Biased politicians and independent agencies

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Abstract
Some agencies derive legitimacy from their political independence: for example, political meddling in monetary policy is problematic, as politicians favor short-term electoral goals over long-term economic stability. Nevertheless, the process of agency reform, even for agencies that are thought to be independent, is seldom onerous and often follows standard legislative procedures. Furthermore, citizens frequently lack expertise to hold policymakers accountable for new bureaucratic policies. Why then do politicians abstain from exercising influence through agency reform? This article delineates an informational cost to agency reform. In issue areas where politicians are frequently biased and citizens cannot perfectly observe the quality of agency reforms, citizens assume that reforms serve the politicians' self-interest and punish politicians for any reform at all. Agency independence then comes more from informational challenges than from institutional design. This article develops a formal model to explain when agencies are reformed and when they retain their independence.

1. Introduction

Politicians are perceived to be biased in many issue areas, as interest groups or politicians themselves benefit from policies that harm the public. Central banking provides a prominent example: citizens prefer low rates of inflation and stable monetary policies that facilitate economic transactions. At least in the short term, politicians can benefit from monetary expansion, as it increases growth and

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improves electoral prospects (Rogoff, 1985). The time-inconsistent preferences of politicians, preferring expansionary monetary policies in the short term but stable policies in the long term, creates a divergence between politician and citizen preferences. Other areas of potential bias include: regulatory policy, where politicians may benefit from the economic growth facilitated by lax regulation (Aklin and Kern, 2020; Carpenter, 2004); judicial policy, as courts can privilege government supporters or punish political opponents (Firth et al., 2011; Popova, 2010); and electoral institutions, where incumbent politicians may seek to avoid political competition (Bermeo, 2016).

Citizens are likely to be skeptical of political interference in these issue areas where the public interest differs from the interests of politicians. To overcome this bias, policymaking is frequently delegated to independent regulators. Monetary policy again illustrates the idea: central banks are often designed to be politically independent, with fixed tenure for the banker or an inflation or growth mandate (Garriga, 2016; Kern et al., 2020). However, there is little guarantee that the independence of agencies will be respected. If the delegation is made, it may also be taken away (Clark and Arel-Bundock, 2013; Franzese, 1999). US Senator Rand Paul introduces a bill in every legislative session that would audit the central bank.[1] Although the bill would alter the functioning of an independent agency, it only requires approval from the House of Representatives, Senate, and President to become law, like any other piece of legislation.

What prevents politicians from reforming independent agencies and executing their preferred policies? The literature emphasizes fixed costs that are imposed on reversal (Jensen, 1997; Lohmann, 1992), including: audience costs (Alexiadou and Hoepfner, 2020); the size of the political coalition needed for reforms (Baron and Ferejohn, 1989; Gamson, 1961; Groseclose and Snyder, 1996); or institutional constraints on political authority (Bodea and Hicks, 2015; Henisz, 2000; Keefer and Stasavage, 2003; North and Weingast, 1989; Tsebelis, 1995). These arguments have some limitations. Fixed costs are convincing, but they are often assumed; we know little about where the costs come from. Cross-national theories do not explain variation in the independence of agencies within countries. In this article, I introduce a new theoretical obstacle to reforming agencies. Rather than assuming a fixed cost to reform, the cost of reform comes from the information provided by the reform decision.

In the following, I first present a standard principal–agent model, where a representative citizen delegates policymaking to a potentially biased politician. The biased politician's preferences differ from the citizen's preferences, whereas the unbiased politician shares the citizen's preferences. The citizen receives a noisy signal about the bias of the policy and may then remove the politician from office.[2] In equilibrium, unbiased politicians select the optimal policy from the citizen's perspective, and biased politicians select a policy between the optimal policy and their ideal point, balancing re-election interests against bias. The citizen removes the politician if the policy signal is sufficiently biased. I then extend the model to an environment where the politician does not have direct control over the policy. In order to change the policy, he must first reform the agency. Through the reform process, I assume that he can obtain whatever policy he would like. The citizen has

two sources of information in this model; he observes the reform decision and receives the noisy signal about agency (and, thus, policy) bias. Because citizens cannot perfectly observe the bias of politicians or of the agency, they use the reform decision and the signal to discern the biases of the politician and of the reform.

The model thus makes two important assumptions, which depart from conventional models and help motivate the findings. First, the agency is assumed to be independent. In order to alter policy, the policymaker must reform the agency. This seems like a reasonable assumption in issue areas where politicians are likely to be biased, as independent agencies were often granted operating autonomy, owing to concern about the bias of politicians. Second, the reform process has informational implications for citizens that are different from the information drawn from policy outcomes. In the model here, the citizen can gain information from policy outcomes, albeit noisily, and from the reform process. Because policy-making frequently requires highly specialized knowledge (Gailmard and Patty, 2013; Potter, 2019), citizens (especially a representative citizen) are unlikely to understand how exactly the reform will affect them. They are likely to understand that the agency is being reformed though and they observe, with some noise, the policies that result after the reform.

In practice, reforms of independent agencies are likely to be politically salient, raising at least the potential for punishment by voters. Agency heads themselves can raise awareness. Central bankers frequently point out that reforms would violate their independence.[3] Although Rand Paul's proposed central bank reform likely sounds reasonable to a layman, Janet Yellen and Jerome Powell, the former and present Chairs of the Federal Reserve Board, have explicitly and repeatedly said that this sort of political interference would undermine the credibility of the central bank.[4] Because citizens listen to central bankers (Baerg et al., 2019) and bankers point out violations of independence, reforms draw attention. The dual signal in the model opens up the opportunity for citizens to punish and reward politicians not just for policy outcomes but also for their reform decision.

The model shows that when citizens observe reform of a relatively unbiased agency, they are likely to conclude that the politician had acted in an opportunistic way. The biased type of politician has more to gain from this reform than the unbiased type. The citizen then punishes the politician by removing him from office.[5] Because politicians want to retain office, there is a pooling equilibrium, where both the biased and unbiased types refrain from reform. I interpret this equilibrium as necessary for maintaining agency independence. Independent agencies thus deter both the most egregious applications of political bias but also completely unbiased reforms. Agency independence is only possible when reform would be interpreted as serving the politician's interest and thus punished by removal from office; some sort of accountability is therefore necessary to sustain agency independence. The theory presents informational challenges to explain the absence of political interference in independent agencies.

By a similar logic, there is no separating equilibrium where the unbiased politician reforms the independent agency and is rewarded by voters whereas the biased politician does not. In the model, the biased politician would instead mimic the

behavior of the unbiased politician and reform the agency. Reform carries no direct costs, which are assumed and used to sustain agency independence in canonical models (Jensen, 1997; Lohmann, 1992). Without a direct or informational cost, the biased type would also reform the agency and select a biased policy. The full separation of the two types of politician is only possible when the unbiased politician refrains from reform. In the only fully separating equilibrium of this game, the unbiased type refrains from reform and the biased type imposes a biased reform.

There is also an equilibrium outcome where both types of politician reform the agency, and the citizen removes the politician if he does not reform or if the signal is sufficiently biased. This equilibrium is consistent with empirical findings that financial policy is likely to be reformed following crises (Abiad and Mody, 2005). Citizens do not typically trust politicians to intervene in financial policy, but, when outcomes are sufficiently bad, they are willing to defer to politicians, even knowing that they will likely impose a biased policy (as it is still likely better than the status quo). The implementation of biased policies by biased politicians could help explain the cycle of crisis and reform that we observe in many countries (Calomiris and Haber, 2014).

In sum, the theory suggests four main points. First, agency independence can result not only from veto players, but also from an informational cost to reform. This source of agency independence only applies when citizens punish politicians for reforms, which suggests that it is more feasible under representative institutions. Second, agency independence is most likely at intermediate levels of bias. In issue areas or institutions that create substantial bias, independence is unlikely to endure. When bias is small, there is no need for independence. Third, when politicians are biased and the quality of reforms uncertain, it is difficult to reward unbiased politicians for implementing unbiased reforms. This is because biased politicians will mimic the reform action of unbiased politicians, although not the reform content. Finally, although agency independence prevents biased reforms, it also prevents unbiased politicians from implementing reforms that would improve the agency.

2. Related literature

The article contributes to the large literature on firm influence, whether from lobbying (Grossman and Helpman, 2001), the revolving door (Cohen, 1986; Shepherd and You, 2020), or strategic information provision (Perlman, 2019). Pressure from interest groups is a plausible source of bias among politicians. By allowing citizens to derive information from policy changes and agency reforms, the model shows that politicians sometimes abstain from making agency reforms, even when they would like to change policy. The distinction between policy and reform is especially important where voters are not well-informed (Lupia and McCubbins, 1998). If voters are not able to garner much information from the actual policy, they may rely on relatively coarse informational cues such as reform decisions.

Gailmard and Patty (2013) posit an informational logic to bureaucratic delegation. It is only when the bureaucracy has sufficient autonomy and influence over

policy that bureaucrats are willing to invest in the information acquisition necessary to make policy. Here, I take agency information as given and instead exploit differences in information between politicians and voters. The article thus complements an existing literature on informational asymmetries and pubic support for politicians. Canes-Wrone and Shotts (2007) and Canes-Wrone et al. (2001) show that when voters and politicians have different policy preferences, because politicians are better informed, politicians may nevertheless *pander*, or act in ways that are consistent with the voters' perceived interests, even though they are incorrect. The mechanism here also emphasizes accountability in the presence of uncertainty, but stresses the importance of bias as a source of agency independence.

The article corroborates a broader set of findings about how uncertainty affects political constraints. If judicial review is uncertain, politicians may need to adopt more extreme policies in order to differentiate themselves (Fox and Stephenson, 2015). Similarly, politicians may refrain from accepting donations from special interest groups, even if the donations would reveal policy-relevant information, because they fear the signal sent to the public by accepting these donations (Schnakenberg and Turner, 2019). Likewise, politicians may not create independent agencies (Betz, 2018) or fix exchange rates (Milesi-Ferretti, 1995), even when these policies are consistent with their ideology, if they benefit from keeping these issues electorally salient. Perhaps most similarly, both honest and biased politicians spend too little on disaster preparedness, as the biased type gains more from spending so voters believe both types are corrupt when they observe spending (Gailmard and Patty, 2019). Gailmard and Patty (2019) suggest that the creation of 'politically independent auditors' should provide voters with information about the needs for disaster preparedness. The article here builds on a similar logic to better understand when these auditors could retain their political independence. Understanding reform decisions and political independence is tantamount to explaining which institutions, including election rules or central bank independence, will endure.

3. Baseline model

I first introduce a standard principal–agent model of policymaking, where the citizen is the principal who delegates policymaking to his agent, the politician. I then compare this model to a model with endogenous agency reforms. There are three actors in the model: an incumbent politician, a challenging politician, and a representative voter.[6] To motivate politicians with the possibility of being retained, the game includes two stages.

Stage 1

1. Nature selects the bias of the status quo policy, a_0, and whether the incumbent is biased, $\theta \in \{0, \beta\}$. The status quo is common knowledge. The incumbent observes his type; the voter does not.
2. The incumbent selects the bias of the policy, a_1. The voter receives a noisy signal about the policy through its effect on policy outcomes, π.

3. The voter decides whether to retain or remove the incumbent.

Stage 2

1. The incumbent, the same if retained and a new incumbent drawn by nature if removed, selects policy, a_2.

The voter prefers unbiased policies and suffers quadratic loss from departures from his ideal point; his utility function is $-(a_1)^2 + \epsilon - \delta(a_2)^2$, where δ captures the discount factor and a_t is the bias of the policy in stage t. His utility is maximized at $a_t = 0$. The voter's signal of policy bias, $\pi = -(a_1)^2 + \epsilon$, is a function of policy in the first period, a_1, as well as noise, ϵ. ϵ is a random variable drawn from the normal distribution, with probability density function ϕ, cumulative density function Φ, mean zero, and variance σ^2. His signal could be interpreted as coming from policy outcomes.

The politician can be one of two types, biased or unbiased. Nature selects the unbiased incumbent with probability $p \in [0, 1]$ and biased with probability $1 - p$. The politician's objective function is $-(\theta - a_1)^2 - \delta(\theta - a_2)^2$, where $\theta = 0$ for the unbiased politician, who shares the voter's preferences, and $\theta = \beta$ for the biased politician ($\beta \neq 0$). The size of β captures the magnitude of the bias or the extent to which the politician would benefit by deviating from the voter's ideal point. In the following discussion, β is often referred to as the political bias. The citizen knows the game fundamentals but does not observe the realization of θ.

3.1. Solution

The solution concept is perfect Bayesian equilibrium. When indifferent, I assume the citizen retains the incumbent. I solve the game in two steps, first considering the second stage equilibrium play and then turning to play in the first stage.

In the second stage, there is no electoral consequence for implementing a biased policy, as the citizen cannot punish the incumbent. The incumbent of either type thus selects his ideal point. The unbiased incumbent selects $a_2 = 0$, and the biased incumbent selects $a_2 = \beta$. The same logic applies in the model with reform, so the result is presented as a Lemma.

Lemma 1. *In the second stage of the model, the incumbent selects his ideal point with $a_2 = 0$ for the unbiased type and $a_2 = \beta$ for the biased type.*

Although somewhat unsatisfying, as play is obviously repeated many times (especially if term limits are absent or if parties are strong and thus less sensitive to individuals), using a two-period framework is a common strategy in the literature. It can capture dynamic problems such as commitment and time-inconsistency, without having to consider the vast number of equilibria that result in an infinitely repeated game.

In the first stage, the voter updates his beliefs based on the signal he receives and retains the incumbent as long as his signal is sufficiently favorable. The unbiased incumbent selects the unbiased policy, as this is his ideal point and it maximizes the probability of his being retained.[7] The biased incumbent would like

to select his ideal point, which is biased, but he is constrained by his desire to be retained. He thus selects an intermediate policy between his and the voter's ideal points, $\bar{a} \in (0, \beta)$, which is defined in the following. The equilibrium is stated as follows; proofs are given in the online appendix.

Baseline equilibrium. *The unbiased incumbent selects $a_1 = 0$, whereas the biased incumbent selects policy $\bar{a} \in [0, \beta]$, defined by $2(\beta - \bar{a}) - \delta\phi\left(\frac{\bar{a}^2}{2}\right)\bar{a}p\beta^2 = 0$. After observing the signal, the citizen believes the incumbent is unbiased with posterior probability $\bar{p} \equiv \frac{p\phi(\pi)}{p\phi(\pi) + (1-p)\phi(\pi + \bar{a}^2)}$, and he retains the incumbent if $\pi \geqslant \bar{\pi} \equiv -\frac{\bar{a}^2}{2}$.*

4. Model with an independent agency

In this section, I extend the model to incorporate delegation to an agency. The politician must reform the agency to alter the policy. I view the politician's decision to abstain from reform as the defining characteristic of an independent agency.

Stage 1

1. Nature selects the bias of the status quo agency, which determines the policy, a_0, and whether the incumbent is biased, $\theta \in \{0, \beta\}$. The status quo bias is common knowledge. The incumbent observes his type; the voter does not.
2. The incumbent decides whether to reform the agency; if he reforms the agency, he also selects the new agency bias, which determines the policy, a_1. The voter observes the reform decision but does not perfectly observe the policy. If the agency was reformed, the voter receives a noisy signal about the policy through its effect on policy outcomes, π.
3. The voter decides whether to retain or remove the incumbent.

Stage 2

1. The incumbent, the same if retained and a new incumbent drawn by nature if removed, decides whether to reform the agency and, if reforms are made, selects agency and thus also policy bias, a_2.

The actors and objective functions are identical to the baseline model. There is no direct cost to agency reform.[8] However, rather than being able to directly change policy, the politician must reform a bureaucratic agency to change the policy made by that agency. Because biased and unbiased politicians prefer different policies and thus different agency designs, their preferences for agency reform differ. The decision to reform an agency, apart from the citizen's signal of policy bias, can inform the citizen about the bias of the politician.

The model assumes the citizen is aware of agency reforms. The citizen's awareness of reforms likely depends on the issue under consideration. Certain issues, central banking and judicial independence for example, are closely watched, because politicians can gain from tailoring policy to benefit themselves or their supporters

Table 1. Model equilibria.

Parameter space		Citizen strategy	Incumbent strategy
			Separating equilibrium
$-a_0^2$ $-(\beta - a_0)^2$	$> -\delta(1-p)\beta^2$ $\leq -\delta p \beta^2$	Given reform, remove incumbent Given no reform, retain incumbent	Unbiased incumbent no reform Biased incumbent reforms Biased selects $a_1 = \beta$
			Pooling equilibria
$-a_0^2$ $-(\beta - a_0)^2$	$\leq -\delta \Phi\left(-\frac{\bar{a}^2}{2}\right)(1-p)\beta^2$ $\leq -(\beta - \bar{a})^2 - \delta \Phi\left(\frac{\bar{a}^2}{2}\right)p\beta^2$	Given reform, retain if $\pi \geq \bar{\pi}$ Given no reform, retain incumbent	Both types reform Unbiased selects $a_1 = 0$ Biased selects $a_1 = \bar{a}$
$-a_0^2$ $-(\beta - a_0)^2$	$> -\delta(1-p)\beta^2$ $> -\delta p \beta^2$	Given reform, remove incumbent Given no reform, retain incumbent	Both types no reform
All values when $-a_0^2$	(using refinements $\leq -\delta(1-p)\beta^2$)	Given reform, retain if $\pi \geq \bar{\pi}$ Given no reform, remove incumbent	Both types reform Unbiased selects $a_1 = 0$ Biased selects $a_1 = \bar{a}$

Here a_0 is the status quo, a_1 is the first period agency quality, and $\bar{a}$ and $\bar{\pi}$ are defined in the baseline equilibrium.

and from ignoring the public interest. Even many disinterested citizens will note reforms of these agencies.

4.1. Solution

All possible perfect Bayesian equilibria are described in the following. When indifferent, I assume that the citizen retains the incumbent and the incumbent reforms the agency. I omit discussion of the second stage as behavior in equilibrium is described in Lemma 1: both types of incumbent select their ideal point. Equilibrium refinements are used to identify a unique equilibrium for each set of parameter values. Proofs are given in the online appendix. Table 1 summarizes each equilibrium. The first column reports the parameter space when each equilibrium applies; the second and third columns detail the citizen's and incumbent's strategies in the first stage.

   The first equilibrium is fully separating. As in any separating equilibrium, the citizen knows the type of the incumbent with certainty, because the two types take different actions. The citizen can then behave optimally, removing the biased and retaining the unbiased incumbent. As the biased incumbent has already revealed himself, he has no incentive to select a moderate policy and instead selects his ideal point in the first period.

Separating equilibrium. *The unbiased incumbent does not reform. The biased incumbent reforms and selects $a_1 = \beta$. Following reforms, the citizen believes the incumbent is biased and removes him. Following no reform, the citizen believes the incumbent is unbiased and retains him.*

The biased type's ability to misrepresent himself as the unbiased type will drive both types to abstain from reform in the next equilibrium where both types pool on not making reforms. I interpret this equilibrium as sustaining agency independence.

Pooling equilibrium: no reform. *Both incumbent types abstain from reforms. Following no reform, the citizen believes the incumbent is unbiased with probability p and retains the incumbent. Following reform, the citizen believes the incumbent is unbiased with probability less than p and removes the incumbent.*

This is the only equilibrium where the agency retains its independence from political interference when either the biased or the unbiased politician are in office.

There are two possible equilibria where both incumbent types reform the agency. In the first, the citizen removes the incumbent when no reforms are made. Following reform, the two incumbent types and the citizen behave like they did in the baseline model.[9]

Pooling equilibrium: reform with punishment. *Both incumbent types reform. The unbiased type selects $a_1 = 0$; the biased type selects $a_1 = \bar{a}$. After observing the reform and the signal, the citizen believes the incumbent is unbiased with probability $\bar{p}$, and he retains the incumbent if $\pi \geqslant \bar{\pi}$. After observing no reform, the citizen believes the incumbent is unbiased with probability less than p and removes the incumbent.*

This equilibrium exists for all parameter values, but is implausible for some. By analyzing beliefs off-the-equilibrium-path, the refinements help us think rigorously about which equilibrium is likely to apply. The *intuitive criterion* relies on the idea of equilibrium dominance, which eliminates an action for a player if the best possible payoff she could get from taking the action is strictly worse than the payoff she could get by shifting to a different equilibrium (Cho and Kreps, 1987). The *D1* refinement is similar, but it places all the probability on the type that would benefit the most by changing to that outcome, assuming that the other player is playing best responses (see Fudenberg and Tirole, 1991: 446–440). Both refinements produce the efficient separating equilibrium, when it exists, in two-player signaling games.

To sustain the both-reform equilibrium, the citizen must believe the incumbent is biased following no reforms (with probability greater than $1 - p$) to justify removing the incumbent. These beliefs are in some sense strange, as only the unbiased incumbent could possibly benefit from not making reforms. The equilibrium refinements remove such strange equilibria from consideration. Both the intuitive criterion and D1 rule out the both-reform equilibrium when $-a_0^2 > -\delta(1-p)\beta^2$.

Lemma 2. *The both-reform equilibrium fails to pass the intuitive criterion and the D1 refinement for perfect Bayesian equilibrium when $-a_0^2 > -\delta(1-p)\beta^2$. The pooling on no-reform equilibrium or the separating equilibrium are unique for these parameter values.[10]*
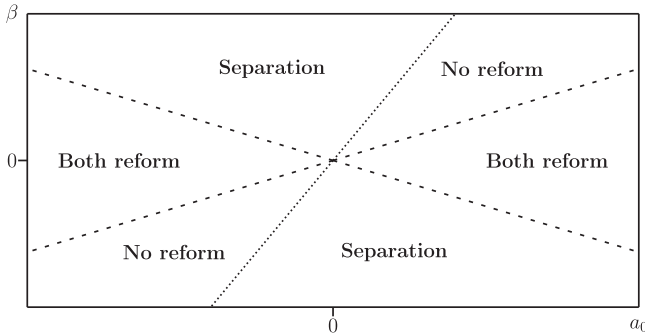
Figure 1. First stage equilibria as a function of the politician's bias, β (y-axis), and the bias of the status quo agency, a_0 (x-axis).

There is a second possible equilibrium where the two incumbent types pool on reform. The difference from above is that the citizen retains the incumbent when no reforms are made.

Pooling equilibrium: reform without punishment. *Both incumbent types reform. The unbiased type selects $a_1 = 0$; the biased type selects $a_1 = \bar{a}$. After observing the reform and the signal, the citizen believes the incumbent is unbiased with probability $\bar{p}$, and he retains the incumbent if $\pi \geqslant \bar{\pi}$. After observing no reform, the citizen believes the incumbent is unbiased with probability greater than p and retains the incumbent.*

5. Comparative statics and empirical predictions

The model has a number of important predictions for the empirical literature, both within and across countries. Figure 1 presents the equilibrium strategies as a function of the status quo agency bias, a_0 (x-axis), and the magnitude of the biased politician's bias, β (y-axis). The dashed line captures the unbiased politician's incentive compatibility constraint, $-a_0^2 = -\delta(1-p)\beta^2$, whereas the dotted line captures the biased politician's incentive compatibility constraint, $-(\beta - a_0)^2 = -\delta p\beta^2$. The following subsections draw out comparative statics for each equilibrium and discuss model implications for supporters of the status quo and for information quality.

5.1. Separating equilibrium

In the unique separating equilibrium, the unbiased type does not reform the agency and the biased type does. There is no separating equilibrium where the unbiased incumbent reforms and the biased incumbent abstains from reform, as the biased incumbent would deviate from his strategy: if the unbiased incumbent reforms, the biased incumbent has a dominant strategy to reform as well, to implement his biased policy and to pretend to be unbiased. The biased type prefers not to identify himself and reforms carry no direct cost.

Proposition 1. *In the only fully informative equilibrium, the unbiased incumbent refrains from reform to signal his type.*

The separating equilibrium is incentive compatible when $-\delta p \beta^2 \geqslant -(\beta - a_0)^2$, for the biased type, and $-a_0^2 \geqslant -\delta(1 - p)\beta^2$, for the unbiased type.

Lemma 3. *The separating equilibrium is more likely as the status quo, a_0, approaches zero; as the bias of the politician, β, increases in magnitude; and as the probability that the incumbent is replaced with an unbiased politician, p, decreases.*

When the status quo is close to zero it is relatively *unbiased* and thus close to the citizen's and the unbiased politician's ideal point. This makes the unbiased type willing to refrain from reforms to signal his type, as retaining the status quo for one period is not terribly costly for him. Conversely, a status quo closer to zero makes the biased type less willing to abstain from reforms, as when the status quo moves closer to zero it also moves further from his ideal point. Similarly, when the bias is larger, the biased type is less willing to wait to secure his preferred policy and is thus willing to separate himself, even knowing that he will be removed from office.

The separating equilibrium is also more likely when the probability that the incumbent is replaced with the unbiased type, p, decreases. The unbiased type is willing to abstain from reforms to ensure that an unbiased incumbent is in office in the second period (himself). The biased type can reform, knowing that the future incumbent, drawn by nature, is more likely to be biased and thus less likely to reverse his biased policies. President Andrew Jackson's refusal to recharter the central bank of the US illustrates the separating equilibrium. The bank had been fairly effective in generating credit, providing stability, and growing the market, but its charter was scheduled to expire in 1836. In this case, maintenance of the status quo required the recharter of the bank, and the status quo was of relatively high quality. We would thus expect that an unbiased politician would want to recharter the bank and a biased politician would prefer to let the charter expire.

Jackson's political priorities were plausibly biased. Federalism in the US privileged American farmers who distrusted banking elites; this created bias against effective banking regulation and financial development. Jackson favored small banks in rural areas, who provided credit to local farmers, over the national interest. The probability that Jackson would be replaced by a biased politician was also relatively high: his favored successor Martin Van Buren secured the Democratic party's nomination, and the opposition Whig party was disorganized.[11] Despite mounting pressure, Jackson ultimately decided not to recharter the bank. His refusal to recharter the bank undermined financial development (Calomiris and Haber, 2014: Chapter 6) and plausibly caused the Panic of 1837, which cost Van Buren a second term.

5.2. Pooling on no reform, agency independence

The only way to support full agency independence is when politicians would be removed from office if they reformed. Otherwise, politicians of both types would gain by reforming.

Proposition 2. *If political bias exists, agency independence, where both types of politician refrain from reform, is only possible when reform is punished by the voter.*

   That agencies only retain their independence when politicians would be punished for reforms is consistent with empirical findings on central bank independence. Independence is credible, and thus results in lower inflation, when political institutions allow citizens to hold politicians accountable through democratic processes (Bodea and Hicks, 2015). This result is separate from results that emphasize constraints on executive authority or veto players, which would be more closely related to theoretical models with fixed costs to reform.

   The pooling on no-reform equilibrium results when the incentive compatibility conditions are met: $-a_0^2 \geqslant -\delta(1-p)\beta^2$ for the unbiased politician and $-(\beta - a_0)^2 \geqslant -\delta p\beta^2$ for the biased politician. The following comparative static is derived from these incentive conditions.

Lemma 4. *Full agency independence is more likely at middling values of status quo agency bias, a_0; political bias, β; and the probability of replacement by an unbiased politician, p. It is also more likely when the discount factor, δ, increases.*

   Intermediate values for status quo bias, political bias, and the probability of a replacement by an unbiased politician make waiting acceptable to both the biased and unbiased incumbents. The unbiased incumbent is willing to refrain from reform when existing agency bias is sufficiently small, political bias is large, and he is likely to be replaced by a biased politician; this makes the existing agency more acceptable and the expected cost of replacement larger. Conversely, the biased incumbent is willing to refrain from reform under the opposite conditions: when agency bias is sufficiently large, political bias is small, and he is unlikely to be replaced by a biased politician; this makes the status quo policy more acceptable to him, and the expected cost of replacement larger. Thus, we should observe higher independence, within countries, among issue areas with middling benefits to political control: not so much that the biased type cannot abstain from reform, but not so little that there is no reason to make the institution independent. There are two common sources of bias: the policy type and the political institutions.

   Some policies may be associated with larger political benefits than others. For example, monetary policy is plausibly at this middling level of political bias (although the benefits of monetary policy control are likely larger when exchange rates are flexible (Clark and Hallerberg, 2000)). Unless economic outcomes are unusually bad (then the both-reform equilibrium would result), politicians generally abstain from reforming central banks in order to prevent voters from assuming that their reform is biased and punishing them. For example, the structure and method of US central banking was laid out in the _Federal Reserve Act_ of 1913. Despite being biased, owing to regional districts that are not proportional to population or economic activity and to concerns about the destabilizing impact of 'too big to fail' financial institutions (Jeong et al., 2008; Moe, 1989; Volcker, 2018), this structure largely remains intact.

   Although the literature has emphasized bias in monetary policymaking, politicians may be even more biased in other areas. Spending, for example, is easily

targeted to supporters, yet we seldom observe independent fiscal agencies. This could be because fiscal bias is so large that independence is not possible. Politicians would frequently reform independent fiscal agencies, violating their independence and signaling their bias to voters. Rather than communicating their bias, politicians frequently retain discretion over fiscal policy as a cabinet function. The model here anticipates that agency independence will be respected only when bias is of intermediate size: sufficiently small that biased politicians abstain from reform and sufficiently large that unbiased politicians do so as well. Although the distinction between fiscal and monetary policy here is admittedly ad hoc, an empirical measure of the political benefit to policy control across issue areas would allow researchers to evaluate this prediction.

Another common source of bias is from political institutions. If political institutions are perfectly representative, citizens expect politicians to carry out their preferred policies and they have little need for policy delegation. If political institutions are perfectly unrepresentative, then politicians need not delegate because they are unresponsive to citizen demands. It is at middling levels of representation, where delegation is attractive. Delegation is supported by citizens to prevent politicians from acting on their biases. The quality of representation may come for example from the size of the politician's selectorate (Bueno de Mesquita et al., 2003), proportionality (Genicot et al., 2019; Rickard, 2012), rural or urban bias (Bates, 1981; Chen and Rodden, 2013), personalism (Carey and Shugart, 1995; Geddes, 2003; Johnson and Wallack, 2012), or democracy (Cheibub et al., 2010; Marshall et al., 2017).

Agency independence is also more likely as the discount factor, δ, increases, as politicians must be willing to refrain from reform in the first period in order to retain office. Discount factors should be larger and thus independent agencies more common in places without term limits or with strong parties, where politicians continue to value performance after their initial term (Besley and Case, 1995; McGillivray, 2004). Discount factors may be lower, and independence less likely, in highly competitive political environments or prior to elections, where politicians need to show results, even if those results come at the expense of their long-term interests (Bernhard et al., 2002; Bernhard and Leblang, 1999).

That this equilibrium is likely to result when status quo and political bias are of middling values shows up in Figure 1, as this equilibrium results near the line: $\beta = a_0$. As the status quo becomes more biased or the biased politician becomes less biased, the both-reform equilibrium is more likely to result, as the two types' preferences begin to converge, and there is less reason for the unbiased type to abstain in order to signal his type (separating equilibrium) or to retain office (pooling on no reform). Alternatively, as the status quo becomes less biased and the biased politician becomes more biased, the separating equilibrium becomes more likely, as the biased politician is less willing to wait for reforms, when his preferences are further from the status quo.

5.3. Pooling on reform

In the both-reform equilibrium, the biased politician selects a somewhat biased policy, balancing his re-election interests against his own bias. This finding is

consistent with the empirical model of Franzese (1999, 2003) where the central bank implements a weighted combination of the banker's and the politician's pre-ferred policies.[12]

For the both-reform equilibrium to result, reform must be incentive compatible for the unbiased politician, which requires, $-a_0^2 \leq -\delta(1 - p)\beta^2$.

Lemma 5. *The both-reform outcome is more likely as the status quo agency, a_0, becomes more biased; as the political bias, β, becomes less biased; as the discount factor, δ decreases; and as the probability of an unbiased politician, p, increases.*

Deviations for the unbiased politician are not profitable, when the initial bias in the institution is so large that he is willing to risk removal in order to reform the institution. He is also willing to risk removal when, if falsely removed, he is likely to be replaced by an unbiased politician or, if replaced by a biased politician, bias is relatively small. Small discount factors (or impatience) also make him more will-ing to take risks to secure a high payoff in the first period, even if it comes at the cost of more bias in the second period.

That reform frequently follows poor economic outcomes, such as crises (Abiad and Mody, 2005; Brooks and Kurtz, 2007; Chwieroth, 2013; Mansfield and Milner, 2018), is consistent with the equilibrium. For example, after the financial crisis of 2008, it became clear that existing economic regulation was insufficient to prevent crisis and that reform was needed. US legislators enacted the *Dodd–Frank Wall Street Reform and Consumer Protection Act*. The act is supposed to improve regula-tion, but concern remains about policy bias resulting from the capture of politicians by the financial industry. Owing to this perceived bias, reforms are only likely when economic outcomes are sufficiently bad. During normal times, incumbents are likely to be punished for reforms. In issue areas where politicians are usually biased (*p* is small), it could create a cycle of biased reform followed by crisis, which then necessitates reform.

5.4. Status quo comparison

Because the status quo agency may generate a set of supporters (Greif and Kingston, 2011; Shepsle, 2008; Weingast et al., 1981), these are individuals who have thrived under the existing agency, it is useful to compare the status quo policy to the outcomes identified in each equilibrium presented previously. Agency inde-pendence in the pooling on no-reform equilibrium is strictly preferred by support-ers of the status quo policy. This is the only equilibrium where the status quo remains in place, regardless of the politician type. Between the separating and the pooling on reform equilibria, preferences are more complicated. The tradeoff between the two equilibria depends on whether accuracy, correctly identifying the bias of the politician, or moderation, encouraging biased politicians to impose a moderate policy, is more valuable. The separating equilibrium is accurate, but not moderate: the two types are identified perfectly in the first period and the citizens are able to retain the unbiased politician. Accuracy is valued by status quo sup-porters when their interests align with citizen interests (the status quo is relatively unbiased) and they value second period payoffs.

The both-reform equilibrium is more moderate but less accurate: the biased politician selects a more moderate policy in the first period, but the citizen only learns about the type of the politician from the policy signal. Moderation is more important for status quo supporters when the status quo is relatively unbiased and they value first period payoffs more. If the status quo is closer to the unbiased politician's ideal point, then status quo supporters value both accuracy and moderation – which they value more depends for example on their discount factor and the accuracy of the signal. If the status quo is closer to the biased politician's ideal point, then status quo supporters do not want accuracy or moderation.

5.5. Information quality

The effect of reducing the quality of the signal, this is an increase in σ, is nuanced. The only equilibrium where the signal provides information is in the pooling on reform equilibrium. Increases in σ, reduce the information that can be gleaned from the signal. The effect of the signal quality depends on the extremeness of the policy selected by the biased politician.

Lemma 6. *If the equilibrium policy selection of the biased incumbent is sufficiently close to zero, then the biased incumbent implements more-biased policies in equilibrium when the signal of regulatory quality becomes less informative. Alternatively, if the equilibrium policy selection of the biased incumbent is sufficiently far from zero, then the biased incumbent implements less-biased policies in equilibrium when the signal of regulatory quality becomes less informative.*

Increasing noise in the signal has two effects: it makes it harder to reward unbiased reforms and also harder to punish biased reforms. To provide some intuition for the result, consider the case where the policy reform is relatively unbiased (close to zero). When the signal becomes less precise, the politician selects a more extreme policy, because it is harder for the citizen to infer anything from his policy choice. Alternatively, if the policy is relatively biased (far from zero), the biased politician moderates his policy to increase his chance of being retained.

It is helpful to distinguish between the voter's knowledge about the bias of the agency and about the bias of the politician. Knowledge about the bias of politicians is necessary to remove corrupt politicians from office (Ashworth and Bueno de Mesquita, 2014). Knowledge about agency bias is necessary to inform preferences for agency reform. The voter gains full information about both in the separating equilibrium: the unbiased politician does not reform and the status quo remains in place (which is known to the voter); the biased politician reforms and creates a biased agency. In the both-reform equilibrium, the voter learns limited information from the signal about both the political and the agency bias. In the no-reform equilibrium, where the agency retains its independence, the voter does not learn about the politician's type. This is the worst equilibrium in terms of developing knowledge about the bias of the politician. However, the voter is fully informed about the agency bias, as the status quo again remains in place. In countries or issue areas with many independent agencies it may be difficult for citizens to connect political

performance to policy and outcomes.[13] This could reduce incentives to become politically active.

6. Conclusion

The article here identifies an informational cost to reforming agencies. The reform decision may help citizens distinguish biased politicians from unbiased politicians. When politicians are frequently biased, citizens expect politicians to erode the quality of the agencies when reforms are made. Citizens observe reform, and they assume the politician and his reforms must be biased. The cost of reform in the model thus comes from the information the reform provides about the type of the politician. The informational cost of reform introduces a new rationale for the continued independence of bureaucratic agencies, even when politicians would benefit from biased policies and they have control over agency reforms. This independence, however, cuts both ways, preventing both biased and unbiased reforms.

The model has several implications. For democratic institutions, legitimacy often comes from accountability and public influence over practices (McCubbins and Schwartz, 1984). However, citizens are often poorly informed about the actions taken by politicians, making it difficult for them to exercise oversight (Lupia, 1992). In the case of many bureaucratic agencies, this informational challenge is made more complicated by diverging interests between citizens and policymakers.[14] Citizens cannot trust politicians to act in the public interest. In these cases, paradoxically, legitimacy comes from the absence of political intervention. This creates a tension between the desire for independence due to political bias alongside the desire for accountability under democratic institutions (Bernstein, 1955; Dietsch, 2020; Tucker, 2018).

The phenomenon presented here does not solely apply to bureaucratic agencies. The same logic would apply to any policy where: the politician is likely biased and citizens are poorly informed. In the United Kingdom, many democratic proceedings follow a long precedent but are not legally codified. If the democratic process becomes ineffective or unrepresentative, from a public interest perspective, it should be reformed. However, reforms may be punished, because it is likely unclear which reforms serve the public's and the politician's interests and, under many conditions, the two diverge. In this instance, modestly biased institutions are likely to endure. The informational cost of reform provides a new rationale for the continued existence of biased institutions, beyond veto players (Bodea and Hicks, 2015; Henisz, 2000; Keefer and Stasavage, 2003; Tsebelis, 1995) and beyond the creation of interest groups who benefit from the institution (Greif and Kingston, 2011; Shepsle, 2008; Weingast et al., 1981).

Declaration of conflicting interests

Funding

Supplemental material

Supplemental material for this article is available online.

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Notes

1. See https://www.marketwatch.com/story/rand-paul-struggling-to-get-vote-on-his-audit-the-fed-measure-blames-central-bank-for-impasse-2018-03-09
2. If the voter observed the policy directly, both types of politician would select the unbiased policy. The voter would punish any deviations.
3. In a democratic system, the political opposition may also point out biased policies (Kono, 2006).
4. See https://www.wsj.com/livecoverage/jerome-powell-federal-reserve-senate-confirmation-2017/card/1511884907 and https://money.cnn.com/2017/07/12/news/economy/yellen-posey-audit-the-fed/index.html
5. The punishment from voters could be reinforced by reduced investment or sovereign credit ratings (Bodea and Hicks, 2018).
6. 'Voter' and 'citizen' are used interchangeably in the following to indicate an actor with the ability to remove the politician form office. Modeling citizens as a representative voter masks interesting variation in citizens' ability to organize effectively, especially under different political institutions. I abstract from that analysis here and instead focus on the policies that are demanded by the representative voter, who has already been selected, given the domestic context.
7. He has no electoral incentive to deviate upwards or downwards, as deviations in either direction are punished by the voter. Recall that the voter receives the signal, $-(a_1)^2 + \epsilon$, and punishes the incumbent when the signal is too low.
8. Incorporating a direct cost would raise the threshold for reforms but would not change the substantive insights from the model.
9. Here $\bar{a}$ and $\bar{p}$ are defined in the baseline equilibrium.
10. Which equilibrium applies depends on the incentive compatibility constraints presented in the following.
11. The Whigs fielded four candidates in the presidential election in 1836, dividing their vote.
12. The regulator shares the citizen's interest in Franzese's conceptualization, which is relaxed here. The existing independent regulator, captured by the status quo policy, can differ from the citizen's and politicians' interests, which could result from agency drift for example. This is discussed in the following.
13. This is similar to the logic of the clarity of responsibility (Powell and Whitten, 1993), but rather than clarity coming from united party control, here it comes from political control of bureaucracy.
14. See Morrow (1994) for a discussion of the combination of information and distribution challenges.

References

Abiad A and Mody A (2005) Financial reform: What shakes it? What shapes it? *American Economic Review* 95(1): 66–88.

Aklin M and Kern A (2020) The side effects of central bank independence. *American Journal of Political Science* (forthcoming).

Alexiadou D and Hoepfner D (2020) Platforms, portfolios, policy: How audience costs affect social welfare policy in multiparty cabinets. *Political Science Research and Methods* 7(3): 393–409.

Ashworth S and Bueno de Mesquita E (2014) Is voter competence good for voters?: Information, rationality, and democratic performance. *American Political Science Review* 108(3): 565–587.

Baerg NR, Duell D and Lowe W (2019) Central bank communication as public opinion? Experimental evidence. *Working Paper*. Available at: https://www.nicolebaerg.com/research/central-bank-communication-public-opinion-experimental-evidence (accessed 3 March 2021).

Baron DP and Ferejohn JA (1989) Bargaining in legislatures. *American Political Science Review* 83(4): 1181–1206.

Bates R (1981) *States and Markets in Tropical Africa: The Political Basis of Agricultural Policy*. Berkeley, CA: University of California Press.

Bermeo N (2016) On democratic backsliding. *Journal of Democracy* 27(1): 5–19.

Bernhard W, Broz JL and Clark WR (2002) The political economy of monetary institutions. *International Organization* 56(4): 693–723.

Bernhard W and Leblang D (1999) Democratic institutions and exchange-rate commitments. *International Organization* 53(1): 71–97.

Bernstein M (1955) *Regulating Business by Independent Commission*. Princeton, NJ: Princeton University Press.

Besley T and Case A (1995) Does electoral accountability affect economic policy choices? Evidence from gubernatorial term limits. *The Quarterly Journal of Economics* 110(3): 769–798.

Betz T (2018) The electoral costs of policy commitments. *Political Science Research and Methods* (forthcoming).

Bodea C and Hicks R (2015) Price stability and central bank independence: Discipline, credibility, and democratic institutions. *International Organization* 69(1): 35–61.

Bodea C and Hicks R (2018) Sovereign credit ratings and central banks: Why do analysts pay attention to institutions? *Economics and Politics* 30(3): 340–365.

Brooks SM and Kurtz MJ (2007) Capital, trade, and the political economies of reform. *American Journal of Political Science* 51(4): 703–720.

Bueno de Mesquita B, Smith A, Siverson RM and Morrow JD (2003) *The Logic of Political Survival*. Cambridge, MA: MIT Press.

Calomiris CW and Haber SH (2014) *Fragile by Design: The Political Origins of Banking Crisis and Scarce Credit*. Princeton, NJ: Princeton University Press.

Canes-Wrone B, Herron MC and Shotts KW (2001) Leadership and pandering: A theory of executive policymaking. *American Journal of Political Science* 45(3): 532–550.

Canes-Wrone B and Shotts KW (2007) When do elections encourage ideological rigidity? *American Political Science Review* 101(2): 273–288.

Carey JM and Shugart MS (1995) Incentives to cultivate a personal vote: A rank ordering of electoral formulas. *Electoral Studies* 14(4): 417–439.

Carpenter DP (2004) Protection without capture: Product approval by a politically responsive, learning regulator. *American Political Science Review* 98(4): 613–631.

Cheibub JA, Gandhi J and Vreeland JR (2010) Democracy and dictatorship revisited. *Public Choice* 143(2–1): 67–101.

Chen J and Rodden J (2013) Unintentional gerrymandering: Political geography and electoral bias in legislatures. *Quarterly Journal of Political Science* 8: 239–269.

Cho IK and Kreps DM (1987) Signaling games and stable equilibria. *The Quarterly Journal of Economics* 102(2): 179–222.

Chwieroth JM (2013) Controlling capital: The International Monetary Fund and transformative incremental change from within international organizations. *New Political Economy* 19(3): 445–469.

Clark WR and Arel-Bundock V (2013) Independent but not indifferent: Partisan bias in monetary policy at the Fed. *Economics and Politics* 25(1): 1–26.

Clark WR and Hallerberg M (2000) Mobile capital, domestic institutions, and electorally induced monetary and fiscal policy. *American Political Science Review* 94(2): 323–346.

Cohen JE (1986) The dynamics of the "revolving door" on the FCC. *American Journal of Political Science* 30(4): 689–708.

Dietsch P (2020) Independent agencies, distribution, and legitimacy: The case of central banks. *American Political Science Review* (forthcoming).

Firth M, Rui OM and Wu W (2011) The effects of political connections and state ownership on corporate litigation in China. *The Journal of Law and Economics* 54(3): 573–607.

Fox J and Stephenson MC (2015) The welfare effects of minority-protective judicial review. *Journal of Theoretical Politics* 27(4): 499–521.

Franzese RJ (1999) Partially independent central banks, politically responsive governments, and inflation. *American Journal of Political Science* 43: 681–706.

Franzese RJ (2003) Multiple hands on the wheel: Empirically modeling partial delegation and shared control of monetary policy in the open and institutionalized economy. *Political Analysis* 11(4): 445–474.

Fudenberg D and Tirole J (1991) *Game Theory*. Boston, MA: MIT Press.

Gailmard S and Patty JW (2013) *Learning While Governing: Expertise and Accountability in the Executive Branch*. Chicago, IL: University of Chicago Press.

Gailmard S and Patty JW (2019) Preventing prevention. *American Journal of Political Science* 63(2): 342–352.

Gamson WA (1961) A theory of coalition formation. *American Sociological Review* 26: 373–382.

Garriga AC (2016) Central bank independence in the world. A new dataset. *International Interactions* (forthcoming).

Geddes B (2003) *Paradigms and Sandcastles: Theory Building and Research Design in Comparative Politics*. Ann Arbor, MI: Univeristy of Michigan Press.

Genicot G, Bouton L and Castanheira M (2019) Electoral systems and inequalities in government interventions. *NBER Working Paper* 25205. Available at: https://www.nber.org/system/files/working_papers/w25205/w25205.pdf (accessed 3 March 2021).

Greif A and Kingston C (2011) Institutions: Rules or equilibria? In: Gonzalo Caballero NS (ed.) *Political Economy of Institutions, Democracy and Voting*. Berlin: Springer-Verlag.

Groseclose T and Snyder JM (1996) Buying supermajorities. *American Political Science Review* 90(2): 303–315.

Grossman GM and Helpman E (2001) *Special Interest Politics*. Cambridge, MA: MIT Press.

Henisz WJ (2000) The institutional environment for economic growth. *Economics and Politics* 12: 1–31.

Jensen H (1997) The credibility of optimal monetary delegation. *American Economic Review* 87: 911–920.

Jeong GH, Miller GJ and Sobel AC (2008) Political compromise and bureaucratic structure: The political origins of the federal reserve system. *The Journal of Law, Economics, and Organization* 25(2): 472–498.

Johnson JW and Wallack JS (2012) Electoral systems and the personal vote. Dataset, Harvard DataVerse. Available online: http://hdl.handle.net/1902.1/17901 (accessed 3 March 2021).

Keefer P and Stasavage D (2003) The limits of delegation: Veto players, central bank independence, and the credibility of monetary policy. *The American Political Science Review* 97(3): 407–423.

Kern A, Reinsberg B and Rau-Göhring M (2020) IMF conditionality and central bank independence. *European Jouranal of Political Economy* (forthcoming).

Kono DY (2006) Optimal obfuscation: Democracy and trade policy transparency. *American Political Science Review* 100(3): 369–384.

Lohmann S (1992) Optimal commitment in monetary policy: Credibility versus flexibility. *American Economic Review* 82: 273–286.

Lupia A (1992) Busy voters, agenda control, and the power of information. *The American Political Science Review* 86(2): 390–403.

Lupia A and McCubbins MD (1998) *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* New York, NY: Cambridge University Press.

Mansfield ED and Milner HV (2018) The domestic politics of preferential trade agreements in hard times. *World Trade Review* 17(3): 371–403.

Marshall MG, Jaggers K and Gurr TR (2017) *Polity IV Project: Political Regime Characteristics and Transitions 1800–2016*. Dataset, Center for Systemic Peace. Available at: http://www.systemicpeace.org/inscrdata.html (accessed 3 March 2021).

McCubbins MD and Schwartz T (1984) Congressional oversight overlooked: Police patrols versus fire alarms. *American Journal of Political Science* 28: 165–179.

McGillivray F (2004) *Privileging Industry: The Comparative Politics of Trade and Industrial Policy*. Princeton, NJ: Princeton University Press.

Milesi-Ferretti GM (1995) The disadvantage of tying their hands: On the political economy of policy commitments. *Economic Journal* 105(433): 1381–1402.

Moe TM (1989) The politics of bureaucratic structure. In: Chubb JE and Peterson PE (eds.) *Can the Government Govern?* Washington, DC: Brookings Institution Press.

Morrow JD (1994) Modeling the forms of international cooperation: Distribution versus information. *International Organization* 48(3): 387–423.

North DC and Weingast B (1989) Constitutions and commitment: The evolution of institutions governing public choice in seventeenth-century England. *Journal of Economic History* 49(4): 803–832.

Perlman RL (2019) For safety or profit? How science serves the strategic interests of private actors. *American Journal of Political Science* (forthcoming).

Popova M (2010) Political competition as an obstacle to judicial independence: Evidence from Russia and Ukraine. *Comparative Political Studies* 43(10): 1202–1229.

Potter RA (2019) *Bending the Rules: Procedural Politicking in the Bureacracy*. Chicago, IL: University of Chicago Press.

Powell GB and Whitten GD (1993) A cross-national analysis of economic voting: Taking account of the political context. *American Journal of Political Science* 37(2): 391–414.

Rickard SJ (2012) Electoral systems, voters' interests and geographic dispersion. *British Journal of Political Science* 42(4): 855–877.

Rogoff K (1985) The optimal degree of commitment to an intermediate monetary target. *Quarterly Journal of Economics* 110: 1169–1190.

Schnakenberg KE and Turner IR (2019) Helping friends or influencing foes: Electoral and policy effects of campaign finance contributions. *American Political Science Review* (forthcoming).

Shepherd ME and You HY (2020) Exit strategy: Career concerns and revolving doors in congress. *American Political Science Review* 114(1): 270–284.

Shepsle KA (2008) Rational choice institutionalism. In: Binder SA, Rhodes RAW and Rockman BA (eds.) *The Oxford Handbook of Political Institutions*. Oxford: Oxford Handbooks Online.

Tsebelis G (1995) Decision making in political systems: Veto players in presidentialism, parliamentarism, multicameralism and multipartyism. *British Journal of Political Science* 25(3): 289–325.

Tucker P (2018) *Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State*. Princeton, NJ: Princeton University Press.

Volcker P (2018) *Keeping At It: The Quest for Sound Money and Good Government*. New York, NY: Public Affairs.

Weingast BA, Shepsle KA and Johnsen C (1981) The political economy of benefits and costs: A neoclassical approach to distributive politics. *Journal of Political Economy* 89(4): 642–664.