

Does Unbundling Policy Authority Improve Accountability?

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Abstract

We develop a model to analyze the effects of complexity of policy areas on the desirability of bundling or unbundling policy-making authority. We find that bundling tends to increase political accountability when the complexities of bundled policy areas are sufficiently symmetric and decrease it when the complexities are sufficiently asymmetric. When bundling is beneficial, its advantage comes from the possibility of sustaining in equilibrium a mechanism that makes greater investment into policy in multiple issue areas a form of insurance purchase for the office holder. The appeal of such insurance purchases and the edge they give to bundling persist in the presence of the possibility of policy capture by special interests, upending the conventional wisdom.

Keywords: Political accountability, authority unbundling, task complexity, policy capture, multitask

Short title for the running header: Unbundling Authority and Political Accountability

An online appendix with supplementary material is available at

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Political accountability hinges on the ability of political principals to make their preferences over the policy choices matter for how those choices are made. In the context of electoral representation, this is typically understood to presuppose an opportunity for voters to let their judgement on the performance of the public officials decide whether to return them to office or replace them, which, in turn, disciplines the officials' policy choices. But unless moments of accountability are so frequent as to render the idea of representation meaningless, the democratic ideal, and the idea of accountable representation more generally, run into a key structural problem: the number of policy choices representatives make, as a rule, exceeds the number of opportunities available to political principals to hold the representatives to account. As Manin et al. (1999) put it in the context of electoral accountability, "Elections are inherently a blunt instrument of control: voters have only one decision to make with regard to the entire package of government policies... One cannot control a thousand targets with one instrument."

At the level of institutional design, the one policy/one vote intuition points in favor of unbundling policy authority as an institutional arrangement that allows for the finer tailoring of agents' incentives and ameliorates agency problems, including the susceptibility to capture by special interests (Besley and Coate, 2003; Berry and Gersen, 2008). This intuition is behind the institutional reforms (dating back at least to the Progressive era's critique of democratic governance in the U.S.) that have sought to unbundle policy authority at different levels of government and that have given rise to considerable variation in the bundles of policy-making authority held by different elected officials at the state and local levels. While in some jurisdictions, voters elect a single executive charged with administering a bundle of policies across different issue dimensions, in others, they elect several officials, each for a distinct subset of the policy area.¹ To take one of the starkest examples of

¹Following Berry and Gersen (2008), we refer, throughout, to the relevant institutions as *bundling* and *unbundling*.

this variation: the Governor is the single elected state-level executive in Maine and New Hampshire, but is one of nine in South Carolina and Washington; the average across all states is over a half of that range.²

In the context of electoral representation, the trend, at least in the U.S., is generally in favor of unbundling policy authority, and the idea has received support in recent discussions of constitutional design (Besley and Coate, 2003; Marshall, 2006; Berry and Gersen, 2008; Gersen, 2010). Outside of the electoral context, we see many examples of the attempts to unbundle policy authority as well, but the general trend is less clear, suggesting that where jurisdictional boundaries are more malleable, the desirability of (un)bundling policy authority may be perceived as more contingent. The authority granted to individual members of government cabinets often expands and narrows across time and with different office holders;³ the policy authority over a given area may be assigned to an existing or to a newly created agency (Ting, 2002; O’Connell, 2006; Biber, 2009).⁴

The strong intuition behind the one policy/one vote idea and the empirical ubiquity of practices of bundling and unbundling policy authority suggest the value of considering the robustness of that intuition in strategic political agency settings.⁵ Does it hold universally across settings with distinct policy-making environments? If not, where does it break down

²Separately elected positions in various states include the Governor and Lieutenant Governor, Attorney General, Secretary of State, Secretary of the Treasury, Comptroller General, Agriculture Commissioner, Insurance Commissioner, Superintendent of Education, and others.

³In many parliamentary democracies, this phenomenon is the rule, rather than the exception; major authority domain reshuffles in the UK and Israeli government cabinets after their respective 2015 parliamentary elections provide recent examples. A related phenomenon can be observed in presidential democracies, such as the U.S., where the office of the President often usurps from and, less often, returns policy control over particular issue areas to cabinet members. Some of the best known examples here include the appointment of policy “tzars” within the office of the President, with ultimate control over, e.g., the drug policy, bailout of the auto industry, the prosecution of foreign policy with respect to Afghanistan and Pakistan, etc.

⁴The cases in point include the accretion of authority over policy areas by the U.S. Food and Drug Administration; the separation of the border control and immigration services in the U.S. following the re-organization of the U.S. Immigration and Naturalization Service; and the creation of the U.S. Fish and Wildlife Service alongside the U.S. Forest Service.

⁵Yet, despite that ubiquity, and the burgeoning political economy scholarship on accountability, the incentive effects associated with (un-)bundled authority have, with few exceptions we discuss in the next Section, received little attention.

and why?

We develop a career-concerns model of political accountability that focuses on the implications of a feature of policy-making environments that we believe is particularly relevant for analyzing the welfare consequences of policy (un-)bundling: the complexity/difficulty of tasks entailed in managing distinct policy areas (*policy-area complexity*). Policy-area complexity affects the likelihood of successes or failures in the corresponding areas: a decline in high schoolers' performance on standardized tests in the state; a reversal in the growth in the city's murder rate; a successful implementation of a healthcare reform that meets the goal articulated by the government leader; a military incursion that stamps out an insurgency; a major terrorist attack; an advent of economic recession; city pollution levels reaching levels hazardous to residents' health, etc. The prior likelihood of these successes or failures may depend on how hard it is to find the right type of office holder to hold authority over the corresponding policy area: an area for which the right type is hard to find is, in expectation, less likely to see successes than an area for which finding the right type is easy. It may also depend on the specific details of the policy setting facing the office holder: some problems are just harder – less likely to yield a success – than others, even if you have the right type.⁶ A further determinant is institutional: a robust system of inter-branch checks and balances in a polarized ideological environment may make effective policy more difficult even with respect to policy problems universally perceived as increasingly pressing (Gordon and Landa, Forthcoming).

One of the primary contributions of our analysis is in showing how policy-area complexity affects strategic incentives, and ultimately accountability, with multi-task political agency. The one policy area/one vote intuition is right when complexity is sufficiently asymmetric

⁶These two aspects of task complexity correspond to two prominent interpretations of this concept in the existing literature, originating in the seminal discussion in March and Simon (1958) and further developed in the subsequent literature on political economy of organizations and firms, e.g., Campbell (1988); Garicano and Wu (2012).

across the different policy areas assigned to the incumbent. But that intuition is wrong when complexity is sufficiently symmetric across those policy areas, for reasons of selection when the complexities are relatively low and for reasons of incentives and selection when the complexities are relatively high. To focus on the latter case, a key (partial) intuition is that when that is the case, political principals will especially benefit from retention rules that keep incumbents in office for evidence of successes in some areas while forgiving their failures in others. This helps sustain incentives for greater investment by office-holders as a form of insurance purchase: because success in some policy areas may compensate for failure in others, it encourages the office holders to "buy-up" their chances of reelection by striving harder in multiple mutually compensating policy areas – indeed, harder than they would if they had authority over a single policy area. In short, when policy complexity is sufficiently symmetric and relatively high, bundling authority across policy areas can give the political principals greater effective power over their agents.

The identification of the insurance mechanism with greater accountability has a striking implication. The incentive to insure against failure by investing into multiple policy areas is sustainable when political principals make seemingly less demanding retention decisions – in other words, when they appear to be willing to forgive some policy failures. At first glance, agent retention decisions conforming to this pattern appear to buttress the one-policy/one vote intuition and even point to failures or weaknesses of political accountability – a key normative concern raised in the studies of economic voting (Anderson, 2007; Kayser, 2014; Paldam, 1991). The equilibrium incentives of bundling we identify suggest, however, that such an inference may be unwarranted.

The second key contribution of our analysis is characterizing and exploring the boundaries of the insurance mechanism in multi-task political agency settings. The one policy/one vote intuition behind unbundling is intact when the complexities of the distinct policy areas are substantially different – under those conditions, investing into more than one policy area is

suboptimal for the agents. But when the complexities of the bundled areas are relatively high, the insurance mechanism in favor of bundling those areas kicks in, and remains robust in the presence of special-interest lobbying (explored in the paper in an extension of the baseline model), as well as with greater transparency of the policy-making environment and with spillovers across tasks (variations on our baseline setting explored in the Appendix).

Connection to the Literature

The model we analyze contributes to the tradition of game-theoretic studies of political accountability. Within that tradition, our analysis relates to several overlapping literatures: on the incentives of politicians with career concerns, on political accountability in settings with multiple tasks, and on policy capture by special interests.

Following the classic career concerns set-up (Holmström, 1999), we analyze the environment with symmetric uncertainty about agents' type.⁷ We model a policy outcome technology with type-effort complementarities, which generates multiple equilibria with distinct levels of welfare (Dewatripont, Jewitt and Tirole, 1999; Ashworth, Bueno de Mesquita and Friedenber, 2017).

The literature on multitask incentives in political economy settings includes, *inter alia* Almendares and Le Bihan (2015); Bueno de Mesquita and Landa (2015); Le Bihan (2016); Besley and Coate (2003) and Ashworth and Bueno de Mesquita (2017). Of these models, Besley and Coate (2003) and Ashworth and Bueno de Mesquita (2017) focus on welfare properties of (un-)bundling and are closest to our model.⁸

⁷Political accountability models of politicians with career concerns include Ashworth and Bueno de Mesquita (2006); Lohmann (1998); Persson and Tabellini (2000). The alternative approach to modeling the effects of payoff-relevant type heterogeneity is with signaling (asymmetric uncertainty) models, such as Besley (2006); Canes-Wrone, Herron and Shotts (2001); Daley and Snowberg (2011); Fox and Shotts (2009); Gordon and Landa (2009); Maskin and Tirole (2004); Prato and Strulovici (2016).

⁸More distantly related are Ting (2002), which studies the allocation of tasks to bureaucratic agencies in a pure moral hazard contract-theoretic framework, and Bueno de Mesquita and Landa (2015), which analyzes the time-inconsistency facing the principal in a dynamic oversight setting, also in a pure moral

Besley and Coate (2003) consider a citizen-candidate model and show that under bundling, regulatory issues are more likely to be captured by stakeholder interests than under unbundling. As in the Besley and Coate model, unbundling in our model may better protect the Principal from the influence of interest groups. However, we show that this conclusion, and the broader intuitive argument in favor of unbundling it captures, do not generalize as one might have expected. First, even in the case of action observability and full policy control, bundling may give the Principal a higher welfare than unbundling, due to the improved capacity to select high competence agents under bundling. Second, the intuitive argument in favor of unbundling is not robust to the considerations of task complexity. As our analysis makes clear, when the task complexities on both dimensions are moderate, bundling may dominate unbundling in both incentives and selection under the moderate retention rule.⁹

Ashworth and Bueno de Mesquita (2017) also study the welfare consequences of (un-)bundling and find the advantage of unbundling to be limited, but focus on a different source of exogenous variation than we do: in how politician’s competence is correlated across tasks and in how voters value each task. The comparison of our models shows different underlying mechanisms and points to the relevance of the distinct exogenous dimensions analyzed in these models: our prediction of the improvement in selection due to higher effort will require high enough competence correlation across tasks, and their prediction of higher effort under bundling will need sufficiently symmetric task complexity. But the comparison also suggests a robust synthetic conclusion with which our respective results are broadly coherent: bundling is most attractive when the policy areas are sufficiently symmetric with respect to the underlying parameters; sufficiently great asymmetries exacerbate agency problems under

hazard setting.

⁹Hatfield and Padro i Miquel (2006) reach a conclusion about the lower power of incentives under bundling – reinforcing the Besley and Coate view – albeit in a setting with an explicit effort choice by the agents, additive policy outcome production technology, and modeling costs of effort as substitutes under bundling but not under unbundling. We are agnostic about the assumptions on the interactions between costs. Holding fixed the cost of effort technology across the two institutions would generate in their setting results consistent with those we present in this paper.

bundling, lowering its relative appeal.¹⁰

In the extension of our baseline model, we consider a version of a policy-buying framework developed by Grossman and Helpman (2001), and a version of a career-concerns accountability setting with action-transparency. While the formal literature on policy capture is extensive (e.g. Grossman and Helpman, 2001; Gordon and Hafer, 2007; Snyder and Ting, 2008), it has, with the exception of Besley and Coate (2003) not focused on incentives due to multi-task, or the robustness of policy-making against capture under institutional environments varying the extent of policy authority bundling.

The Model

We model an interaction between a Principal¹¹ and one or two Agents.¹² There are two tasks, a_1 , and a_2 . We consider two institutions. In the first one, called *bundling*, a single Agent (denoted A) is responsible for both tasks.¹³ In the second institution, which we call *unbundling*, there are two Agents (denoted A_1 and A_2 respectively) each responsible for one of the two tasks. On each of these two tasks the responsible Agent can choose whether to exert effort. We denote $a_i = 0$ the choice of the Agent not to exert effort on task $i = 1, 2$, and $a_i = 1$ the choice to exert effort.¹⁴

The outcome on task i , $o_i \in \{s, f\}$, where s stands for *success* and f for *failure*, depends stochastically on the effort choice a_i and on the competence of the Agent responsible for

¹⁰Also related is a paper by Buisseret (2016) who compares an institutional setting in which voters elect the agenda setter and the veto player in separate elections to a setting in which voters jointly elect both decision makers and shows that voter welfare may be improved under joint appointment.

¹¹Depending on the application the Principal may be thought of as the electorate, a Prime Minister or a President.

¹²In an extension below, we introduce another actor, an interest group seeking to effect a policy opposed to the Principal's preferences.

¹³Throughout, we refer to the Agent as being responsible for a policy task, field, or area interchangeably.

¹⁴The graft-choice model of agency in which the amount of the budget not spent on graft enters as an input into the policy success function instead of effort level, as in the present model, generates equivalent results.

task i .¹⁵ Specifically, we assume that each Agent can be of one of two types $\theta \in \{\theta_L, \theta_H\}$ with $Pr(\theta = \theta_H) = \pi \in (0, 1)$. If the Agent chooses to exert effort on task i , i.e. chooses $a_i = 1$, then the probability of success is p_i^L if the Agent is of low competence θ_L , and p_i^H if the Agent is of high competence θ_H with $0 < p_i^L < p_i^H \leq 1$. Further, if the Agent chooses not to exert any effort, then the probability of success is 0 independent of his type.

We adopt a career-concerns framework and assume that the competence of each Agent is not observed by any of the actors ex ante. The distribution of types is commonly known, however. It follows that the ex ante probability of success from choosing $a_i = 1$ is $\pi p_i^H + (1 - \pi)p_i^L =: p_i$. We interpret p_i as representing the difficulty, or, consistent with the usage in the literature on political economy and public administration of organizations, *complexity of the task i* . It is immediate that the lower p_i , the less control the Agent has over success or failure on policy task i .¹⁶ Note that in this setting there is complementarity between effort and competence in the sense that the Principal learns more about the competence of the Agent when the Agent exerts effort than when he does not. Indeed, if the Agent does not exert effort, the outcome will be failure independent of the type of the Agent and will thus be uninformative about the type of the Agent.

We assume that the Principal observes the outcome of the Agent(s)'s actions on each task but not the actions themselves. This assumption is particularly plausible in the applications of the model to the agency relationship between voters and the elected executives, where it is consistent with the standard empirical descriptions of limited knowledge of incumbents' choices by the voters.¹⁷

¹⁵We show the robustness of our results to assuming effort continuity in the Appendix. The empirical plausibility of the assumption of binary-valued outcomes rests on two considerations. First, the outcomes of some – though, of course, not all – important policy tasks are clearly discrete. But second, even with respect to continuous-valued policy outcomes, political principals, especially voters, are often operating with little knowledge, are relatively insensitive to details of policy outcomes, and rely on categorical evaluations supplied by others, e.g., candidates' political campaigns (see e.g. Carpini and Keeter, 1997).

¹⁶We comment further on the interpretation of task complexity below.

¹⁷In the Appendix, we show that our main results are robust to the possibility of the actions taken by the Agent being transparent to the Principal. This possibility may be particularly relevant to settings in which

Upon observing the outcomes o_1 and o_2 , the Principal makes her retention decision(s). Under bundling, the Principal chooses whether to retain the single Agent, whereas under unbundling, the Principal chooses whether to retain each Agent A_i separately. If the Principal dismisses an Agent, then the replacement is of high competence with probability π . To summarize, the order of play is as follows:

1. Under bundling the Agent chooses to exert effort or not on each task i , i.e. the Agent chooses $(a_1, a_2) \in \{(0, 0), (0, 1), (1, 0), (1, 1)\}$. Under unbundling, each Agent A_i chooses whether to exert effort on task i , i.e. chooses $a_i \in \{0, 1\}$.
2. Nature chooses the competence $\theta \in \{\theta_L, \theta_H\}$ of each Agent and the outcomes $o_i \in \{s, f\}, i = 1, 2$.
3. The Principal observes the outcomes o_1 and o_2 and subsequently chooses whether to retain the Agent under bundling and each Agent A_i separately under unbundling.

The Principal prefers success on each task and receives payoff $u_P(o_i = s) > 0$ from success on task i and 0 from failure. The Principal receives an additional payoff of $R > 0$ for each task i for retaining an Agent of high competence.¹⁸ As a consequence, the Principal only retains an Agent if the Principal believes, upon observing the policy outcome(s), that this Agent is of type θ_H with probability superior or equal to π .¹⁹

Agents value retention and prefer to avoid effort. More specifically: under bundling, the Agent receives an additional payoff of $B > 0$ when retained and a payoff of zero when dismissed from office. Similarly, under unbundling, each Agent A_i receives an additional payoff of B_i when retained and a payoff of zero when dismissed. In the interest of comparison

the Principal is the head of government, and the Agent(s) is a minister or the head of an executive agency.

¹⁸This additional payoff may be thought of as the value added to the Principal of having in office a high type, which, in a more general model may be derived from an explicitly modeled continuation game.

¹⁹Thus, we abstract away from the possibility of primitive heterogeneous valuation of tasks by the Principal, as in Ashworth and Bueno de Mesquita (2017); the differences in the Principal's responsiveness to tasks in our model are induced entirely by the expectations of the Agent(s)'s choices.

and to focus on the institutional effects, we assume throughout that $B_1 + B_2 = B$.²⁰ Let $k > 0$ be the cost to the Agent of choosing to exert effort, i.e. $a_i = 1$. The costs are additively separable, i.e. the Agent incurs cost $2k$ under bundling when choosing to exert effort on both tasks, i.e. $(a_1 = 1, a_2 = 1)$.²¹

A note on interpretation. It is immediate from the definition of p_i that low complexity of task i may naturally correspond to two distinct possibilities:

- (a) both p_i^L and p_i^H are high; or
- (b) p_i^H is high while p_i^L is low, and π is high.

Similarly, high complexity of task i naturally corresponds to

- (a) both p_i^L and p_i^H are low; or
- (b) p_i^H is high while p_i^L is low, and π is low.

Interpretively, task complexity as described by (a) may be thought of as a function of “objective task characteristics”: the task is hard for everyone or easy for everyone, and while the performer’s competence is relevant to success, the outcome is driven primarily by the features of the task itself.²² In contrast, (b) corresponds to the account of task complexity in which “tasks are more or less complex relative to the capabilities of the individual who performs the task” (Campbell, 1988, 41)²³. A high complexity task is one in which the high competence agent may do considerably better than the low competence agent, but the high

²⁰To keep the presentation simple, we assume that the pair (B_1, B_2) is exogenous. As the discussion below makes clear, however, our results are robust to assuming that the Principal allocates the values of holding office B_1 and B_2 optimally under unbundling.

²¹In the Appendix, we extend the model to settings with interactions between tasks. The general thrust of the results goes through so long as the substitution between tasks is not too strong.

²²In the context of the political economy of organizations, March and Simon (1958, 139-152) include, as examples of such objective characteristics, the prominence or obscurity of alternatives available to the agent, the knowledge (or lack thereof) of means-ends connections, independent factorability (or not) of subtasks, etc.

²³See also March and Simon (1958, 55)

competence agents are hard to come by. As an example, consider the tasks facing the tax collecting agency and the education department in a Western industrialized country – tasks or policies that are, in a number of jurisdictions, assigned to independently elected officials. A moderately competent bureaucrat at the head of the tax collecting agency is likely to have a high probability of success (assuming that success is conventionally measured). In contrast, highly competent education chiefs have been known to do significantly better than average, but are notoriously hard to identify.²⁴

A somewhat different interpretation of task complexity can be given by relating it to features of political institutions rather than to features of specific policy areas. Institutional settings with extensive checks and balances for different branches of government that are controlled by different political parties create special challenges for successful policy-making that are absent in settings with strong, relatively unchecked, executives.²⁵ The effect of these institutional details further depends on the ideological landscape. Holding fixed the institutional details and unified or divided party control, when ideological polarization is relatively low, governors and other elected state executives will be more successful in accomplishing policy goals – if necessary, by finding workable compromises – than when they are facing hostile uncompromising legislatures, with preferences far removed from their own. When there is a divided party control over mutually checking branches of government, ideological polarization has, arguably, an effect of a relatively symmetric increase in complexity (a decrease in the likelihood of successful policy-making) across dimensions (making p_i and p_j

²⁴Note that this notion of task, or policy area, complexity is distinct from what the political science and public policy literature refers to as the *complexity of policy*, which is understood to correspond to such factors as length of statutes, the (non)-uniformity of standards they provide, the number of indicators distinguishing mandated actions, etc.

²⁵Examples of key institutional determinants here, on which in the U.S. there is considerable variation at the state level, include constitutionally defined budgetary authority (e.g., historically very high in New Jersey and Maryland and low in Texas and South Carolina) as well as the extent to which the legislature is professionalized and has its own extensive full-time partisan policy staff, etc. (with California, New York, and Michigan at the high end of the spectrum, and Vermont, Oregon, and, until recently, New Jersey at the low end). See Rosenthal (2012, Chapter 2) and Kousser and Phillips (2012, Chapters 5 and 8).

similar and low and the expected difference $p^H - p^L$ small across tasks i, j) – in contrast to the more asymmetric and heterogeneous effects on policy-making success that are likely to characterize less polarized environments. While this suggests a determinant of complexity that is not specific to policy areas, we may think of it as affecting the baseline level of task complexity facing the officials, in either (a) or (b) frameworks discussed above.

Finally, note that we are assuming that an agent's competence is perfectly transportable across policy areas: the agent who is a high (low) type with respect to one policy area is a high (low) type with respect to the other, as well. As a description of reality, this assumption is, surely, not warranted everywhere, but it is plausible in a range of important contexts (and further, our key results are robust to allowing a wedge between the area-specific competences, so long as it is not too great). A primary determinant of competence we have in mind is agents' managerial abilities and judgment, rather than field expertise. A high type of state attorney general is, in this sense, not dissimilar from a high type of state governor or another high-ranking state official, and a competent minister of foreign affairs would make an equally competent chancellor of the exchequer. The tasks that such bureaucrats are expected to perform entail directing institutional effort, which may present different kinds and degrees of challenge within different bureaucracies, but need not require inconsistent competences.

We next turn to analyzing the equilibria in the two institutional environments, restricting attention to pure strategy Perfect Bayesian equilibria in weakly undominated strategies.

Unbundling

If the Principal expects Agent A_i to exert effort with positive probability, then, in equilibrium, given that success is a signal of high competence and failure a signal of low competence, she should retain upon observing success and dismiss upon observing failure. The incentive

effects are maximized with the same rule. Given the rule, the expected payoff to Agent A_i of choosing to exert effort, is $p_i B_i - k$, and so the strategy profile under which Agent A_i chooses to exert effort and is retained if, and only if, the Principal observes success on task i is consistent with equilibrium play if, and only if, $p_i B_i - k \geq 0$. It follows that given values of the cost of effort k and the overall value of holding office B , there exists a feasible pair (B_1, B_2) such that both Agents exert effort if, and only if, $B \geq \frac{k}{p_1} + \frac{k}{p_2}$ which is equivalent to $p_1 \geq \frac{p_2 k}{p_2 B - k}$. Figure 1(a) below shows the highest levels of effort by the Agents that can be sustained in equilibrium under unbundling as a function of the probabilities of success p_1 , and p_2 , setting $B = 1$, $k = .125$.

Before proceeding with the analysis of behavior under bundling, we pause to point to two ways in which unbundling may fall short as an institution, both related to the fact that it limits the scope of the interaction between the Agents and the Principal. For the Agents, the effect of unbundling is to hinge everything on the success or failure on the single task that is assigned to them, with no other opportunity to convince the Principal of their respective competences – in contrast to bundling, where the Agent has another chance for making that case. In terms of the incentive effects, this means that, under unbundling, the benefits of one office cannot affect the actions in the other. As we will see in the next section, under bundling, the probability of success with respect to one task may affect the incentives to invest effort in another (and do so for reasons of best-response play, rather than of primitively assumed externalities between tasks). This contrasting feature is a double-edged sword: it may strengthen the maximal incentives that can be given to the Agent under bundling, or weaken them, depending on the underlying profile of policy-area complexities. To put this differently, compared to the above feasibility constraint under unbundling, the corresponding constraint under bundling may be slacker or tighter.

Second, even setting aside the differences in incentives facing the Agents, unbundling limits the ability of the Principal to learn about the Agents by forcing the Principal to live

with at most one signal each, in contrast to the two signals she could get under bundling. Of course, being able to get those signals requires that the Principal successfully solves the incentive problem for the Agent, which will depend on the profile of policy-area complexities.

Bundling

We begin our analysis of the equilibrium behavior in the baseline model of bundling by defining distinct retention rules for the Principal that play a central role in our analysis. We will say that the Principal uses the *strict retention rule* when she retains the Agent if, and only if, he is successful on both tasks and that the Principal uses the *moderate retention rule* when she retains the Agent if, and only if, he is successful on at least one task.²⁶

The appeal of the strict retention rule is that it may induce the Agent to invest effort into both tasks where other rules would not. Intuitively, if the complexity of task i is low, and investment into it is highly likely to yield a success, then the Agent who expects the Principal to be using the moderate retention rule may be better off gambling on that success than investing also into task j . The obvious downside of the strict rule is that it may be too strict – if the probability of success for one (or both) of the tasks is quite low, the strict retention rule may discourage investment into either. The moderate retention rule increases the expected utility to the Agent of trying and sometimes failing: relative to the strict rule, the expected utility of exerting effort on both tasks increases from $p_1 p_2 B - 2k$

²⁶Another possible rule is to retain the Agent if, and only if, the Agent is successful on a single given task (the *i^{th} -task retention rule*), but strategy profiles that incorporate such rules cannot constitute robust equilibria. To see why, first note that if the moderate retention rule sustains effort in both tasks, then it weakly dominates an i^{th} -task retention rule. If effort on both tasks cannot be sustained, the moderate retention rule will weakly dominate the i^{th} -task rule so long as incentives and selection point in the same direction. When they do not, the moderate retention rule may not weakly dominate the i^{th} -task retention rule (only) if the latter requires the Agent to invest effort into a more complex task. However, when that is the case, the i^{th} -task rule will not be robust. To see this, note that if the Agent were to deviate by exerting effort on the less complex task, the only inference available to the Principal is that the Agent chose to exert effort on that task. Once the Principal updates accordingly, it is no longer rational for her to follow the i^{th} -task rule. With the conjunction of weak dominance and this argument, we restrict attention to the equilibria with moderate or strict rules.

to $(p_1p_2 + p_1(1 - p_2) + (1 - p_1)p_2)B - 2k$, while the expected utility of exerting effort only on task i increases from $-k$ to $p_iB - k$. Consequently, the moderate retention rule can incentivize the Agent to exert effort on both tasks for probabilities of success that would be too low (complexities of the corresponding tasks too high) under the strict rule. For the latter probabilities of success, then, the moderate retention rule provides a kind of *insurance* for the Agent. Exerting effort on task j on top of exerting effort on task i , gives the Agent “a second chance” at being retained. When failure on task i is not unlikely, and the chances of being successful on task j are sufficiently high, the Agent has incentives to pay the cost of effort to get this second chance.

However, the moderate rule provides inferior incentives when the complexity of at least one of the tasks drops sufficiently far (i.e., if either p_1 or p_2 is sufficiently high). Indeed, for the Agent to best-respond to the moderate retention rule by exerting effort on both tasks rather than on a single one, it must be the case that

$$(p_1p_2 + p_1(1 - p_2) + (1 - p_1)p_2)B - 2k \geq p_iB - k \tag{1}$$

for all $i = 1, 2$, or, equivalently,

$$p_j(1 - p_i)B - k \geq 0 \tag{2}$$

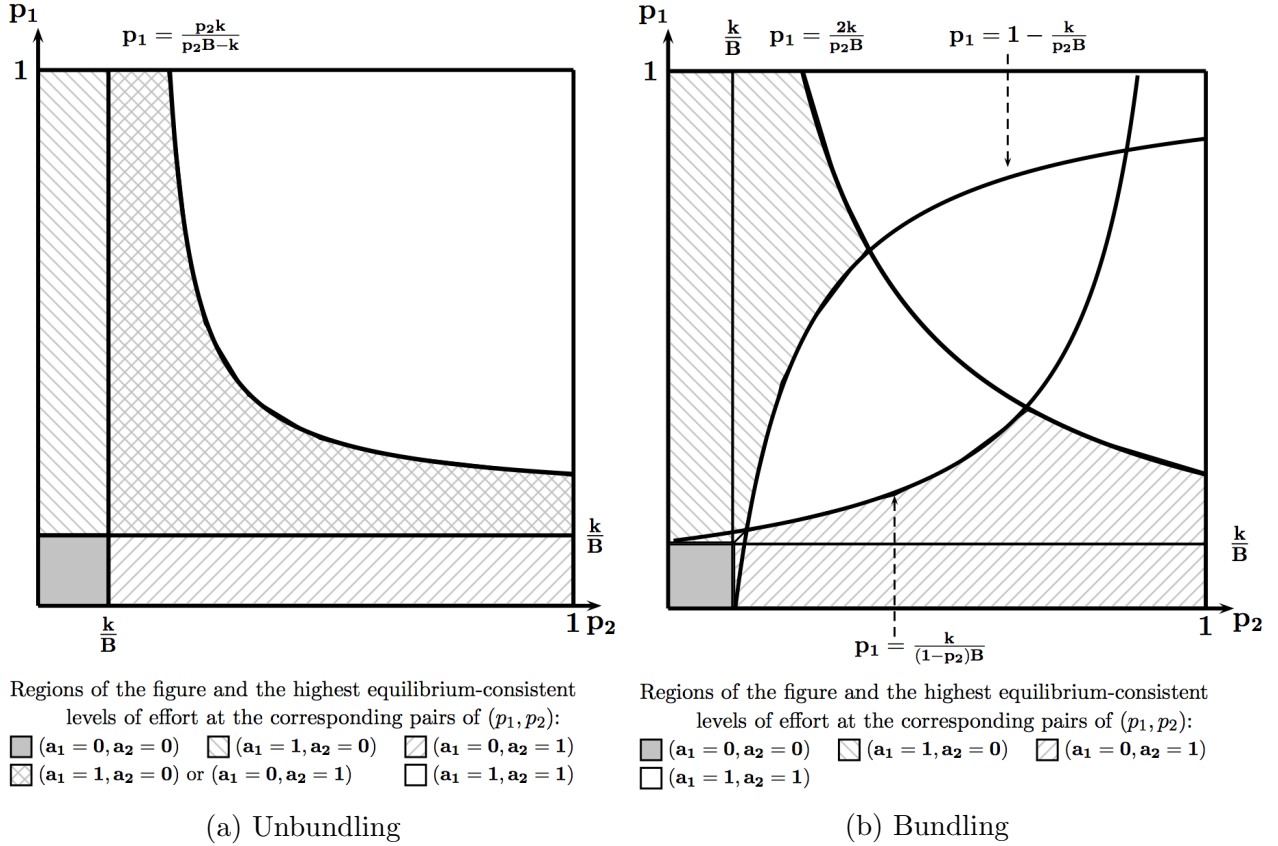
for all $i = 1, 2, j \neq i$. The expression in the left-hand side of (2) represents the expected additional benefit of exerting effort on both tasks rather than on task i alone. If the probability of success p_i is very high, the inequality (2) does not hold, signifying that the Agent can be fairly certain of the successful outcome on task i , and so of being retained by the Principal independent of the outcome on task j . In this case, the moderate retention rule cannot incentivize the Agent to exert effort on both tasks (the Agent has no interest in insuring), but a strict rule can. Similarly, to sustain the effort on both tasks with the moderate rule, the

probabilities of success p_1 and p_2 cannot be too low either, so that inequality (2) holds.

Note that the Principal's beliefs about the incumbent that sustain effort in both policy areas under the two retention rules are not mutually consistent. The strict retention rule is sequentially rational only if the moderate retention rule is not. The converse is also true. For the strict rule to be sequentially rational, it has to be that for the Principal expecting effort investment into both tasks, the failure on a task i is a sufficiently negative signal of the Agent's competence that even success on task j cannot bring the posterior on the Agent's competence high enough for retention. Retaining the Agent when this is the case, which would be in line with the moderate rule, cannot be a best response. On the other hand, when a single success is sufficiently impressive to override the negative update from a single failure, the retention decision based on the strict rule cannot be a best response either. Whether the moderate or the strict rule is optimal must turn on how, in her assessment of the Agent's competence, the Principal trades off the failure on one task relative to the success on the other.

The full derivation of equilibrium behavior, as well as the proof for the formal results stated in the paper, can be found in the Appendix. Here we highlight some of the key properties of the equilibrium behavior. Figure 1(b) below shows the highest level of effort by the Agent that can be sustained in equilibrium under bundling as a function of the probabilities of success p_1 , and p_2 , setting $B = 1$, $k = .125$. (Recall that p_1 and p_2 are compound probabilities, with $p_i := \pi p_i^H + (1 - \pi)p_i^L$ for all $i = 1, 2$. As specified in Proposition 1 above, additional restrictions on p_i^H, p_i^L , $i = 1, 2$, need to be satisfied to sustain an equilibrium in which the Agent exerts effort on both tasks. Although these restrictions are not depicted in the figure, Lemma A.3 in the Appendix shows that, for any value of $(p_1, p_2) \in (0, 1)^2$, there exists an infinity of p_i^H, p_i^L , $i = 1, 2$, and π that satisfy those restrictions. Similar caveats apply to other figures in the (p_1, p_2) space shown below.)

Figure 1: Highest Level of Effort Sustainable in Equilibrium under (Un-)Bundling



Areas in white in Figure 1(b) correspond to the policy-making environments, expressible, here and throughout, as n -tuples $\mathbf{s} := (p_1^H, p_1^L, p_2^H, p_2^L, \pi, k, B)$, that can support maximal effort (i.e., effort invested into both policy areas). We denote by Σ the set of those policy-making environments. The following proposition formalizes the properties of these conditions. Importantly, as we explain below, holding fixed the policy-making environment, the realized equilibrium profile may depend on the Principal's beliefs about effort choices.

Proposition 1 (Maximum Effort Equilibrium profiles). *On the equilibrium path of play under bundling, the Agent chooses to exert effort on both tasks if, and only if, the pair of policy-making environment and beliefs satisfies either of the following two sets of conditions:*

1. (a) the complexity of each task is sufficiently low, $p_i \geq \frac{2k}{p_j B}$;

(b) the Principal expects the Agent to exert effort in both policy areas; and

(c) the Principal's estimation of the Agent's competence decreases unless the outcome is success on both tasks, $p_i^H(1 - p_j^H) \leq p_i^L(1 - p_j^L)$ for all $i = 1, 2$;

or

2. (a) the complexity of each task is moderate, $1 - \frac{k}{p_j B} \geq p_i \geq \frac{k}{(1-p_j)B}$; and

(b) the Principal's estimation of the Agent's competence increases when the outcome is success on at least one task, $p_i^H(1 - p_j^H) \geq p_i^L(1 - p_j^L)$ for all $i = 1, 2$.

When conditions (1) hold, the Principal adopts the strict retention rule, and when conditions (2) hold, the moderate retention rule.

We add two interpretive comments in connection with this result. The first concerns the uniqueness/multiplicity of equilibrium profiles. While the equilibrium profile that yields the Agent's investment into effort on both tasks is unique for any parameter vector (except on a non-generic set), both strict and moderate retention rules are consistent with equilibrium play, that may support that investment – albeit, as indicated above, for different values of the probabilities of success p_1 and p_2 . However, there is room for equilibrium multiplicity when conditions 1(a) and 1(c) in Proposition 1 hold, since the Principal will consider failure in a given policy area to be relevant to her update on the Agent only if she expects the Agent to exert effort in that area. Given conditions 1(a) and 1(c), when the Principal expects effort in both policy areas (condition 1(b)), the Agent conforms to that expectation; when that expectation is reversed, he does not and exerts effort in a single (least complex) policy area, and the Principal responds with the moderate retention rule.

Second, the equilibrium play under the conditions (2) in Proposition 1 sheds interesting light on the instances of apparent success or failure of accountability. As an example, consider the explanatory challenges in connection with economic voting. At the heart of the economic

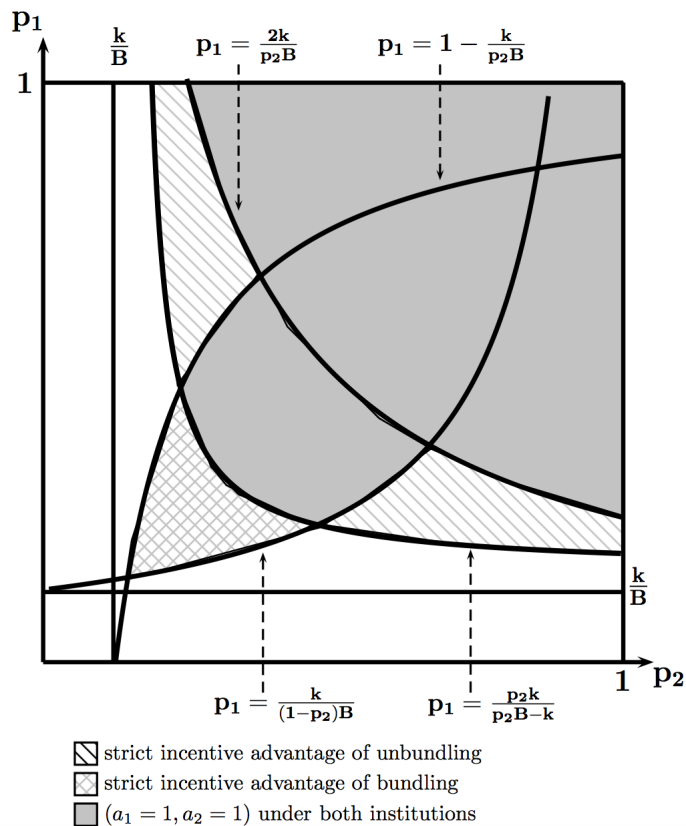
voting paradigm is the idea that voters hold elected officials accountable by reelecting them for good, and dismissing them for bad, economic performance. As many scholars have noted, though, citizens fall far short of systematically rewarding or punishing the incumbent official for the performance of the economy (see Anderson, 2007; Kayser, 2014; Paldam, 1991). The equilibrium analysis we present above suggests, however, that, even if voters were to view the economy as the most important issue, this evidence may not imply voters' inattention to the economy or be a sign of failure of democratic accountability. To assess adequately whether the electorate is effectively exercising accountability levers, we must condition the voter's response vis-à-vis the economy on the incumbent's performance in other policy areas as well as on the relative complexities of these areas. Indeed, the equilibrium construction supporting effort in both policy areas under the moderate retention rule suggests that an attentive electorate that cares foremost about the economy may be justified in supporting the incumbent when the economic performance appears poor, because of her performance in other policy areas. While offering a sustained empirical evaluation of this account is outside the scope of this study, our analysis of incentives under bundling suggests an important avenue for future empirical scholarship on accountability: exploring the multi-dimensional determinants of voting behavior and the possibility of the specifically informational rationale for them.

Comparing Institutions

Incentives. The basic picture of the comparison of incentives under the two institutions becomes apparent in Figure 2, which is obtained by overlaying Figures 1(a) and 1(b). We discuss two aspects of this comparison. The first aspect of the relationship between institutional incentives concerns when institutions converge in their ability to sustain effort on both tasks – areas in grey in Figure 2. There, for any policy-making environment $(p_1^H, p_1^L, p_2^H, p_2^L, \pi, k, B)$

that sustains effort in both policy areas under bundling via the strict retention rule, there exists a feasible pair (B_1, B_2) such that effort can be sustained in both policy areas under unbundling. The basic intuition behind this result is as follows. Under bundling, the strict retention rule creates a negative externality for the return on effort with respect to the two tasks, because the return on the effort in a given task is discounted by the probability of success in the other task (the return is driven by the multiplicative term $p_1 p_2$). In contrast, under unbundling, that negative externality across tasks doesn't exist (the return on effort for each Agent is driven by p_i), and hence, for optimally chosen (B_1, B_2) , the participation constraint for the Agents will have more slack.

Figure 2: Comparison of regions for which $(a_1 = 1, a_2 = 1)$ can be sustained in equilibrium as a function of (p_1, p_2) under Bundling and Unbundling:



While the two institutions may generate effort in both policy areas when that effort

profile is sustainable under bundling via the moderate retention rule, this is not generally the case. In particular, convergence occurs only if the policy-area complexities are sufficiently symmetric to sustain the moderate retention rule and not too high.

The second aspect concerns when institutions diverge in their ability to sustain effort on both tasks. We say that *bundling has a strict incentive advantage* over unbundling for a given policy-making environment $(p_1^H, p_1^L, p_2^H, p_2^L, \pi, k, B)$ if for that environment there exists an equilibrium in which effort is exerted in both policy areas under bundling but there does not exist a feasible pair (B_1, B_2) such that effort can be sustained in both policy areas under unbundling. *Unbundling has a strict incentive advantage* if the converse statement holds: there exists a feasible pair (B_1, B_2) such that effort can be sustained for that environment in both policy areas under unbundling but not at $B = B_1 + B_2$ under bundling. Figure 2 shows the areas with strict incentive advantage for the respective institutions.

The following proposition formalizes the results of the comparison:

Proposition 2 (*Strict Incentive Advantage*). 1. *The set of policy-making environments for which bundling has a strict incentive advantage over unbundling has policy-area complexities which are relatively high on both dimensions.*

2. *If bundling has a strict incentive advantage over unbundling, effort in both policy areas under bundling is sustainable in equilibrium only under the moderate retention rule.*

3. *The set of policy-making environments for which unbundling has a strict incentive advantage over bundling has asymmetric policy-area complexities: sufficiently high for one area and intermediate for the other.*

The value of holding the bundled office is strictly higher than the value of holding office for at least one of the unbundled offices. When policy-area complexities are both relatively high (p_1 and p_2 both relatively low), the moderate retention rule, via the insurance mechanism, makes it attractive for the Agent to exert effort in both policy areas in the hope of a return

of B . For such high levels of policy complexity, either the value of holding office B_1 will be too low as a return to incentivize A_1 to exert effort, or B_2 will be too low. When policy-area complexities are asymmetric, sufficiently high for one area and intermediate for the other, the Agent under bundling will prefer to take his chances by choosing to exert effort only on the task with intermediate complexity rather than insuring by exerting effort in both. When the value of holding office is sufficiently high for the high complexity task and just enough for the intermediate complexity task, unbundling solves that problem.

Selection and net welfare. To compare the Principal’s welfare under bundling vs. unbundling, we now consider what institution does best with respect to the selection of Agents. We say that *selection is better under the institution I than under the institution I'* if, in expectation, the equilibrium retention choices under the institution I lead to the selection of higher types than under the institution I' .²⁷ The threats to selection may come from both the institution, which may fail to generate enough information about the Agent(s), and the retention rule used by the Principal, which may create incentives that discourage revelation of information about the Agent’s type or use that information inefficiently. The following result provides the comparison between bundling and unbundling with respect to selection:

Proposition 3 (*Selection*). *1. Selection is strictly better under bundling when effort under bundling is positive and, in each policy area, weakly higher than under unbundling.*

*2. Selection is strictly better under unbundling only if there is at least one policy area in which the effort under unbundling is strictly higher than the effort under bundling.*²⁸

²⁷Formally, we study the ex ante post-election welfare of the Principal under both institutions. Remember that the Principal receives an additional payoff of $R > 0$ for each task i for retaining an Agent of high competence. That is, if the Principal retains a high competence Agent under bundling he receives an additional payoff of $2R$. To receive an additional payoff of $2R$ under unbundling, the Principal needs to retain a high competence Agent on each task.

²⁸Note that Proposition 3 tells us what institution does better in terms of selection conditional on the effort

Proposition 3 points to an asymmetry in favor of bundling when it comes to selection. The intuition is two-fold. First, under both institutions, if effort is exerted on task i , but not on task j , the Principal receives information about the competence, and therefore future performance, of the Agent who exerted effort on task i . However, the Principal can make better use of that information under bundling, because under unbundling she receives no information about the Agent $A_{j \neq i}$ who is assigned to task j , whereas under bundling she does, since the same Agent is assigned to both tasks.²⁹ Second, if, under both institutions, effort is exerted on both tasks, the Principal receives two informative signals about the overall competence of the Agent under bundling, but only one signal for each Agent A_i under unbundling, again making bundling more informative. Thus, if the level of effort is positive and dimension-by-dimension weakly higher under bundling, the resulting outcome vector is more informative about the overall competence of the office-holder(s), and that allows the Principal to select more competent Agents under bundling.

When the effort level is strictly higher under unbundling (and so the condition in part 2 of Proposition 3 holds), the institutional comparison with respect to selection is less resolute. Suppose that under unbundling, both Agents exert effort, while under bundling, the Agent only exerts effort on task j . Then, the Principal receives two informative signals under unbundling, but only one informative signal o_j under bundling. However, the signal o_j is informative about the competence of the Agent on both dimensions under bundling, while each signal o_i is only informative about the competence of Agent A_i on task i under unbundling. Depending on the parameter values p_i^H, p_i^L , $i = 1, 2$, bundling or unbundling

levels chosen by the Agent(s) in equilibrium. We discuss below for what parameter values one institution does better in terms of selection.

²⁹The force of this argument depends on the correlation of agent competences across policy areas. While we assume it to be perfect, the logic will hold when it is lower as well, but needs to be sufficiently high. When the correlation is low, the inter-issue informational externalities from the signals of competence are low and the advantage of the better use of information under bundling when correlation is high may turn into a disadvantage due to the inability to respond separately to the two signals. This point is central to the analysis in Ashworth and Bueno de Mesquita (2017).

may be better at selecting competent Agents.

Propositions 2 and 3 have the following implications for the social welfare comparison. First, in policy-making environments in which bundling supports effort in both dimensions – corresponding to equilibrium profiles with both strict and moderate retention rules (areas in white in Figure 1(b)) – bundling is a superior institution due to the improved selection. Second, the highest social welfare is achieved under bundling for those policy-making environments in which bundling supports effort in both dimensions. Finally, when bundling yields such (maximal) selection and incentives, its edge over unbundling is greatest in the equilibrium with the moderate retention rule. The following Proposition restates the conclusion in terms of the underlying values of task complexity and draws out the broader implication for the comparison of maximal accountability across institutions and policy-making settings:

Proposition 4. *1. Bundling supports higher equilibrium welfare than unbundling under conditions (1) and (2) in Proposition 1.*

2. Comparing across policy-making environments, the highest levels of accountability, as measured by the maximally effective incentives and selection, occur under bundling.

Proposition 4, part 1 provides a guide to when bundling should certainly be preferred: when complexities of the two policy areas are sufficiently symmetric or when neither is too high. When these conditions fail, the ordering of institutions becomes less sharp, because, as Proposition 3, part 2 and Proposition 2, part 3 indicate, we could have tradeoffs between selection and incentives. Intuitively, and as made explicit in Proposition 3, bundling has an edge in selection, all else equal. In order for unbundling to become superior, that edge has to be neutralized. This may occur when unbundling has the strict incentive advantage over bundling (i.e. when the complexity of policy areas is sufficiently asymmetric). Clearly, that advantage will be sufficient when the Principal values the present success sufficiently highly relative to the future (when the possible downsides of unbundling for selection aren't too

consequential).

This comparison sheds interesting light on the perennial hot-button issue of political debate, the growth of government, which its detractors associate with inefficiency and unaccountability. A key visible measure of such growth is the number of government ministers, which in France reached 49 under a Socialist Prime Minister Michel Rocard (1988-1991) before dropping to 19 in the Center-Right government of François Fillon in 2007. Under the conditions that create the superiority for bundling, this reduction would appear to be consistent with the improvement in accountability. Yet, our analysis also suggests the importance of caution. A case where proliferation of mutually independent bureaucracies would seem to be obviously inefficient is with respect to agencies responsible for simpler (relatively low-complexity) areas. Yet, as our analysis suggests, the impulse to put such simpler policy areas under the control of those responsible for other, more complex – and often more important – areas should be tempered by the welfare losses that result from bundling policy areas with asymmetric complexities.

Turning now to the institutional determinants of complexity, there is a further implication worth highlighting. As we noted above, under divided party control over mutually checking branches of government – e.g., executive and legislative branches at the state level in the U.S. – ideological polarization is likely associated with relatively symmetric decreases in policy successes across dimensions (formally, bringing p_i and p_j down and closer to one another and decreasing the expected differences $p_i^H - p_i^L$ across tasks $i = 1, 2$). All else equal, then, an increase in polarization should create a marginal welfare gain associated with the bundling rather than with the unbundling of policy authority. Thus, states with governors who enjoy more centralized state-level executive authority may be more effective in weathering the agency problems exacerbated by greater ideological polarization.

Extension: The Influence of Special Interests

We next consider an extension of our model in which an Interest Group (IG) is seeking to influence the policy outcome with respect to the policy dimension relevant to it. This extension is of particular interest because the conventional wisdom (cf. Besley and Coate, 2003; Berry and Gersen, 2008) has emphasized specifically the greater susceptibility of bundling to policy capture by special interests. We show that, contrary to conventional wisdom, the case for unbundling as a better shield for the Principal against the power of special interests is far from water-tight; IG’s presence can reverse the comparison in terms of incentives in either direction, creating an incentive advantage for an institution where it did not exist before or eliminating it where it was present without IG; but bundling, again, does better when policy-area complexities are both relatively high and the Principal uses the moderate retention rule. The extension offers a further insight into the operation of the insurance mechanism under bundling by drawing attention to a set of incentives it creates specifically with respect to the possibility of policy capture.

To formalize the extension, suppose that, before the Agent responsible for task a_1 chooses whether to exert effort, IG can offer the Agent a utility transfer, which we will refer to as “bribe” $b \geq 0$, in exchange for no effort on task 1. We follow Grossman and Helpman (2001) and others in modeling IG’s utility transfer as an action contract with the payment conditional on a specified, observed, policy decision of the Agent. Thus, if the Agent accepts the bribe b , he does not exert effort on task 1, i.e. $a_1 = 0$. If, however, the Agent rejects the bribe, he is free to choose $a_1 = 0$ or $a_1 = 1$.

IG has policy preferences opposed to those of the Principal and receives a payoff of $u_{IG} \geq 0$ when the outcome on dimension a_1 is failure and a payoff of zero when it is success.³⁰ Moreover, IG has disutility $-b$ when paying a bribe b to the Agent. Throughout, we assume

³⁰The environment we analyzed in the previous Sections is, thus, a special case of this expanded model; in that special case, $u_{IG} = 0$, and thus IG does not try to influence policy.

that IG's resource constraint does not bind and study the level of the bribe that IG would have to pay to the Agent in order to get the Agent to implement $a_1 = 0$ and whether, given u_{IG} , IG chooses to pay that bribe to the Agent.³¹ We assume that the value of failure to IG, u_{IG} , is drawn from an arbitrary distribution function $F(\cdot)$ with full support on \mathbb{R}_+ . We further assume that the Principal knows the distribution $F(\cdot)$ but not the realization u_{IG} .

We provide a full characterization of the equilibria in this expanded model in the Appendix. As in the baseline setting, in this model, there are also equilibria with strict and with moderate retention rules – albeit with different cutpoints for the primitives – underscoring the robustness of the equilibrium characterization in the baseline. For the purposes of our analysis here, we focus on the following result, which describes how the Principal's relative (marginal) preference for one institution over the other, expressed in terms of the differences in the Principal's expected utility at equilibrium, is affected by the presence of IG:

Proposition 5. *Suppose that in the absence of IG, the Agent(s) expend effort in both policy areas under bundling and under unbundling. Then the arrival of IG (weakly) strengthens the Principal's marginal preference for bundling when, in equilibrium, the policy-making environment supports effort in both policy areas under the moderate retention rule and the complexity of policy area 2 is sufficiently high ($p_2 < \sqrt{k}/\sqrt{B}$), and (weakly) weakens it otherwise.*

IG offers a bribe to the Agent only if the value of failure, u_{IG} , is sufficiently high to warrant paying the bribe. When the bribe is lower under institution I than under institution I' , there are values of failure to IG for which IG decides not to bribe the Agent under institution I' yet chooses to bribe the Agent under institution I generating a strict incentive advantage for institution I' . The changes in the marginal preferences for one institution over the other

³¹Note that u_{IG} determines an upper bound on the willingness of IG to pay a bribe to the Agent. To be sure, IG certainly would not want to pay a bribe $b > u_{IG}$. As such, introducing an exogenous resource constraint on the ability of IG to pay a bribe would not alter the thrust of the results nor yield additional insights.

that are described in this proposition are brought about by the presence of IG creating a strict incentive advantage of a given institution in a policy-making setting in which it does not exist without IG.

Given that IG prefers failure to success on task 1 and does not care about task 2, it has an incentive to influence the Agent's choice if, and only if, in the absence of IG, the Agent exerts effort on task 1. To convince the Agent who would otherwise exert effort on task 1 not to do it after all, IG needs to offer the Agent a bribe that compensates the Agent for the expected utility loss from that change. Intuitively, the bribe that IG needs to pay to contract no effort on task 1 is increasing in the probability of success p_1 and in the value of holding office B (B_1 under unbundling), and decreasing in the cost of effort k .

Somewhat less intuitively, *while the effectiveness of IG policy capture under unbundling is, for a fixed (B_1, B_2) , independent of the probability of success p_2 , it does depend on p_2 under bundling*, and as the Proposition 5 indicates, the sign of that relationship turns on whether in equilibrium the policy-making setting supports the strict retention rule by the Principal.³² To see the intuition, suppose that in the absence of IG influence, the Agent exerts effort on both tasks in equilibrium. In such a case, the expected benefit to the Agent of exerting effort on task 1 depends on the probability of success on task 2, and correspondingly the bribe does, too. Under strict retention rule, as p_2 increases, the expected utility to the Agent of exerting effort on both tasks increases as well, and the compensating bribe needs to increase correspondingly. Under moderate retention rule, however, as p_2 increases, the expected benefit of exerting effort on task 1 on top of task 2 decreases because the Agent is less in need of insuring, and so IG can convince the Agent not to exert effort on task 1 with a smaller bribe. (And conversely, if p_2 goes down, then the value for the Agent of purchasing the insurance goes up, driving up the price that IG will need to pay under bundling relative to

³²If the (B_1, B_2) vector is chosen optimally from the point of view of the Principal, the incidence of bribing under unbundling may change when p_2 increases, but the institutional comparison in Proposition 5 is not affected.

unbundling.) The broader welfare implications of the institutional comparison, thus, depend on whether the policy-making setting supports the strict retention rule in equilibrium. We show in the Appendix that if $p_2 < \sqrt{k}/\sqrt{B}$ (i.e., complexity of policy area 2 is sufficiently high), there exist values of policy failure to IG that would create a strict incentive advantage for bundling, and if $p_2 > \sqrt{k}/\sqrt{B}$ (i.e., complexity of policy area 2 is not too high), a strict incentive advantage for unbundling, where in the absence of IG, effort investment is maximal under both institutions.

Proposition 5 highlights two broad implications of our analysis. First, recalling that a key argument in favor of unbundling has been precisely on the grounds of its relative proofness against capture, the implication of this result is that both institutions can – in different policy-making settings – create incentives that can make them more attractive to political principals from the standpoint of resisting capture; the case for unbundling, in particular, is weaker than it might have at first appeared. Second, the circumstances for the relative appeal of bundling that we have highlighted above – namely, policy tasks being relatively complex and the Principal using the moderate retention rule – are precisely the circumstances under which bundling does particularly well in resisting the possibility of policy capture relative to unbundling.

The mechanism supporting the particular susceptibility of the strict incentives equilibrium to the breakdown in the presence of IG captures a key intuition of Besley and Coate’s important argument against bundling. As our analysis shows, however, sustaining that intuition requires policy-making settings with sufficiently low degrees of policy-area complexity. The insurance mechanism at the core of the high effort allocations across policy dimensions under the moderate retention rule overturns the logic behind that intuition when policy-area complexities are both relatively high, giving the additional edge to bundling in those settings.

Note on Robustness

Our analysis can be extended in a number of different directions. We pursue some of them in the Appendix by way of establishing the robustness of the key conclusions of the paper. In particular, we address the robustness of our results to three variations on the model: (1) allowing the Principal to observe the actions a_1, a_2 , chosen by the Agent(s) (what we call the case of “transparency” and distinguish it from the “no transparency” case we analyze in the main body of the paper); (2) allowing for the possibility of arbitrary number of policy areas; and (3) allowing for the possibility of interactions between policy areas. Here, we briefly summarize the main results developed with respect to these variations.

We find that, under transparency of actions, the insurance mechanism that underlies effort investment into both policy areas under the moderate retention rule becomes even more essential to the priority of bundling. In particular, introducing transparency eliminates the possibility of equilibrium with strict incentives and (weakly) decreases the relative benefits of bundling overall; but it has no effect on the existence of the equilibrium with the moderate retention rule and so bundling remains the superior institution when the policy-area complexities are both relatively high.

In a setting with n tasks, we show that the basic structure of the institutional comparison with respect to the conditions with strict incentive advantage remains intact: bundling can have a strict incentive advantage only under a moderate retention rule (when the levels of policy-area complexities are all relatively high) but never under a strict retention rule.

Finally, we consider two ways in which we may see spillovers across policy areas: with respect to (1) costs of effort, and (2) the probabilities of success. To study the first case, we assume that exerting effort in one policy area affects the cost of effort in the other area; to study the second case, we assume that it affects the probability of success in the other area. Policy areas have negative spillovers if exerting effort in one area reduces, all else equal, the

incentives to exert effort in the other area, via the cost the route (i.e., it increases the cost of effort in the second area) or via the probability of success route (it decreases the probability of success in the second area). This might be true for the interactions between environmental and industrial policies: being successful at protecting the environment may make it more difficult to promote certain industrial activities and vice versa. Policy areas have positive spillovers when the incentives are opposite: exerting effort in one policy area increases, all else equal, the incentives to exert effort in the second area, either by decreasing the cost of effort in that area or by increasing the probability of success in it. For example, providing students with better education prospects (investing more into education policy) may make it easier to maintain low crime rates (have a more successful law enforcement). We show that our key qualitative conclusions about when accountability under bundling is better and when it is worse hold as long as the spillover effects are not too negative; when they are, unbundling provides better incentives than bundling.

Conclusion

As democratic theorists have historically emphasized, how much control political principals have over their representatives turns on the principals' access to the accountability levers and the scope of authority exercised by the representatives. The question of whether to bundle or unbundle political authority is, from this perspective, a first-order concern in establishing accountability, and the variation in the empirical patterns of bundled authority across jurisdictions and levels of governance is a measure of political principals' attempts to move the representation closer to their ideal (as well as, arguably, of their agents' attempts to resist it). The contribution of this paper is to show how considerations of policy-area complexity may and should affect the relative appeal of distinct institutional possibilities related to that variation.

Although the details we provide suggest a nuanced relationship, a key normative institutional implication we emphasized is that political accountability is improved by bundling policy fields when the complexity of policy areas is relatively symmetric and improved by unbundling when the complexity is sufficiently asymmetric. At the core of this finding is the insurance incentive for the policy-maker that is created under bundling by the political principal's choice of a moderate, rather than a strict, retention rule for the policy-maker. This rule is optimal for the principal precisely when policy-area complexity is sufficiently symmetric and is particularly attractive in the face of the possibility of policy capture by interest groups. Indeed, we show that this incentive undermines the conventional wisdom that unbundling policy authority helps in resisting policy capture.

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