A REGULATORY GAME

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Abstract. James Madison is justly noted for writing "If men were angels, no government would be necessary".[1] Unfortunately, few people go on to read his caveats on government conduct, i.e., "If angels were to govern men, neither external nor internal controls on government would be necessary. In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable the government to control the governed; and in the next place oblige it to control itself."

This note outlines the incentives of the players involved in regulation using a stylized model drawn from the vast literature on regulation and how regulation is manipulated. The model is, in turn, used to design an experimental framework for a game that captures the interaction of players in roles of politician, regulator, businessman, activist and journalist under different incentives (payoffs) and institutions (oversight).

Players

For convenience, assume that each player is an individual (or monolithic group) and one of these types: A for activist, B for businessman, J for journalist, P for politician (executive or legislative), or R for regulator. A final type—C for citizen/consumer/customer—is a passive participant (taking no action but affected by actions) in the model.

Each active type receives utility from extrinsic (wealth) and intrinsic (job satisfaction) sources, i.e., the additively-separable linear utility function with this abstract form:

$$U_i = \alpha_i u(w_i) + (1 - \alpha_i) u(W_{-i}), \tag{1}$$

where α_i determines each actor's preference between intrinsic and extrinsic outcomes; w_i is own wealth, and W_{-i} is the total wealth of others.[2] C has the largest mass in W_{-i}. Note that this utility function has no choice variables; they are added in Equation (3).

[2] I assume that W, as a stock, is functionally equivalent to income (flow) in terms of incentives and decisions.

For A, J, P and R, intrinsic satisfaction is assumed to be a function of the wealth of others affected by their work.[3] For J, P and R, "others" means C. For A, the wealth of a special interest group (an unspecified and "small" subgroup within C that A "needs" to protect, e.g., whales, children, alcoholics, et al.) is all that matters.[4] For B, a profit-maximizer, W_{-i} means nothing, i.e., $\alpha_B = 1$.

Regulation

C elect P to increase the Wealth of the Nation (W). P tax C to pay for public goods that P "provides"—solving collective action problems. The most common public good is regulation, and P delegates the provision of PG to R. Regulation can take many forms: solving coordination problems (standards), overcoming bias (insuring against high risk, low probability events), lowering transaction costs (providing objective information), protecting public goods (e.g., air or water), protecting private property (police and judiciary). Without judging whether market (or government) failure exists, we precede under the assumption that P and R have the ability to regulate anything.

Let us define the net result of regulation as Δ and further define the best regulation ($\bar{\Delta}$) as that in which *increases* W from its baseline (W_0) to its maximum value ($\bar{W}$).[5] Thus, we can say that the outcome of *any* regulation will be,

$$W = W_0 + \Delta \leq \bar{W} \tag{2}$$

The best regulation will lead to $\Delta = \bar{\Delta}$ and $W = \bar{W}$. An inefficient regulation ($\Delta < \bar{\Delta}$) leads to $W < \bar{W}$ or even $W < W_0$.

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[3] Although players A, J, P and R are also consumers, we assume that their utility in that role is dominated by utility from their primary roles.

[4] If J serves a particular interest group because of extrinsic (bribe or threat) or intrinsic ("Fair and Balanced," bloggers, and some think tanks) forces, then J is really A.

[5] These costs and benefits are net of sunk costs from paying regulators and taxes and ignore transactions costs and dynamic (repeated game) effects.

Obviously, any observer who knows $\bar{\Delta}$ or $\bar{W}$ will be able to distinguish between good and bad regulations, but these values are often not known.[6] This common circumstance is captured by breaking Δ into visible (Δ_v) and hidden (Δ_h) components that may reinforce or offset each other.

We assume that everyone can see Δ_v and it is positive in equilibrium.[7] Δ_h, on the other hand, is known to B, P and R but "hard" for A or J to see. A or J can only see it with effort, which falls as Δ_h grows relative to Δ_v.[8] Let us take a closer look at the interaction of Δ and effort

Distribution of Δ. A, J, P and R all care about efficiency (maximizing W_{-i}, in which C has a big weight), but B *only* gains utility from w_B. Thus, B will prefer a regulation according to its impact on w_B—never for its impact on W_{-i}.[9]

Consider the following four scenarios (all of them with $\Delta_v > 0$), the changes that they represent relative to the status quo (or another regulation), and what action B will take with respect to the regulation:

$\Delta_h > 0$ **and** $w_B > 0$**:** C and B gain—a win-win that requires no action.

$\Delta_h > 0$ **and** $w_B < 0$**:** C gains but B loses—a regulation that must be stopped.

$\Delta_h < 0$ **and** $w_B > 0$**:** C loses but B gains—a regulation to encourage (quietly).

$\Delta_h < 0$ **and** $w_B < 0$**:** C loses and B loses—a regulation that must be opposed for the good of C (and B).

From these scenarios, we can see how B will approach each regulation. When action is necessary, B will lobby P and/or R to support/oppose the regulation, and B's effort to

[6]We are ignoring risk and uncertainty and assuming that ex-post outcomes are known ex-ante.

[7]If not, P and/or R lose their jobs.

[8]If, e.g., $\Delta_v = 3$, it is easier to detect $\Delta_h = -4$ or $\Delta_h = 3$ than $\Delta_h = -1$.

[9]Although this problem (knowing where you are relative to the maximum) also exists in competitive markets, it is not such a problem because competition constantly pushes W closer to $\bar{W}$. Although I ignore the influence of market competition here, note that B—if a collection of businesses instead of a single entity—may lobby for regulation to decreases competition: A result that will maintain or increase W_B while reducing W.

affect w_B will produce positive or negative externalities (Δ_h) that, in turn, affect the cost of lobbying P and/or R. Put differently, B is willing to pay more as the change in w_B (rise or fall) increases, and lobbying (e.g., bribery) gets more costly as Δ_h rises. The most expensive lobbying will occur when Δ_h and w_B are farthest apart: First, because it's more valuable to B; second, because it's more costly to P and R; and third, because a greater divergence makes it easier for A and/or J to discover if P and/or R are acting against the interests of C.

Also note that B's lobbying will have to be more intense as α_i falls (i.e., the weight on W_{-i} in Equation (1) rises) for any of A, J, P and R. For P and R, lower α_i values decrease the weight of personal welfare (w_i) relative to W_{-i}, making bribes less effective. For A and J, lower α_i values lead them to put less emphasis on personal goals and more emphasis on the "People" (C), which leads them to increase their effort in monitoring B, P and R.

More formally, we can rewrite Equation (1) to include effort (e), a function of concern for C, which rises as α_i falls, and payments from B ($w_{i,B}$), i.e.,

$$\underset{e}{U_i} = \alpha_i u(w_i) + (1-\alpha_i)u(W_{-i}) - u[e(W_{-i}, w_{i,B}; \alpha_i)]. \tag{3}$$

Equation (3) has a choice variable (e) that results from the variables W_{-i} (chosen by P and R) and $w_{i,B}$ (chosen by B) and the parameter α_i. From this equation, we get an equilibrium that reflects the following, simultaneous actions: P and R exert effort to choose a regulation in accordance to their α_i values, the impact of that regulation on W_{-i}, and B's effort to affect the regulation via the bribe $w_{i,B}$. B, who has $\alpha_B = 1$, chooses effort equivalent to the bribe. A and J choose effort with respect to α_i values and the outcome W_{-i}.[10]

[10]Recall from Equation (2) that W and Δ only differ by a constant, which means that wealth (W) is a linear transformation of the regulatory outcome (Δ).

Gaming the Distribution. Now that we have a clearer understanding of how players interact to determine distribution and effort, let's relate this model to the literature on how B influences P and R's decision to adopt a regulation (or one regulation over another) in a multilateral game of A, B, J, P and R.[11] The literature identifies two primary mechanisms (public choice and regulatory capture) and a nuanced variation on both (Baptists and Bootleggers). Instead of examining how each mechanism affects players, consider how players affect each other using a combination of mechanisms, i.e.,

Politician Bribery (PB): B bribes P with $w_{P,B}$ to prevent laws that reduce w_B or create laws that increase w_B. PB reduces wealth to $\rho\bar{W}$, with $\rho < 1$.

Regulator Bribery (RB): B bribes R with $w_{R,B}$ to issue regulations that increase (or do not decrease) w_B. RB reduces wealth to $\gamma\bar{W}$, with $\gamma < 1$.

Mistaken Activism (MA): A believes he knows $\bar{W}$ and supports laws and/or regulations designed to help a subset of C without harming the rest of C. In the case of accurate activism, this is true; in the case of mistaken activism, this is not true, i.e., MA leads to outcomes that may not serve the targeted subset and may even harm the rest of C. MA involves no payments (bribes), but it reduces wealth to $\mu\bar{W}$, with $\mu < 1$. Because it is difficult to tell the difference between accurate and mistaken activism, A adds noise to the system.

Baptists and Bootleggers (BB): MA combined with PB or RB produces BB, i.e., a result where the impact of laws and/or regulations is harder to distinguish. As a result, outcomes will be even less favorable, i.e., $W = \mu\rho\bar{W}, W = \mu\gamma\bar{W}$, or even $W = \mu\gamma\rho\bar{W}$.

Anyone who supports efficient government will want to reduce PB, RB, MA and BB. Besides the most obvious tools (competition among A, B, P and R; measuring Δ_h), gaming

[11]Although I have described the incentives players face and the outcomes that they seek to achieve, I will not explicitly model the multi-lateral negotiations that connect incentives and outcomes.

will fall if α_i values fall (via elections, hiring, education and/or training) and/or changes in w_B and W_{-i} are clarified—a task particularly suited to J.

Note that these dynamics describe the process of writing laws and making regulations. Once that process is over, the execution of the laws/regulations can be technocratic and require no negotiation. From this, we know that the stakes (and lobbying) will be more intense when regulations are permanent. Sunsetting regulations allows learning (which can increase transparency, reducing Δ_h), reduces the value of bribes and increases the demand for bribes (P and R, with more-accurate knowledge of w_B can bargain more effectively for bribes).

Experiment

So, how do these players (A, B, R, P) interact and how does the presence/absence of J affect their interaction? Since their interaction is likely to be too complicated to model realistically (see Footnote 11), the next best thing is to create a reasonably realistic experimental environment in which we can observe (and measure) initial conditions and final outcomes without structuring or specifying how the former is transformed into the latter. It is thus that we can put the interactive lobbying environment into an experimental blackbox and see how initial conditions (payoffs), institutions (types of actors, learning, etc.) affect outcomes and even gain some insight as to the nitty-gritty details of negotiation within a blackbox that is opaque—by design.

The Baseline experiment works as follows:

- Four players; P and R; A and B.
- Each of ten rounds is about a controversial topic (e.g., whaling, emissions testing, nuclear power, etc.). Context will be tricky (or useful) to the degree in which payoffs diverge from consensus, P.C. and/or conventional wisdom (e.g., coal is good for C).

The tricky part is that context will bring more personal beliefs into the game. Need large numbers AND ex-ante/ex-post control questionnaires.

- In each round, P faces {X, Y} choice, after which R faces ({X1, X2}, {Y1, Y2}) choices. Ex-ante, P and R know payouts to C and B (contingent on choices P and R will make). B sees own payoffs appropriate to the decisionmaker (i.e., B sees $\{X_B, Y_B\}$ with P and—given X sees $\{X_{1B}, X_{2B}\}$ with R; B may not know that payoff ranking can reverse); A sees same but only for C.
- All players have chat screens (for lobbying/cajoling/negotiating). All chats are two-way/confidential from other players.
- B can offer (binding and contingent—don't want cheap talk/double-crosses here) side-payments to P and R. A cannot.
- Chatting between P, A and B occurs while P chooses; chatting between R, A and B occurs while R chooses. Payouts go to B, P, R and C (passive recipient and perhaps an unimpeachable charity like the ICRC). A, P and R get "base" salary. B only gets payouts, less lobbying. P and R can increase income with lobbying.
- No type changes between rounds.

Treatments:

(1) Add J who is able to see payouts to B and C ex-ante and can chat with A, B, P or R. J gets base salary.
(2) Should A or J get share of C's payout? Or do we want pure intrinsic?
(3) Sunset regulations and re-regulate the same issue with same payouts (A and J learn)?
(4) Risky payouts?
(5) Run with staffers, IHS interns, UCB undergrads, et al.
(6) Regulation behind the veil?