restrictions on the utility function U , this condition cannot hold if $\gamma \leq -\frac{1}{2}$. I label this the *Suffer Big Hit Instead of Dispense Small Hit* condition, which is a subset of the *Suffer Small Hit Instead of Dispense Small Hit* condition.¹⁵ The plausibility of all of these conditions depends on the cost of sacrifice in the first period relative to the benefits it allows in the second period.

¹⁵ The other two utility comparisons never result in a partisan auditor investigating her own party's project in the first period. First, when faced with two high-waste projects, a partisan auditor would choose her party's project if she is fired only if she selects otherwise and if $\gamma U^a(H) + \frac{1}{2}U^a(H) + \frac{1}{2}U^a(L) \geq U^a(H)$, which simplifies to $(1-2\gamma)U^a(H) \leq U^a(L)$. Second, when faced with a high-waste project affiliated with the other party that she wants to investigate and a low-waste project affiliated with her party that she does not want to evaluate, a partisan auditor would select her party's project if she is fired only if she selects otherwise and if $\gamma U^a(L) + \frac{1}{2}U^a(H) + \frac{1}{2}U^a(L) \geq U^a(H)$, which simplifies to $(2\gamma+1)U^a(L) \geq U^a(H)$. Because U^a is an increasing function of waste, a partisan auditor never chooses to investigate her party's project in these two situations. If

C. Equilibrium Play

From this simple framework, I determine how a nonpartisan legislature's firing rule—fire the first period auditor if the legislature's updated probability of the auditor being partisan is greater than α —can obtain efficient work from the auditor and how the rule can lead to socially suboptimal outcomes. I focus on what projects nonstrategic auditors (who completely discount the second period) and strategic auditors (who consider how their project choice affects the rehiring decision) select in the first period.¹⁶

1. Nonstrategic Auditors

I start with the simplest cases to show that a nonpartisan legislature can do better with a firing rule than without it, even if the rule allows the legislature to fire nonpartisan auditors and rehire partisan auditors. A nonstrategic partisan auditor investigates the project affiliated with the party she dislikes. A nonstrategic nonpartisan auditor evaluates the project with the highest waste, randomizing between the two choices if they have the same waste level.

Proposition 1:

Assuming a nonstrategic auditor and symmetric priors on the party affiliation of a partisan auditor, a nonpartisan legislature rehires the original auditor if she chooses a high-waste project in the first period and fires the auditor otherwise.

With a partisan auditor either more likely to be a Democrat or a Republican, a nonpartisan legislature can have more diverse firing rules in equilibrium.

U^a were a nondecreasing function of waste, the last two conditions would hold only trivially, when $U^a(H) = U^a(L) = 0$ or when $\gamma = 0$ and $U^a(H) = U^a(L)$.

¹⁶ Unconstrained strategic auditors would behave similarly to nonstrategic auditors. The absence of constraints may result from a very high cost to the legislature from firing an auditor.

Proposition 2:

Let $(1-\alpha)$ be the probability that an auditor is nonpartisan. Assuming a nonstrategic auditor and asymmetric priors on the party affiliation of a partisan auditor where λ is the probability that the auditor is a Democrat and $(\alpha-\lambda)$ is the probability that the auditor is a Republican, a nonpartisan legislature rehires the original auditor in all of the following cases where the conditions are satisfied and fires the auditor otherwise:

- (1) If the auditor chooses a high-waste Republican project in the first period and if $\lambda \leq \frac{3}{4} \alpha$;
- (2) If the auditor chooses a high-waste Democratic project in the first period and if $\lambda \geq \frac{1}{4} \alpha$;
- (3) If the auditor chooses a low-waste Republican project in the first period and if $\lambda \leq \frac{1}{4} \alpha$;
- (4) If the auditor chooses a low-waste Democratic project in the first period and if $\lambda \geq \frac{3}{4} \alpha$.

These rational firing rules in the first two propositions create Class I and Class II errors for the legislature, eliminating nonpartisan auditors and retaining partisan auditors.

2. Strategic Auditors with Symmetric Priors

Multiple period games allow for strategic players to build reputations. In this Section, I consider auditors who make their first period selection knowing that it influences the legislature's decision on whether to rehire them. With symmetric priors on the party affiliation of a partisan auditor, a strategic nonpartisan auditor never forgoes a high-waste project if one is available because selecting a project based on party affiliation only encourages a partisan reputation. A firing rule may, however, change the incentives of a strategic partisan auditor by making her select the project affiliated with her favored party. A strategic partisan auditor mimics a nonpartisan auditor only if the legislature fires auditors who choose low-waste projects and if her expected utility maximization warrants such sacrifice in the first period so that she keeps her job for the second period.

Proposition 3:

Let $(1-\alpha)$ be the probability that an auditor is nonpartisan. Assuming a strategic auditor and symmetric priors on the party affiliation of a partisan auditor, the following set of strategies is an equilibrium: A nonpartisan legislature never rehires an auditor who chooses a low-waste project in the first period; a nonpartisan auditor chooses the project with the highest waste in the first period, randomizing between projects of equal waste; and if the *Suffer Big Hit Instead of Dispense Small Hit* condition holds, a partisan auditor in the first period mimics a nonpartisan auditor by choosing a high-waste project of her own party over a low-waste project of the opposing party and chooses the opposing party's project in all other cases.

As the loss in utility from taking projects affiliated with her own party increases (in other words, as γ decreases), a partisan auditor is less likely to imitate a nonpartisan auditor. At $\gamma=0$, the *Suffer Big Hit Instead of Dispense Small Hit* condition holds for all feasible values of $U^a(H)$ and $U^a(L)$, so the partisan auditor always mimics a nonstrategic nonpartisan auditor. At $\gamma=0$, the “big hit” is in some sense painless; the only cost of establishing a false reputation is the loss of utility from not attacking a low-waste project of the opposing party in the first period. But the auditor is willing to accept that loss because she is rehired and with probability $1/2$ can attack a high-waste project of the opposing party in the second period. If $\gamma \leq -1/2$, a partisan auditor never sacrifices utility in the first period. At this point, the cost of establishing a deceptive reputation becomes too much to bear.

Like the firing rule in Proposition 1, the firing rule here creates two types of error, firing nonpartisan auditors with probability $1/4$, and keeping partisan auditors with probability $3/4$ (if the *Suffer Big Hit Instead of Dispense Small Hit* condition holds) or with probability $1/2$ (if the condition does not hold). The rule also creates socially optimal incentives in certain circumstances. So long as building a reputation is cheap enough, partisan auditors are more likely to choose high-waste projects in the first period with the firing rule than they would if they did not face a rehiring decision in between the two periods.

3. Strategic Auditors with Asymmetric Priors

Up to now, a partisan auditor is equally likely to be a Democrat or a Republican. If a partisan auditor is more likely to be affiliated with one party than another, nonpartisan auditors may have the incentive to choose projects based on party affiliation rather than on the level of waste. Without loss of generality, assume a partisan auditor is more likely to be a Democrat ($\lambda > 1/2$) than a Republican ($\alpha-\lambda$). Since partisan auditors wish to select projects affiliated with the party they dislike, a partisan auditor is more likely to want to report on Republican projects than Democratic projects. A nonpartisan auditor realizes that a nonpartisan legislature is skeptical when it witnesses a Republican

project choice in the first period, and she may select a Democratic project with low waste to be rehired in the second period.

Proposition 4:

Let $(1-\alpha)$ be the probability that an auditor is nonpartisan. Assuming asymmetric priors on the party affiliation of a partisan auditor where $\lambda > \frac{1}{2} \alpha$ is the probability that the auditor is a Democrat and $(\alpha-\lambda)$ is the probability that the auditor is a Republican, the following sets of strategies are equilibria:

- (1) Assume further that the *Partisan Imitator* condition, the *Suffer Small Hit Instead of Dispense Small Hit* condition, and the *Suffer Big Hit Instead of Dispense Small Hit* hold. Also assume that $(3\lambda+2\alpha-\alpha\lambda-2) \geq 0$. A nonpartisan legislature fires the original auditor if she chooses a Republican project with low or high waste in the first period and rehires the auditor otherwise. A nonpartisan auditor and a Republican auditor always select the Democratic project in the first period. A Democratic auditor selects the Republican project with high waste if available in the first period and the Democratic project otherwise.
- (2) Assume further that $\lambda < \frac{3}{4} \alpha$. A nonpartisan legislature fires the original auditor if she chooses a Republican project with low or high waste or a Democratic project with low waste in the first period, and rehires the auditor otherwise. A nonpartisan auditor always selects the Democratic project with high waste if available in the first period and chooses the project with the highest waste otherwise, randomizing if both projects have low waste. A Republican auditor always selects the Democratic project in the first period. If the *Suffer Big Hit Instead of Dispense Small Hit* condition holds, a Democratic auditor selects the Democratic project with high waste only if the alternative is a Republican project with low waste, and chooses the Republican project otherwise in the first period. If the condition does not hold, a Democratic auditor always selects the Republican project in the first period.

With asymmetric priors on the party affiliation of partisan auditors, the legislature's rehiring rules can structure socially optimal as well as socially perverse incentives. In the first equilibrium, a nonpartisan auditor may ignore a high-waste Republican project for a low-waste Democratic project in the first period to prevent being perceived as a Democrat. To be rehired, a Democratic auditor, depending on her utility function, may switch from attacking a Republican project with low waste to investigating a Democratic project with low waste (first equilibrium), or she may switch from attacking a low-waste Republican project to investigating a high-waste Democratic project (first and second equilibriums).

4. Firing Costs

Until this point, there has been no cost to the legislature from firing the original auditor and hiring a new auditor for the second period. With no cost of firing, the nonpartisan legislature fires an auditor if its updated belief that the auditor is partisan is greater than its prior belief. To consider a cost of firing to the legislature, let the cost be the additional increase in probability k needed to justify firing the first period auditor and hiring a new auditor, who is expected to be partisan with probability α . Thus, a nonpartisan legislature that faces a cost from firing the original auditor rehires the first period auditor only if its updated probability of the auditor being partisan is less than or equal to $(\alpha+k)$. If k is high enough, the auditor can choose a project in the first period without facing any repercussions from the legislature.

With a cost of firing, both a partisan auditor and a nonpartisan legislature may mix strategies in equilibrium: A partisan auditor must be indifferent between imitating and not imitating a nonstrategic nonpartisan auditor when the choice is between a low-waste project affiliated with the opposing party and a high-waste project affiliated with her party; the legislature must also be indifferent between firing and not firing when it sees a low-waste report in the first period.

Proposition 5:

Let p be the probability that a partisan auditor does not imitate a nonstrategic nonpartisan auditor, thereby choosing a low-waste project affiliated with the opposing party over a high-waste project of her own party. Let q be the probability that a nonpartisan legislature fires the original auditor when it sees a low-waste project in the first period. Assuming a strategic auditor and symmetric priors on the party affiliation of a partisan auditor, a mixed strategy equilibrium exists if $(\alpha+k) < 1$, if α is between $(\frac{1}{2})[-k+1(+/-)(k^2-6k+1)^{1/2}]$ and if $\gamma \geq [U^p(L)-U^p(H)]/2U^p(H)$. In the equilibrium, a nonpartisan auditor always selects the project with the highest waste (randomizing between projects of equal waste); a partisan auditor chooses a low-waste project affiliated with the opposing party over a high-waste project affiliated with her party with probability $p=k/[\alpha(1-\alpha-k)]$ in the first period and chooses the reverse with probability $(1-p)$; a partisan auditor chooses the opposing party's project in all other cases; and the legislatures fires an auditor with probability $q=[2U^p(L)-2\gamma U^p(H)]/[U^p(H)+U^p(L)]$ if it sees a low-waste project in the first period.

As the cost of firing the original auditor increases, a partisan auditor is less likely to imitate a nonstrategic nonpartisan auditor in the first period, and overall, more low-waste projects are selected in the two periods. In the American political system, these firing costs can take various forms. First, there are administrative costs of finding new auditors of policy programs. If supply is scarce, such costs are likely higher. Eliminating the GAO and creating a different auditing organization would be extremely costly. Second, there are potential political costs. Initial auditors can build alliances with legislators and others, making it harder to punish or fire them. Once institutions are established, it can be exceedingly difficult to transform or replace them (Kaufman 1976; Lewis 2003). Many members of Congress who rely on GAO reports would fight attempts to create a different watchdog agency.

III. PARTISAN LEGISLATURE

In the preceding Section, the legislature is nonpartisan, trying only to maximize the amount of waste investigated by the auditor without regard to political affiliation. Legislatures generally are, however, partisan entities that face regular elections. A partisan legislature may be in power for many years, or for just a few terms. Starting with the same timing of the model analyzed above, I now add an election of the legislature before the rehiring decision. Let p be the probability that the Democrats control the legislature after the election and $(1-p)$ be the probability that Republicans are in the majority. This probability is exogenous and is unaffected by the auditor's choice in the first period. Many factors conceivably impact electoral outcomes; the auditing of particular policy programs seems unlikely to be critical on the margin. A partisan legislature's utility function for the second period is specified in (2) in Subsection II.B. Although the legislature's party affiliation may affect its firing rules and the project choices of partisan and nonpartisan auditors in the first period, party control of the legislature is assumed not to affect the probability distributions of the auditor's type.

These distributions plausibly derive instead from the population characteristics of trained program evaluators and civil service requirements.

Let α' and λ' be the updated beliefs of the legislature as to whether the original auditor is partisan and whether the original auditor is a Democrat, respectively. Since the game ends after the second project choice, auditors choose their favorite projects (either by waste or party affiliation, depending on the auditor's type) in the final period. Without loss of generality, I first consider a Democratic legislature. Such a legislature rehires the first period auditor only if its expected utility for the second period is at least as great as what it expects to receive if it selects another auditor:

$$(1-\alpha')\frac{3}{4}U^l(R=H \text{ or } D=H) + (1-\alpha')\frac{1}{4}U^l(R=L \text{ or } D=L) + \lambda'\frac{1}{2}U^l(R=H) + \lambda'\frac{1}{2}U^l(R=L) + (\alpha'-\lambda')\frac{1}{2}U^l(D=H) + (\alpha'-\lambda')\frac{1}{2}U^l(D=L) \geq$$

$$(1-\alpha)\frac{3}{4}U^l(R=H \text{ or } D=H) + (1-\alpha)\frac{1}{4}U^l(R=L \text{ or } D=L) + \lambda\frac{1}{2}U^l(R=H) + \lambda\frac{1}{2}U^l(R=L) + (\alpha-\lambda)\frac{1}{2}U^l(D=H) + (\alpha-\lambda)\frac{1}{2}U^l(D=L)$$

where the utility for a Republican project equals $U^l(w_{*,R})$ and for a Democratic project equals $\gamma U^l(w_{*,D})$. Presuming that the nonpartisan auditor randomizes equally between projects of equal waste in the second period, this condition reduces to:

$$U^l(H)[-3\alpha'+\alpha'\gamma-4\lambda'\gamma+4\lambda'] + U^l(L)[- \alpha'+3\alpha'\gamma-4\lambda'\gamma+4\lambda'] \geq$$

$$U^l(H)[-3\alpha+\alpha\gamma-4\lambda\gamma+4\lambda] + U^l(L)[- \alpha+3\alpha\gamma-4\lambda\gamma+4\lambda]$$

Thus, as α' increases relative to α , holding everything else constant, the condition is less likely to hold; as λ' increases relative to λ , holding everything else constant, the condition is more likely to hold. The other comparative statics depend on the interaction between the updated probability distributions and the ratio of utilities from a high-waste and a low-waste project, $U^l(H)/U^l(L)$.

This condition can be reduced, with some simplifying assumptions. First, assume symmetric priors on the party affiliation of a partisan auditor ($\lambda = \frac{1}{2} \alpha$) so that a partisan auditor is equally likely to be a Democrat or a Republican, and also assume that $\gamma = 0$. The above utility condition for a Democratic legislature then simplifies to

$$U'(H)[-3\alpha' + \alpha + 4\lambda'] \geq U'(L)[\alpha' + \alpha - 4\lambda']$$

If $[-3\alpha' + \alpha + 4\lambda']$ is positive (negative), the ratio of utilities from a high-waste and a low-waste project, $U'(H)/U'(L)$, must be greater (less) than or equal to:

$$\frac{[\alpha' + \alpha - 4\lambda']}{[-3\alpha' + \alpha + 4\lambda']}$$

Second, assume again symmetric priors on the party affiliation of a partisan auditor ($\lambda = \frac{1}{2} \alpha$) and assume instead that $\gamma = -1$. The utility condition for a Democratic legislature simplifies to an extremely intuitive comparison:

$$\lambda' U'(H) + \lambda' U'(L) - \frac{\alpha'}{2} U'(H) - \frac{\alpha'}{2} U'(L) \geq \lambda U'(H) + \lambda U'(L) - \frac{\alpha}{2} U'(H) - \frac{\alpha}{2} U'(L)$$

Because the right hand side is equal to zero (since by assumption $\lambda = \frac{1}{2} \alpha$), the legislature's utility condition then collapses to

$$(\lambda' - \frac{\alpha'}{2})[U'(H) + U'(L)] \geq 0$$

Since utility is nonnegative and increasing in waste, a Democratic legislature rehires the original auditor if $\lambda' \geq \frac{1}{2} \alpha'$. In other words, a Democratic legislature rehires the auditor so long as she is as or more likely to be a Democrat than a Republican. Similarly, a Republican legislature rehires the auditor if $\lambda' \leq \frac{1}{2} \alpha'$

If all auditors behave nonstrategically, a Democratic legislature fires an auditor if she selects a Democratic project in the first period and a Republican legislature fires an auditor if she selects a Republican project in the first period. Strategic auditors take into account how their first period choice affects the rehiring decision. When $\gamma=-1$, the partisan affiliation of the legislature changes the *Partisan Imitator* and *Suffer Small Hit Instead of Dispense Small Hit* conditions discussed earlier as follows.¹⁷ As before, a nonpartisan auditor must consider whether she should select a low-waste project instead of a high-waste project in the first period so that she is not fired and able to cut a high-waste project with probability $3/4$ in the second period. This comparison depends on the probability that the legislature approves of her project choice. Presuming that a legislature fires the auditor if it sees a project affiliated with its own party in the first period, a nonpartisan auditor should select a low-waste Democratic project over a high-waste Republican project only if

$$U^a(L) + (1-p)(3/4)U^a(H) + (1-p)(1/4)U^a(L) \geq U^a(H) + (p)(3/4)U^a(H) + (p)(1/4)U^a(L),$$

which simplifies to

$$\frac{5U^a(L)-U^a(H)}{6U^a(H)+2U^a(L)} \geq p$$

I label this the *Republican Partisan Imitator* condition.

A nonpartisan auditor should select a low-waste Republican project over a high-waste Democratic project only if

$U^a(L) + (p)(3/4)U^a(H) + (p)(1/4)U^a(L) \geq U^a(H) + (1-p)(3/4)U^a(H) + (1-p)(1/4)U^a(L)$, which simplifies to

$$p \geq \frac{7U^a(H)-3U^a(L)}{6U^a(H)+2U^a(L)}$$

¹⁷ The remaining reputation-building conditions do not hold with a partisan legislature and $\gamma=-1$.

I label this the *Democratic Partisan Imitator* condition. As p increases, the *Republican Partisan Imitator* condition is less likely to hold and the *Democratic Partisan Imitator* condition is more likely to hold. As p approaches $1/2$, the nonpartisan auditor acts as if she faces a nonpartisan legislature.

Presuming that a legislature fires the auditor if it sees a project affiliated with its own party in the first period, a Republican auditor chooses her party's low-waste project when faced with two low-waste projects only if

$\gamma U^a(L) + (p)^{(1/2)}U^a(H) + (p)^{(1/2)}U^a(L) \geq U^a(L) + (1-p)^{(1/2)}U^a(H) + (1-p)^{(1/2)}U^a(L)$, which simplifies to

$$p \geq \frac{5U^a(L)+U^a(H)}{2U^a(H)+2U^a(L)}$$

when $\gamma=-1$. I label this the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition. This condition holds only for certain values of $U^a(L)$ and $U^a(H)$, where $1/2 < p \leq 1$. In the same situation, a Democratic auditor chooses her party's low-waste project when faced with two low-waste projects only if, $\gamma U^a(L) + (1-p)^{(1/2)}U^a(H) + (1-p)^{(1/2)}U^a(L) \geq U^a(L) + (p)^{(1/2)}U^a(H) + (p)^{(1/2)}U^a(L)$, which simplifies to

$$p \leq \frac{-3U^a(L)+U^a(H)}{2U^a(H)+2U^a(L)}$$

when $\gamma=-1$. I label this the *Democratic Suffer Small Hit Instead of Dispense Small Hit* condition. This condition holds only for certain values of $U^a(L)$ and $U^a(H)$, where $0 \leq p < 1/2$.

With a guaranteed Democratic legislature (which one could argue was true for the House of Representatives for most of the second half of the last century, before the 1994 election), the following proposition holds.

Proposition 6:

Let $(1-\alpha)$ be the probability that an auditor is nonpartisan. Assuming symmetric priors on the party affiliation of a partisan auditor and $\gamma=-1$, the following is an equilibrium: A legislature that is guaranteed to be Democratic ($p=1$) fires an auditor who chooses a Democratic project with any level of waste in the first period; a Democratic auditor always selects a Republican project in the first period; if the *Democratic Partisan Imitator* condition holds, a nonpartisan auditor always selects a Republican project in the first period; if the condition does not hold, a nonpartisan auditor chooses a Democratic project with high waste over a Republican project with low waste and chooses a Republican project otherwise in the first period; if the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition holds, a Republican auditor chooses a Republican project only if both projects are of low waste and a Democratic project otherwise in the first period; and if the condition does not hold, a Republican auditor always chooses a Democratic project in the first period.

When Democrats are guaranteed to control the legislature making the rehiring decision, a Democratic auditor always selects Republican projects. If the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition (which collapses to the *Suffer Small Hit Instead of Dispense Small Hit* condition) holds, even a Republican auditor selects a Republican project when both projects have low waste. The partisan legislature creates perverse incentives for a nonpartisan auditor in the first period. If the *Democratic Partisan Imitator* condition (which collapses to the *Partisan Imitator* condition) holds, a nonpartisan auditor who cares only about maximizing reported waste behaves identically to a Democratic auditor and always selects the Republican project in the first period. The GAO thus could try to build a partisan reputation, pleasing the institution that sets its budget, in order to have more flexibility in identifying waste in policy programs.

Because it faces regular elections, the legislature's partisan affiliation is typically never guaranteed. I now consider the auditor's uncertainty about the preferences of the legislature that makes the rehiring decision at the start of the second period.

Proposition 7:

Let $(1-\alpha)$ be the probability that an auditor is nonpartisan. Assuming symmetric priors on the party affiliation of a partisan auditor and $\gamma=-1$, the following is an equilibrium: with probability p , the legislature making the rehiring decision is Democratic and fires the auditor if it sees a Democratic project in the first period; with probability $(1-p)$, the

legislature is Republican and fires the auditor if it sees a Republican project in the first period; if $p > 1/2$, a nonpartisan auditor selects a Republican project when projects have equal waste in the first period; if $p < 1/2$, a nonpartisan auditor selects a Democratic project when projects have equal waste in the first period; if $p=1/2$, a nonpartisan auditor randomizes when projects have equal waste in the first period; if the *Republican Partisan Imitator* condition holds, a nonpartisan auditor selects a low-waste Democratic project over a high-waste Republican project and selects the high-waste Republican project if the condition does not hold in the first period; if the *Democratic Partisan Imitator* condition holds, a nonpartisan auditor chooses a low-waste Republican project over a high-waste Democratic project and chooses the high-waste Democratic project if the condition does not hold in the first period; if the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition holds, a Republican auditor chooses a Republican project with low waste over a Democratic project with low waste and chooses a Democratic project in all other circumstances in the first period; if the condition does not hold, a Republican auditor always selects a Democratic project in the first period; if the *Democratic Suffer Small Hit Instead of Dispense Small Hit* condition holds, a Democratic auditor chooses a Democratic project with low waste over a Republican project with low waste and chooses a Republican project in all other circumstances in the first period; if the condition does not hold, a Democratic auditor always selects a Republican project in the first period.

As p goes to 1(0), the more likely it is that the *Democratic (Republican) Partisan Imitator* conditions holds and therefore that the nonpartisan auditor seeks to develop a partisan reputation to increase her chances to report on more waste in a nonpartisan manner in the final period. Likewise, as p goes to 1(0), the reputation condition for Republican (Democratic) auditors becomes easier to meet. With more electoral uncertainty (as p goes to $1/2$) partisan (as well as nonpartisan) auditors are less willing to pretend to have different biases from their true preferences.

The model developed in Section II and expanded in Section III produces two fundamental and intuitive observations. First, to build a reputation they can exploit later, partisan auditors may act more like neutral watchdogs (if the legislature is nonpartisan or if party control of the legislature is highly uncertain) or even like partisans with opposing preferences to their own (if the legislature is controlled by the opposing party). Second, nonpartisan auditors may act like partisans (if the legislature is partisan, or even if the legislature is nonpartisan, if there are asymmetric priors on the partisanship of auditors) to keep their job and to act neutrally in the future.

If we share the utility function of a nonpartisan actor in the model and want auditors to maximize social welfare by reporting on high-waste projects if available, the model suggests several possible proposals to pursue. First, improve the qualifications of auditors to decrease the percentage of the auditor pool with partisan bias, α . Second, presuming that α is low enough, provide the auditor more independence by giving her more job security or by protecting her budget from big changes. Third, work to make control of the legislature more competitive. A vigorous democracy with high expected turnover of party control in the legislature is, in most circumstances, more likely to result in better (from a social welfare perspective) auditing of policy programs than a system with a favored party.¹⁸ I consider additional institutional design questions in Sections IV and V.

IV. EMPIRICAL INVESTIGATION OF MODEL

Much of the economics and political science research on expertise focuses on theory to the exclusion of empirical investigation (or vice-versa). This Section tries to connect theory with data. Interactions between the U.S. Congress and its primary watchdog agency, the GAO, clearly motivate the model.¹⁹ Does the model capture some of these real-world interactions? The GAO collects data on all its published reports and testimony to Congress (including, among other items, the type of report, subject and budgetary matter(s) involved, legal authorization cited, requester information (if applicable), findings, recommendations to Congress, and recommendations to agencies). I do not purport to directly test the model developed in Sections II and III with this information because the data do not permit such testing. Instead, I use information on the GAO's investigations of federal policy programs to examine several assumptions and implications of the model.

¹⁸ This statement is not true in every circumstance. Imagine that almost all auditors are Republicans and that the *Republican Suffer Big Hit Instead of Dispense Small Hit* condition holds. It is likely that more high-waste projects are chosen if the legislature making the rehiring decision is guaranteed to be Democratic than when the legislature is equally likely to be Democratic or Republican.

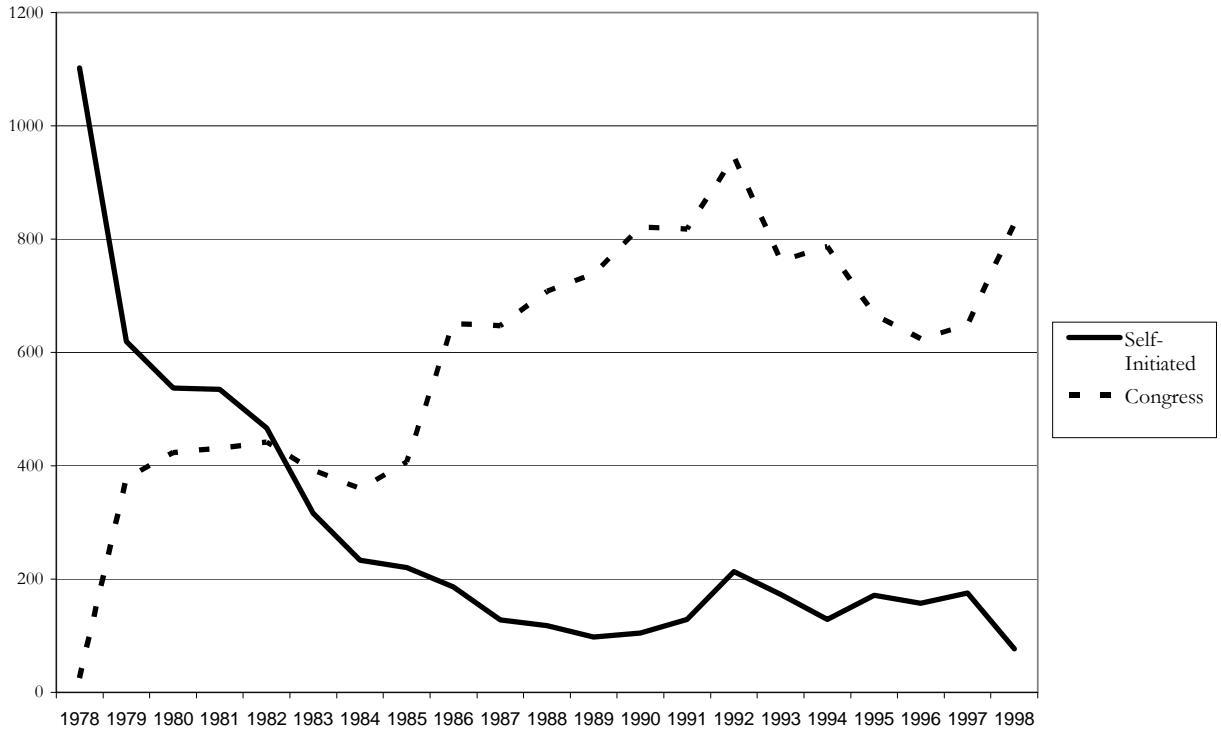
¹⁹ A less obvious analogy would be a federal agency's Inspector General and the federal agency (or the White House).

I first consider the model's assumption that the auditor has a choice in what programs to investigate. In practice, the GAO evaluates policy programs on its own initiative²⁰ as well as pursuant to a congressional request or legislative mandate. In the 1970s, the GAO used to issue mostly self-initiated studies; now, the GAO devotes much of its time to congressionally driven studies. What might explain this significant shift? I next analyze the model's implications for the GAO's choices in its self-initiated work over time. Does the GAO examine more Democratic (Republican) projects when the Republicans (Democrats) control Congress? I then examine how these choices by the GAO in its self-initiated work match up to congressional requests. This comparison provides some insight on the model's assumption that an auditor's report is always bad for the policy program. Could reports on the same subject area have different proponents depending on the Presidential administration? Overall, the empirical work supports multiple scenarios permitted by the model. Specifically, the results are consistent with the GAO's image of itself as a neutral watchdog agency; the results also suggest that the auditor is constrained at least in part by the legislature.

The model is built around the auditor's choice about which project to investigate. What is most striking about the GAO's self-initiated reports is not their distribution of subjects, but rather their declining role in the GAO's overall work over time. Figure 1 displays the number of nontestimony GAO products that were produced pursuant to a congressional request or legislative mandate as well as issued on the GAO's own initiative. In 1983, for the first time, the GAO produced more congressionally requested or mandated products than self-initiated studies. There is now a considerable difference between the amount of congressional and self-initiated work.

²⁰ I term this category of GAO's work "self-initiated work"; the GAO currently labels it "Comptroller General-authority work".

Figure 1: GAO Products, 1978-1998



N=18390 (no missing data; work with no mention of requesters or legislative mandate was coded as self-initiated). GAO Documents Database (all nontestimony products).

What might account for this change in the GAO's work? Consider first the GAO's perspective. With more of its work requested or required by Congress, the GAO spends less time pursuing controversial investigations on its own that could generate backlash. If the GAO is producing reports desired by those who set its budget, it should face fewer negative repercussions from its work. Thus, the GAO may actively seek congressional requests. Indeed, key Comptrollers General have been instrumental in reshaping the GAO's work to be more responsive to Congress's needs. Elmer Staats, who served as the Comptroller General of the GAO from 1966 to 1981, broadened the agency's hiring from primarily accountants to include physical and social scientists and experts in information management and public policy (Trask 1991). Charles Bowsher, who headed the GAO from 1981 to 1996, oversaw a further shift to congressionally requested work, and

David Walker, who took the helm in 1998, has pushed the ratio even more toward congressionally requested work.

On the other hand, the GAO is more likely to suffer punitive repercussions if its main users are voted out of office. This reasoning accords with a plausible explanation for why the GAO faced significant budget cuts after the 1994 election. Under this reasoning, the GAO may want to minimize congressionally driven work if control of the legislature is highly uncertain. The GAO also is less able to investigate its desired projects when those projects are not requested by members of Congress, if it is not doing much self-initiated work. The GAO may have managed to circumvent this latter concern by “shopping” particular products to members of Congress in the hope that members will officially ask the GAO to investigate those subjects. According to a senior GAO official during my interviews, this is a particularly sensitive issue for the GAO because some individuals distrust the GAO, viewing it as having “its own agenda.”

Consider, next, Congress’s perspective. If legislators are unhappy with the GAO’s investigations performed on its own initiative, they can direct more of the auditor’s work. Why did Congress only start directing a major portion of the GAO’s work in the 1980s? The timing may have resulted from a confluence of factors, including the GAO’s actions in preceding years, the leadership of Comptroller General Elmer Staats, and fiscal constraints that led to an increase in other forms of congressional oversight (Aberbach 1990).

Legislators could also bar or severely restrict the GAO from performing self-initiated work. In 1997, Senator McCain proposed an amendment to authorization legislation for national defense that would have required the Comptroller General to certify to Congress that the GAO had completed all of its congressionally requested work before it started an investigation on its own initiative (S.924, § 1040). The GAO fought this proposal. The GAO views its self-initiated work as critical in identifying “problems which while not yet highly visible, are likely to be major issues on

the congressional agenda in the future,” and in “produc[ing] a substantial portion of the specific dollar savings attributable to GAO work” (GAO Hearing 1985, 69). Many members of Congress also opposed this proposal. Why would Congress tolerate an independent GAO? Maybe members in the majority worry that they will not be in power forever so they support the GAO’s independence because they may benefit from it later. Maybe members, whether in the majority or minority, want to preserve the GAO’s authority because they can use that independence when relying on the GAO’s work to advance their own policy objectives. There may actually be two reputation effects: the GAO cares about its reputation with its congressional sponsors, and members of Congress care about the GAO’s reputation as a neutral watchdog with the public. Maybe members realize that some investigations that should be conducted will not get done if the GAO has to rely on a congressional directive to do the investigation (for example, if the work is politically unpopular). Finally, much like arguments made to explain closed rules for congressional committees’ legislative referrals, maybe members restrict their own authority because of the GAO’s comparative expertise. McCain’s proposal, like similar ones before it, was not adopted. The GAO, therefore, engages in self-initiated work. Because of resource constraints, the GAO must select among various opportunities for self-initiated oversight. Thus, the model’s core assumption that the auditor has a choice in its self-initiated projects remains true in practice.

Although Congress has not banned self-initiated work by the GAO, members do, as already noted, direct much of the GAO’s work. In some sense, increased congressional requests may function like the firing option in the model. The trend of more congressionally requested or legislatively mandated work was, however, interrupted for two years after the 1994 elections, when such “punishment” should have been at its height. Perhaps the Republicans viewed the budget cuts as sufficient, or perhaps, as one Issue Area Associate Director reported in my interviews, the Republicans took some time to learn that the GAO could be used against the Democrats.

Given that the GAO still performs self-initiated work, its selection of projects arguably provides the clearest connection to the model's implications. Table 1 displays the percentage of self-initiated products by subject area from 1987 to 1997, a time period where the level of self-initiated work remained relatively constant.²¹ In selecting its self-initiated work, the GAO contends it “invest[s] in significant current or emerging issues that may affect the nation's future” and “address[es] issues of broad interest to the Congress, with an emphasis on longer-range, crosscutting, and transformational issues” (GAO 2004).

²¹ The following GAO subject codes were assigned to Social Welfare: Education; Education and Employment; Federally Sponsored or Assisted Employment and Training Programs; Housing and Community Development; Income Security. The following codes were assigned to Health: Health Services, Quality, and Public Health; Health Financing and Systems; Medicare and Medicaid; National and Public Health Issues. The following codes were assigned to Environment: Environmental Protection; Natural Resources Management. The following codes were assigned to Transportation: Transportation Systems and Policies; Transportation and Telecommunications. The following codes were assigned to International: International Affairs; International Relations and Trade; Security and International Relations. The following codes were assigned to Private: Corporate Audits; Federal Oversight of Financial Institutions; Financial Institutions and Markets. The following codes were assigned to Energy and Science: Energy, Resources, and Science; National Aeronautics and Space Administration; Science and Technology. The following codes were assigned to Military: Acquisition Policy, Technology, and Competitiveness; Air Force; Army; Command, Control, Communications, and Intelligence; Defense Acquisitions; Defense Force Management; Defense Management; Defense Systems; Military Operations and Capabilities; Military Personnel; Military Preparedness Plans; National Security Analysis; Navy; Research, Development, Acquisition, and Procurement; Veterans' Affairs and Military Health Care. The following codes were assigned to General Governance and Audits: Accounting and Auditing Standards; Accounting and Financial Reporting; Advanced Studies and Methodology; Audit Oversight and Liaison; Audit Oversight and Policy; Budget Issues; Civil Audits; Civil Procurement and Property Management; Defense Audits; Evaluation Guidelines and Methodology; Federal Civilian Work Force; Federal Human Resource Management; Federal Management Issues; Federal Management and Workforce Issues; Financial Management Systems and Audit Oversight; Financial Statement Audits of Federal Government Entities; General Government Information Systems; General Management Reviews; Government Business Operations; Government Information and Statistics; Health, Education, and Human Services Information Systems; Information Management; Information Management and Technology; Intergovernmental Policies and Fiscal Relations; Intergovernmental Relations; Internal Auditing Systems; IRM Policy and Issues; Office of Special Investigations; Personnel Management and Compensation; Postal Service; Privacy; Procurement of Major Systems; Program Evaluation and Methodology; Resources, Community, and Economic Development Information Systems; Special Studies and Evaluation. The following codes made up a minor (less than five percent) of self-initiated or congressionally requested investigations in Tables 1 or 2: Administration of Justice; Alternative Methods of Achieving Program Objectives; Bureau of the Census; Customs Service; Economic Analysis of Alternative Program Approaches; Food; Food and Agriculture; Law Enforcement and Crime Prevention; National

Table 1: Percentage of Self-Initiated GAO Investigations by Subject Area

	Social Welfare	Health	Environment	Transportation	International	Private	Energy/ Science	Military	General
1987-88	6.91	5.28	2.03	0.81	5.28	2.85	2.85	21.14	36.99
1989-92	4.40	2.57	1.28	3.49	3.67	5.87	2.39	19.08	35.41
1993-94	2.32	1.99	0.99	2.32	3.64	7.95	3.64	23.84	30.46
1995-97	5.17	2.39	2.98	1.59	4.18	6.76	4.57	31.21	14.91

N=1596 (227 observations deleted due to missing data). GAO Documents Database (all nontestimony, self-initiated products). Rows do not necessarily total to 100 percent because of reports that do not fall into any of the column categories.

The model suggests that one should see a jump in the percentage of self-initiated investigations of more liberal programs (for example, social welfare) and a decrease in the share of investigations of more conservative issues (for example, military) after the 1994 election, assuming that a strategic auditor, whether nonpartisan or partisan, wants to please its new Republican sponsors.²² There is a jump in social welfare investigations after the election, although the percentage is not as great as it was in 1987 and 1988, when the Democrats controlled the House and the Senate. The increase could also be due to legislative efforts to reform welfare in the same period, culminating in the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. And

Productivity; Tax Administration; Tax Policy and Administration. Codes that were not assigned to any product between 1987 and 1997 are not listed.

²² Classifying policy programs as Democratic or Republican has considerable difficulties. Nevertheless, some classification seems plausible. For example, Levitt and Snyder (1995) cite a study that “found that the Democratic vote percentage across districts in House elections was positively associated with welfare and public works outlays in 1978, but negatively correlated with military and agricultural outlays.” But they also note another study that “found that districts represented by Democrats had more military employment in 1968 than districts represented by Republicans.” Clinton and Lewis (2007) use a survey of experts to create measures for 82 agencies on a conservative-liberal scale. Relevant to the analysis presented here, the following agencies are classified as conservative (listed most conservative to almost neutral): Department of Defense, National Security Council, Department of Commerce, Department of Treasury, Office of the U.S. Trade Representative, Department of Interior, Department of Energy, Department of Veterans Affairs, Department of Transportation. The following agencies are classified as liberal (listed most liberal to almost neutral): Equal Employment Opportunity Commission, Department of Labor, Department of Housing and Urban Development, Environmental Protection Agency, Department of Health and Human Services, Department of Education, U.S. Agency for International Development, Department of State, National Aeronautics and Space Administration.

there is an increase, not a decrease, in the percentage of military investigations by the GAO on its own initiative in this time period.²³

Multiple explanations are consistent with the model. It could be that the GAO, whether a partisan or nonpartisan auditor, perceived the Republican congressional majorities to be precarious. Or it could be that the *Partisan Imitation* condition does not hold for the GAO, as a nonpartisan auditor. Or it could be that the *Suffer Big Hit Instead of Dispense Small Hit* and *Suffer Small Hit Instead of Dispense Small Hit* conditions do not hold consistently for the GAO, as a partisan auditor.

Table 1 suggests another explanation. The political valance of a particular category may change depending on what party controls the White House. For example, Republicans may be leery of a Democratic Administration's military efforts and want the GAO to investigate the Defense Department when there is a Democratic President. Likewise, Democrats may prefer that the GAO evaluate a Republican President's efforts in education and social welfare. This might explain why the GAO's share of military investigations jumped after the 1994 election, if the GAO were trying to please Republican majorities skeptical of President Clinton's defense initiatives, though the share also increased in the first two years of Clinton's administration when the Democrats controlled Congress.²⁴

The GAO's self-initiated work likely is linked to what studies are congressionally requested. On one hand, if Congress asks for a biased set of products, the GAO may try to offset this bias in its self-initiated work by choosing to investigate programs not targeted by Congress. On the other hand, the GAO may try to mimic any bias if it fears punishment from deviating from congressional

²³ I should comment on two other changes in Table 1. First, there is a jump in the percentage of energy and science investigations after the 1994 election. This increase follows, in my view, from the termination of the Office of Technology Assessment, a congressional agency that previously produced in-depth reports in this area. Second, there is a considerable drop in the percentage of general governance/audit reports after the 1994 election, as the GAO's self-initiated work becomes more targeted to particular issues. This drop is interesting but defies a compelling explanation.

wishes. The model suggests that the GAO follows the former approach if the auditor is nonpartisan and if the *Partisan Imitator* condition does not hold; whereas, the model implies that the GAO takes the latter route if the condition holds or if the auditor and legislature share similar preferences.

Table 2 displays the percentage of products for three categories of requesters: products where a committee chairperson (and possibly a ranking minority member) requested the study; products where at least one Republican (but no Democratic) committee chair or ranking minority member asked for the study; and products where at least one Democratic (but no Republican) committee chair or ranking minority member requested the study.²⁵ Unlike self-initiated investigations, which remained relatively constant between 1987 and 1997, there is a jump (drop) in products requested by only Republican (Democratic) committee leaders (chairman or ranking minority member) starting in 1995.

²⁴ I explore Congress's use of the GAO in a separate paper (Joseph 2002).

²⁵ The dataset indicates how many (if any) of the following types of members of Congress requested a particular study: House Committee Chairpersons, House Committee Ranking Minority Members, Senate Committee Chairpersons, Senate Committee Ranking Minority Members, Individual Representatives, and Individual Senators. The counts of individual members of Congress could include people from both political parties. Thus, the Republican (Democratic) requester category in Table 2 includes products where the Republican (Democratic) party's committee leadership (chairperson or ranking minority member, depending on the time period) requested the study and the Democratic (Republican) party's committee leadership did not. It could, however, include products also requested by individual Democratic (Republican) members.

Table 2: Percentage of Congressionally Requested GAO Investigations by Subject Area

	Social Welfare	Health	Environment	Transportation	International	Private	Energy/ Science	Military	General
Committee Chair (and possibly RMM)									
1987-88	9.64	2.86	9.29	4.29	6.43	2.98	9.40	20.71	19.05
1989-92	9.59	4.36	6.91	6.13	8.98	2.03	8.68	21.08	21.12
1993-94	10.78	6.24	7.61	4.12	6.55	2.43	9.51	21.78	20.40
1995-97	14.44	7.52	5.04	6.03	7.42	2.47	9.10	17.80	19.68
Republican									
1987-88	12.50	4.69	7.81	1.56	3.13	0.00	9.38	23.44	25.00
1989-92	6.67	8.33	3.33	5.00	8.33	1.67	3.33	21.67	23.33
1993-94	24.66	5.48	1.37	1.37	6.85	1.37	4.11	35.62	21.92
1995-97	15.95	7.79	5.78	5.40	7.16	2.01	9.67	16.21	20.23
Democratic									
1987-88	9.38	2.91	9.64	4.10	6.87	2.91	8.45	21.53	18.76
1989-92	9.46	4.01	7.50	4.82	8.98	2.01	9.03	22.45	20.77
1993-94	10.68	5.58	7.95	3.32	6.29	2.61	10.20	22.78	20.05
1995-97	10.29	13.97	5.88	2.20	4.41	4.41	9.56	18.75	23.16

GAO Documents Database (all nontestimony products). Committee Chair N=5112 (43 observations deleted due to missing data). Republican N=993 (6 observations deleted due to missing data); Democratic N=3996 (31 observations deleted due to missing data). Rows do not necessarily total to 100 percent because of reports that do not fall into any of the column categories.

In its self-initiated investigations, the GAO appears neither fully to mimic nor to counterbalance work requested by Congress. For instance, after the 1994 election, the GAO’s self-initiated work involving social welfare and military issues jumped and projects concerning general governance and auditing dropped. Republicans, on their own, devoted a smaller percentage of their requests to social welfare (despite legislative reform efforts in the area) and the military and a near constant percentage of their requests to general governance, suggesting that the GAO may have tried to offset the decreased portfolio shares of requested work in these areas. But there was some requested work in social welfare, jointly by committee chairs (and possibly by ranking minority members), and the overall percentage devoted by any group of congressional requesters to social welfare was greater than the share the GAO devoted in its self-initiated work.

As with Table 1, Table 2 is consistent with the GAO being nonpartisan or partisan, but in either case not constrained significantly by partisan control of Congress. Also, like Table 1, Table 2 intimates that the model may be missing an important player, the President. Legislators may ask for

more GAO investigations of their favorite issues when the opposing party controls the White House. For instance, Republicans devoted more of their requests to military issues in the first two years of Clinton's administration. Under this view, legislators can still attack programs they dislike. Indeed, Republicans also devoted more of their requests to social welfare programs in that same period.

The empirical analysis here is meant to illustrate aspects of the model rather than to test its assumptions and implications conclusively. These descriptive facts about the GAO's work show that the model might have some traction in explaining the auditing of political programs and also raise further areas for research.

V. CONCLUSION

Auditors, whether in economic or political institutions, often choose what to report in order to advance their objectives. Principals of an auditor can structure these choices in socially optimal or socially perverse ways. According to the model, partisan auditors may choose projects based on waste levels to obfuscate their true type, and nonpartisan auditors may choose projects based on party affiliation to avoid acquiring a partisan reputation. Moreover, if the legislature has partisan objectives, partisan and nonpartisan auditors can act identically, despite having different utility functions. Because the auditor decides between projects, such decisions can signal revealing information to the legislature about the auditor's objectives. If the legislature can fire its agent (or cut her budget) and if the agent's reputation affects her utility, the auditor is careful about what projects she chooses.

The model and stylized facts about the GAO's investigations suggest two main considerations for how to design auditing institutions for government programs. First, what kinds of auditing institutions will maximize social welfare (see, for example, Dewatripont & Tirole 1999)? Second, what kinds of auditing institutions are politically feasible (see, for example, Moe 1990)?

If a legislature cares only about discovering waste or mismanagement in policy programs, it must determine how many auditors to employ, how to select them, and how much independence and authority to give them. Redundancy may permit helpful competition, but centralization may allow needed coordination. An auditor's independence from the legislature and her scope of authority also likely shape the legislature's choices. These decisions, in the end, may turn on the auditor's type. In certain circumstances, one nonpartisan auditor will yield better results than multiple partisan auditors; in other contexts, the reverse is true.

Desired institutional choices on efficiency grounds may be impossible to implement politically. A legislature is an elected institution whose members seek oversight of policy programs for a variety of reasons, including political considerations. Even a nonpartisan auditor must function in a complicated political environment. Are there other politically sustainable auditors that could produce better auditing of politics than the GAO? The GAO's structure and work provide an important testing ground, theoretically and empirically, for these and other institutional design questions.

MODEL APPENDIX

Proof of Proposition 1: The legislature firing rule is rational for a nonpartisan legislature. In the second period, the legislature receives the following utility:

$$\frac{\alpha}{2}U'(H) + \frac{\alpha}{2}U'(L) + \frac{3(1-\alpha)}{4}U'(H) + \frac{(1-\alpha)}{4}U'(L)$$

which simplifies to

$$\frac{3}{4}U'(H) + \frac{1}{4}U'(L) + \frac{\alpha}{4}[U'(L) - U'(H)]$$

Because $U'(H) > U'(L)$, the last term decreases as α increases. When its updated belief of the partisanship of the auditor is less than α , the legislature keeps the auditor under its firing rule, yielding greater utility in the second period. When its updated belief of the auditor's bias is greater than α , the legislature fires the auditor, yielding greater expected utility in the second period.

Using Bayes' Rule, the legislature updates as follows:

$$P(\text{partisan} | D = H) = P(\text{partisan} | R = H) = \frac{\frac{\alpha}{2}(\frac{1}{2}) + \frac{\alpha}{2}(0)}{\frac{\alpha}{2}(\frac{1}{2}) + \frac{\alpha}{2}(0) + (1-\alpha)(\frac{3}{8})} = \frac{2\alpha}{3-\alpha}$$

which is less than or equal to α since $\alpha \leq 1$, so the legislature should rehire the auditor if it observes a high-waste investigation. Because

$$P(\text{partisan} | D = L) = P(\text{partisan} | R = L) = \frac{\frac{\alpha}{2}(\frac{1}{2}) + \frac{\alpha}{2}(0)}{\frac{\alpha}{2}(\frac{1}{2}) + \frac{\alpha}{2}(0) + (1-\alpha)(\frac{1}{8})} = \frac{2\alpha}{1+\alpha}$$

is greater than α if $\alpha < 1$, the legislature should fire the auditor if it observes a low-waste report. \square

Proof of Proposition 2: The legislature firing rule is rational for a nonpartisan legislature. See Proof for Proposition 1. By definition, a nonstrategic auditor chooses a project in the first period without

considering the rehiring decision. These rehiring conditions follow simply from the legislature's updated beliefs and its rational benchmark to fire the original auditor only if its updated belief on the partisanship of this auditor is greater than α :

$$P(\text{partisan} \mid R = H) = \frac{\lambda(\frac{1}{2}) + (\alpha - \lambda)(0)}{\lambda(\frac{1}{2}) + (\alpha - \lambda)(0) + (1 - \alpha)(\frac{3}{8})} = \frac{4\lambda}{4\lambda + 3 - 3\alpha} \leq \alpha$$

if $\lambda \leq \frac{3}{4}\alpha$;

$$P(\text{partisan} \mid D = H) = \frac{\lambda(0) + (\alpha - \lambda)(\frac{1}{2})}{\lambda(0) + (\alpha - \lambda)(\frac{1}{2}) + (1 - \alpha)(\frac{3}{8})} = \frac{4(\alpha - \lambda)}{\alpha - 4\lambda + 3} \leq \alpha$$

if $\lambda \geq \frac{1}{4}\alpha$;

$$P(\text{partisan} \mid R = L) = \frac{\lambda(\frac{1}{2}) + (\alpha - \lambda)(0)}{\lambda(\frac{1}{2}) + (\alpha - \lambda)(0) + (1 - \alpha)(\frac{1}{8})} = \frac{4\lambda}{4\lambda + 1 - \alpha} \leq \alpha$$

if $\lambda \leq \frac{1}{4}\alpha$;

$$P(\text{partisan} \mid D = L) = \frac{\lambda(0) + (\alpha - \lambda)(\frac{1}{2})}{\lambda(0) + (\alpha - \lambda)(\frac{1}{2}) + (1 - \alpha)(\frac{1}{8})} = \frac{4(\alpha - \lambda)}{3\alpha - 4\lambda + 1} \leq \alpha$$

if $\lambda \geq \frac{3}{4}\alpha$. \square

Proof of Proposition 3:

Lemma: Assuming a strategic auditor and symmetric priors on the party affiliation of a partisan auditor, a nonpartisan legislature never rehires the original auditor if she chooses a low-waste project in the first period.

Proof of Lemma: Assume not. A strategic nonpartisan auditor receives more utility from selecting a high-waste project than a low-waste project in any given period. She would consider choosing a low-

waste project instead of a high-waste project in the first period only if that choice would change a firing decision into a rehiring decision (and would actually choose a low-waste project only if the *Partisan Imitator* condition holds). Because the condition does not apply here, a strategic nonpartisan auditor chooses a high-waste project if available in the first period. A strategic partisan auditor may decide to mimic a nonpartisan auditor and choose a high-waste project affiliated with her party when the opposing party's project is low waste. Yet, there is no incentive for the partisan auditor to mimic in this manner. If the legislature does not fire for low-waste project choices in the first period, a partisan auditor maximizes her utility by choosing the project affiliated with the party she dislikes in both periods. When it sees a low-waste project in the first period, the legislature's updated belief about the auditor's partisanship is greater than α . The legislature's firing rule, rehire auditor who selects a low-waste project, therefore is not rational. \square

The legislature's rule for rehiring is rational. First, from the lemma, the legislature fires the original auditor if she selects a low-waste project. Second, if the *Suffer Big Hit Instead of Dispense Small Hit* condition holds (in other words, if the original auditor selects a high-waste project if one is available in the first period), the legislature rationally rehires the auditor as its updated belief as to whether the auditor is partisan is

$$P(\text{partisan} \mid D = H) = P(\text{partisan} \mid R = H) = \frac{\frac{\alpha}{2} \left(\frac{1}{2}\right) + \frac{\alpha}{2} \left(\frac{1}{4}\right)}{\frac{\alpha}{2} \left(\frac{1}{2}\right) + \frac{\alpha}{2} \left(\frac{1}{4}\right) + (1 - \alpha) \left(\frac{3}{8}\right)} = \alpha$$

which equals its prior belief that the auditor is partisan. If the condition does not hold,

$$P(\text{partisan} | D = H) = \frac{\frac{\alpha}{2} \left(\frac{1}{2}\right)}{\frac{\alpha}{2} \left(\frac{1}{2}\right) + (1-\alpha) \left(\frac{3}{8}\right)} \leq \alpha$$

which is less than or equal to its prior belief that the auditor is partisan.

With the firing rule, the probability that the second period auditor is partisan is less than or equal to α . Without the firing rule, the probability is equal to α . As this probability decreases, expected utility from the second period project choice increases. With the firing rule, auditors act identically to nonstrategic auditors or choose more high-waste projects (if the *Suffer Big Hit Instead of Dispense Small Hit* condition holds). If the condition holds, the legislature expects to gain more utility with the firing rule than without it in the first period. If the condition does not hold, the legislature expects the same amount of utility with the firing rule as without it.

The auditor's choice is also rational given the conditions on her utility function. Because the *Partisan Imitator* condition does not apply here, a strategic nonpartisan auditor chooses a high-waste project if available in the first period. Since a nonpartisan auditor receives equal utility from projects with the same level of waste, it is rational for her to randomize between projects of equal waste in the first period. If the *Suffer Big Hit Instead of Dispense Small Hit* condition holds, a partisan auditor imitates a nonpartisan auditor in the case described. \square

Proof of Proposition 4: Consider the first equilibrium. The legislature's rule for rehiring is rational. The legislature never fires a nonpartisan or Republican auditor and fires a Democratic auditor with probability $\frac{1}{2}$. Its updated belief about the auditor's type when it sees a Republican project with low waste can be greater than α since the event never happens. Its updated belief about the auditor's type when it sees a Republican project with high waste is:

$$P(\text{partisan} \mid R = H) = \frac{(\alpha - \lambda)(0) + \lambda(\frac{1}{2})}{(\alpha - \lambda)(0) + \lambda(\frac{1}{2}) + (1 - \alpha)(0)} = 1 > \alpha$$

In the other two cases, its updated belief of the auditor's type is less than or equal to α :

$$P(\text{partisan} \mid D = L) = P(\text{partisan} \mid D = H) = \frac{(\alpha - \lambda)(\frac{1}{2}) + \lambda(\frac{1}{4})}{(\alpha - \lambda)(\frac{1}{2}) + \lambda(\frac{1}{4}) + (1 - \alpha)(\frac{1}{2})} = \frac{2\alpha - \lambda}{2 - \lambda} \leq \alpha$$

since $\alpha \leq 1$.

For the legislature to be better off in this equilibrium than with no firing rule, the sum of its utility over the two periods with the firing rule, (1) and (2), must be at least as great as the sum of its utility over the two periods without the rule, (3). The firing rule changes the auditor's choices in the first period and permits the selection of a new auditor for the second period.

$$(1) \quad (1 - \lambda)(\frac{1}{2})U'(H) + (1 - \lambda)(\frac{1}{2})U'(L) + \lambda(\frac{3}{4})U'(H) + \lambda(\frac{1}{4})U'(L)$$

$$(2) \quad (1 - \alpha)(\frac{3}{4})U'(H) + (1 - \alpha)(\frac{1}{4})U'(L) + (\alpha - \lambda)(\frac{1}{2})U'(H) + (\alpha - \lambda)(\frac{1}{2})U'(L) + \frac{\lambda}{2}(\frac{1}{2})U'(H) \\ + \frac{\lambda}{2}(\frac{1}{2})U'(L) + \frac{\lambda}{2}[(1 - \alpha)(\frac{3}{4})U'(H) + (1 - \alpha)(\frac{1}{4})U'(L) + \alpha(\frac{1}{2})U'(H) + \alpha(\frac{1}{2})U'(L)]$$

$$(3) \quad 2[(1 - \alpha)(\frac{3}{4})U'(H) + (1 - \alpha)(\frac{1}{4})U'(L) + \alpha(\frac{1}{2})U'(H) + \alpha(\frac{1}{2})U'(L)]$$

For the firing rule to be better than no firing rule, this reduces to

$[U'(H) - U'(L)][3\lambda + 2\alpha - \alpha\lambda - 2] \geq 0$. The first term is positive by assumption. So if the second term is positive, which is one of the conditions of the equilibrium, the inequality holds.

The auditor's choice is also rational, given the conditions on her utility function. By choosing all Democratic projects, a Republican auditor is rehired and does not have to sacrifice any utility in the first period. A nonpartisan auditor is always rehired by choosing the Democratic project in the first period; under the *Partisan Imitator* condition, she sacrifices utility in the first period when she chooses a Democratic project with low waste over a Republican project with high waste to be rehired for the second period. If both the *Suffer Small Hit Instead of Dispense Small Hit* and the *Suffer Big Hit Instead of Dispense Small Hit* conditions hold, a strategic Democratic auditor selects a Republican project with high waste if available, for which she is fired, and chooses Democratic projects otherwise.

Consider the second equilibrium. The legislature's rule for rehiring is rational. The legislature often does not rehire the auditor under this equilibrium, firing a nonpartisan auditor and a Republican auditor with probability $\frac{1}{2}$ and firing a Democratic auditor with probability $\frac{3}{4}$. Its updated belief about the auditor's type when it sees a Democratic project with low waste or a Republican project is greater than α . Whether or not the reputation-building condition holds,

$$P(\text{partisan} \mid D = L) = \frac{(\alpha - \lambda)\left(\frac{1}{2}\right) + \lambda(0)}{(\alpha - \lambda)\left(\frac{1}{2}\right) + \lambda(0) + (1 - \alpha)\left(\frac{1}{8}\right)} = \frac{4(\alpha - \lambda)}{3\alpha - 4\lambda + 1} > \alpha$$

if $\lambda < \frac{3}{4}\alpha$ and

$$P(\text{partisan} \mid R = H) = \frac{(\alpha - \lambda)(0) + \lambda\left(\frac{1}{2}\right)}{(\alpha - \lambda)(0) + \lambda\left(\frac{1}{2}\right) + (1 - \alpha)\left(\frac{1}{4}\right)} = \frac{2\lambda}{2\lambda + 1 - \alpha} > \alpha$$

since $\lambda > \frac{1}{2}\alpha$.

When the *Suffer Big Hit Instead of Dispense Small Hit* condition holds,

$$P(\text{partisan} | R = L) = \frac{(\alpha - \lambda)(0) + \lambda(\frac{1}{4})}{(\alpha - \lambda)(0) + \lambda(\frac{1}{4}) + (1 - \alpha)(\frac{1}{8})} = \frac{2\lambda}{2\lambda + 1 - \alpha} > \alpha$$

since $\lambda > \frac{1}{2} \alpha$. When the condition does not hold,

$$P(\text{partisan} | R = L) = \frac{(\alpha - \lambda)(0) + \lambda(\frac{1}{2})}{(\alpha - \lambda)(0) + \lambda(\frac{1}{2}) + (1 - \alpha)(\frac{1}{8})} = \frac{4\lambda}{4\lambda + 1 - \alpha} > \alpha$$

since $\lambda > \alpha/4$. In the last case when the legislature sees a Democratic project with high waste, it rehires the auditor as its updated belief of the auditor's type is less than or equal to α . When the *Suffer Big Hit Instead of Dispense Small Hit* condition holds,

$$P(\text{partisan} | D = H) = \frac{(\alpha - \lambda)(\frac{1}{2}) + \lambda(\frac{1}{4})}{(\alpha - \lambda)(\frac{1}{2}) + \lambda(\frac{1}{4}) + (1 - \alpha)(\frac{1}{2})} = \frac{2\alpha - \lambda}{2 - \lambda} \leq \alpha$$

since $\alpha \leq 1$. When the condition does not hold,

$$P(\text{partisan} | D = H) = \frac{(\alpha - \lambda)(\frac{1}{2}) + \lambda(0)}{(\alpha - \lambda)(\frac{1}{2}) + \lambda(0) + (1 - \alpha)(\frac{1}{2})} = \frac{\alpha - \lambda}{1 - \lambda} \leq \alpha$$

since $\alpha \leq 1$.

For the legislature to be better off in this equilibrium than with no firing rule, the sum of its utility over the two periods, with the firing rule, must be at least as great as the sum of its utility over the two periods without the rule. As with the first equilibrium, the legislature must take into account how its firing rule impacts what kind of auditor it will have in the second period. When the *Suffer Big Hit Instead of Dispense Small Hit* condition holds, the legislature must compare the sum of (1) and (2)

against (3). If the condition does not hold, the legislature must compare the sum of (1)' and (2)' against (3).

$$\begin{aligned}
(1) \quad & (\alpha - \lambda)\left(\frac{1}{2}\right)U'(H) + (\alpha - \lambda)\left(\frac{1}{2}\right)U'(L) + (1 - \alpha + \lambda)\left(\frac{3}{4}\right)U'(H) + (1 - \alpha + \lambda)\left(\frac{1}{4}\right)U'(L) \\
(1)' \quad & (\alpha)\left(\frac{1}{2}\right)U'(H) + (\alpha)\left(\frac{1}{2}\right)U'(L) + (1 - \alpha)\left(\frac{3}{4}\right)U'(H) + (1 - \alpha)\left(\frac{1}{4}\right)U'(L) \\
(2) \quad & (1 - \alpha)\left(\frac{3}{8}\right)U'(H) + (1 - \alpha)\left(\frac{1}{8}\right)U'(L) + (\alpha - \lambda)\left(\frac{1}{4}\right)U'(H) + (\alpha - \lambda)\left(\frac{1}{4}\right)U'(L) + \\
& \frac{\lambda}{8}U'(H) + \frac{\lambda}{8}U'(L) + \left(\frac{2 + \lambda}{4}\right)\left[\left(\frac{\alpha}{2}\right)U'(H) + \left(\frac{\alpha}{2}\right)U'(L) + 3\left(\frac{1 - \alpha}{4}\right)U'(H) + \left(\frac{1 - \alpha}{4}\right)U'(L)\right] \\
(2)' \quad & (1 - \alpha)\left(\frac{3}{8}\right)U'(H) + (1 - \alpha)\left(\frac{1}{8}\right)U'(L) + (\alpha - \lambda)\left(\frac{1}{4}\right)U'(H) + (\alpha - \lambda)\left(\frac{1}{4}\right)U'(L) + \\
& \frac{1 + \lambda}{2}\left[(1 - \alpha)\left(\frac{3}{4}\right)U'(H) + (1 - \alpha)\left(\frac{1}{4}\right)U'(L) + \alpha\left(\frac{1}{2}\right)U'(H) + \alpha\left(\frac{1}{2}\right)U'(L)\right] \\
(3) \quad & 2\left[(1 - \alpha)\left(\frac{3}{4}\right)U'(H) + (1 - \alpha)\left(\frac{1}{4}\right)U'(L) + \alpha\left(\frac{1}{2}\right)U'(H) + \alpha\left(\frac{1}{2}\right)U'(L)\right]
\end{aligned}$$

When the *Suffer Big Hit Instead of Dispense Small Hit* condition holds, the firing rule is better than no firing rule because the utility comparison reduces to $[U'(H) - U'(L)][5\lambda - \alpha\lambda] \geq 0$, which always holds since $\alpha \leq 1$. When the condition does not hold, the firing rule is also better than no firing rule because the utility comparison reduces to $[U'(H) - U'(L)][\lambda - \alpha\lambda] \geq 0$, which always holds since $\alpha \leq 1$.

The auditor's choice is also rational, given the conditions on her utility function. A nonpartisan auditor does not sacrifice any utility by choosing a Democratic project with high waste if available and selecting the highest waste project otherwise. She is, however, fired unless she is able

to choose a Democratic project with high waste. By choosing all Democratic projects, a Republican auditor is rehired only if the waste level is high, but she does not have to sacrifice any utility in the first period. If the *Suffer Big Hit Instead of Dispense Small Hit* condition holds, a Democratic auditor selects a Democratic project with high waste only if the Republican project has low waste, and chooses Republican projects otherwise, for which she is fired. If the condition does not hold, a Democratic auditor maximizes her utility by always choosing the Republican project in the first period and being fired. The *Suffer Small Hit Instead of Dispense Small Hit* condition is not relevant here because the legislature fires the auditor for choosing any low-waste project. \square

Proof of Proposition 5: By assumption, with probability p , a partisan auditor does *not* select a high-waste project affiliated with her party over a low-waste project affiliated with the opposing party. Thus, the legislature updates its beliefs as follows:

$$P(\text{partisan} \mid D = L) = P(\text{partisan} \mid R = L) = \frac{\frac{\alpha}{2}(0) + \frac{\alpha}{2}\left(\frac{p}{4} + \frac{1}{4}\right)}{\frac{\alpha}{2}(0) + \frac{\alpha}{2}\left(\frac{p}{4} + \frac{1}{4}\right) + (1-\alpha)\left(\frac{1}{8}\right)} = \frac{\alpha p + \alpha}{\alpha p + 1}$$

$$P(\text{partisan} \mid D = H) = P(\text{partisan} \mid R = H) = \frac{\frac{\alpha}{2}\left(\frac{1}{2}\right) + \frac{\alpha}{2}\left(\frac{1-p}{4}\right)}{\frac{\alpha}{2}\left(\frac{1}{2}\right) + \frac{\alpha}{2}\left(\frac{1-p}{4}\right) + (1-\alpha)\left(\frac{3}{8}\right)} = \frac{3\alpha - \alpha p}{3 - \alpha p} \leq \alpha$$

since $\alpha \leq 1$.

For the nonpartisan legislature to be indifferent between firing and not firing (so that its expected utility is equal), the probability p that the *Suffer Big Hit Instead of Dispense Small Hit* condition does not hold must satisfy

$$\frac{\alpha p + \alpha}{\alpha p + 1} = \alpha + k$$

where k represents the cost of firing the first period auditor as measured by the addition in probability of the auditor being partisan that the nonpartisan legislature is willing to allow without firing the auditor. A legitimate value for p must be between 0 and 1. If the conditions hold as stated in the theorem (if $\alpha + k < 1$ and if α is between $(1/2)[-k+1(+/-)(k^2-6k+1)^{1/2}]$, $p=k/[\alpha(1-\alpha-k)]$ provides a legitimate value. A nonpartisan legislature fires an auditor who chooses a low-waste project with probability q so that a partisan auditor is indifferent between imitating and not imitating in the first period. Thus,

$$U_{i \in \{Dem, Rep\}}^a(w_i = H) + \frac{1}{2}U_i^a(w_{-i} = L) + \frac{1}{2}U_i^a(w_{-i} = H) = U_i^a(w_{-i} = L) + (1-q)\frac{1}{2}U_i^a(w_{-i} = L) + (1-q)\frac{1}{2}U_i^a(w_{-i} = H)$$

which by substituting in Equation (2) in Subsection II.B equals

$$\gamma U^a(H) + \frac{1}{2}U^a(L) + \frac{1}{2}U^a(H) = U^a(L) + (1-q)\frac{1}{2}U^a(L) + (1-q)\frac{1}{2}U^a(H)$$

which simplifies to

$$U^a(H)[2\gamma + q] = U^a(L)[2 - q]$$

This gives a legitimate value of q if $\gamma \geq [U^a(L) - U^a(H)]/2U^a(H)$. The nonpartisan legislature is better off with the firing rule than without it. The firing rule changes, with probability $(1-p)$, only the

partisan auditor's choices in the first period. The legislature prefers those modified choices to the unconstrained choices that would result without a firing rule. \square

Proof of Proposition 6: As derived in the text, if $(2\lambda' - \alpha')[U'(H) + U'(L)] \geq 0$ (in other words, if $\lambda' \geq \frac{1}{2} \alpha'$), the Democratic legislature should rehire the auditor at the start of the second period. The legislature's firing rule meets this condition given the auditor's choice in the first period. First, if it sees a Democratic project with low waste, it should fire the auditor since only a Republican auditor would have selected such a project ($\lambda' < \frac{1}{2} \alpha'$). Second, if it sees a Democratic project with high waste, it should fire the auditor because only a Republican auditor with probability $\frac{1}{2}$ or a nonpartisan auditor with probability $\frac{1}{4}$ (where the *Democratic Partisan Imitator* condition does not hold) or with probability 0 (if the condition holds) would have selected the project ($\lambda' < \frac{1}{2} \alpha'$). Third, if it sees a Republican project with high waste, it should rehire the auditor since only a Democratic or nonpartisan auditor would have chosen such a project ($\lambda' > \frac{1}{2} \alpha'$). Fourth, if it sees a Republican project with low waste and the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition holds, it should also rehire the auditor since a Democratic auditor would have selected this project with probability $\frac{1}{2}$ and a Republican auditor would have selected such a project with probability $\frac{1}{4}$ ($\lambda' > \frac{1}{2} \alpha'$). If the condition does not hold, a Republican auditor never selects a Republican project with low waste ($\lambda' > \frac{1}{2} \alpha'$). The same result obtains whether or not the *Democratic Partisan Imitator* condition holds.

The legislature is better off with the firing rule than without it. The firing rule only changes the auditor's choice in certain circumstances in the first period. The legislature prefers those modified choices to the unconstrained choices that would result without a firing rule.

The auditor's choice is also rational, given the conditions on her utility function. Partisan and nonpartisan auditors select projects in the first period as specified. By choosing all Republican projects, a Democratic auditor is rehired and does not have to sacrifice any utility in the first period.

If the *Democratic Partisan Imitator* condition holds, a nonpartisan auditor is always rehired by choosing the Republican project in the first period; she sacrifices utility in the first period when she chooses the Republican project with low waste over the Democratic project with high waste in order to be rehired for the second period. If the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition holds, a strategic Republican auditor selects the Republican project only if both projects have low waste and chooses the Democratic project otherwise, for which she is fired. \square

Proof of Proposition 7: Without loss of generality, consider a Republican legislature, which should rehire the auditor at the start of the second period if, as derived in the text, $(2\lambda' - \alpha)[U'(H) + U'(L)] \leq 0$ (in other words, if $\lambda' \leq \frac{1}{2}\alpha$). The legislature's firing rule meets this condition given the auditor's choice. First, when it sees a Republican project with low waste, it should fire the auditor because a Democratic auditor chooses such a project with probability $\frac{1}{4}$ (if the *Democratic Suffer Small Hit Instead of Dispense Small Hit* condition holds) and with probability $\frac{1}{2}$ (if the condition does not hold) but a Republican auditor chooses such a project with probability $\frac{1}{4}$ (if the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition holds) and with probability 0 (if the condition does not hold) ($\lambda' \leq \frac{1}{2}\alpha$). Second, when it sees a Republican project with high waste, it should fire the auditor because a Democratic auditor chooses such a project with probability $\frac{1}{2}$ but a Republican auditor never chooses a high-waste Republican project ($\lambda' \leq \frac{1}{2}\alpha$). Third, when it sees a Democratic project with high waste, it should rehire the auditor because a Republican auditor chooses such a project with probability $\frac{1}{2}$ but a Democratic auditor never chooses a high-waste Democratic project ($\lambda' \leq \frac{1}{2}\alpha$). Fourth, when it sees a Democratic project with low waste, it should rehire the auditor because a Republican auditor chooses it with probability $\frac{1}{4}$ (if the *Republican Suffer Small Hit Instead of Dispense Small Hit* condition holds) and with probability $\frac{1}{2}$ (if the condition does not hold) but a Democratic auditor chooses it with probability $\frac{1}{4}$ (if the *Democratic Suffer Small Hit Instead of Dispense*

Small Hit condition holds) and with probability 0 (if the condition does not hold). A similar argument holds for a Democratic legislature.

The legislature is better off with the firing rule than without it. The firing rule only changes the auditor's choice in certain circumstances in the first period. The legislature prefers those modified choices to the unconstrained choices that would result without a firing rule.

The auditor's choice is also rational, given the conditions on her utility function. Partisan and nonpartisan auditors select projects in the first period as specified. To maximize her chance of being rehired, a nonpartisan auditor has a strict preference when projects have equal waste in the first period so long as a particular party is more likely to be elected before the rehiring decision (if $p > 1/2$, a nonpartisan auditor should select a Republican project; if $p < 1/2$, a nonpartisan auditor should select a Democratic project). All other actions by the auditor in equilibrium follow directly from the utility functions. \square

DATA APPENDIX

Data come from the GAO Documents Database, which I created using a perl script on GAO-provided text summaries of all unclassified GAO reports and testimony to Congress for Fiscal Years 1978-1999. It does not include information on GAO adjudicated decisions (for example, bidding disputes by contractors). The text summaries include, among other items, the following information: Title (actual title of product except for those surrounded by brackets ([] which were “invented” as brief descriptions in the absence of a title); Accession Number (unique key assigned to each document); Report Number (GAO-assigned record number as printed on a product); Document Date (document issue date); Document Type (product type descriptor); Pagination (page count specifying the number of appendices, enclosures, and attachments); GAO Division/Office (issuing GAO organization); Subject Terms (GAO Thesaurus descriptors assigned to each GAO product during the indexing and abstracting process); Organizations Concerned (public and private sector entities significant to a document); Primary Budget Function (portion of Office of Management and Budget code assigned to document by GAO to indicate activity as a defined area of budgetary concern); Primary Issue Area (assigned by GAO to indicate activity in a defined line of effort); Law Authority (legal authority (law names or numbers, court cases, regulations, administrative or executive orders or decisions, treaties, etc.) cited in document); Signatory (name of GAO Official under whose signature product is released); Requester Information (individual, office, or organization requesting that GAO perform the work resulting in the document); Findings (summary of the findings and conclusions reported in a document); Recommendations to Congress (lists each recommendation made to Congress, congressional committees, or legislative branch agencies); Recommendations to Agencies (lists each recommendation made to any other entity, almost always to Executive Branch/independent

agencies and judicial branch agencies). The data set, perl script, and detailed descriptions of the variables are available from the author.

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