

Week 4: Interest groups and lobbying

A second introduction to formal political economy, Trinity Term 2026

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19/05/2026

Overview

- **Core theme:** How do organised interests influence policy, and when do they override voters?
- **Structural power:** Influence through *anticipation*. Policymakers refrain from policies that would trigger costly business reactions; influence operates through non-events and poses a distinctive measurement challenge.
- **Instrumental power:** Influence through *action* — lobbying, information, subsidies, campaign contributions — organised by alignment $\times$ power into a typology of strategic regimes.
- **Interaction between voters and interest groups:** When does the electoral channel discipline organised pressure, and when does it amplify it? Six configurations of voter demand $\times$ producer cohesion, taking climate policy as the test case.
- **Central point:** Whether interest groups undermine democratic representation depends on the *type* of electoral demand policymakers confront — not on their power alone.

Outline

Foundations: interest groups and the logic of collective action

Structural power: influence through anticipation

Instrumental power: influence through lobbying

When voters and interest groups interact: climate policy as a lens

Conclusion and outlook

What is an interest group?

Definition: a group of individuals or organisations that share a common interest and act collectively – or seek to – in order to influence public policy.

Three defining features:

- **Organised:** sustained capacity for collective action (distinguishes from *latent* interests – “consumers” or “future generations” as undifferentiated populations)
- **Interest-based:** defined by shared stakes on specific issues (distinguishes from *parties*, which compete for office across all issues)
- **Policy-directed:** aimed at influencing public policy (distinguishes from pure market behaviour and service-provision NGOs)

The conceptual space of interest groups

Type	Mode of organisation	Examples
Firm-level	In-house government affairs + contract lobbyists	Pfizer, Walmart, ExxonMobil
Sectoral / industry	Trade or industry association	American Bankers Assn, NAM, ECF
Peak (business)	Confederation of associations	US Chamber, BDI, BusinessEurope
Labour	Trade union or confederation	AFL–CIO, DGB, TUC, ETUC
Professional	Professional body / chamber	AMA, ABA, BMA, Bar Council
Cause / advocacy NGO	Advocacy organisation	Sierra Club, Amnesty, ACLU, NRA
Consumer	Movement-style	Consumer Reports

Heterogeneity: producer groups face structurally different constraints (concentrated stakes, dense association infrastructure, ready selective benefits) than cause and public-interest groups (diffuse stakes, weak selective benefits, reliance on purposive motivation).

Eliciting your priors

Think about a policy area you know well or are most interested in (climate, financial regulation, healthcare and drug pricing, trade, immigration, tech and platform regulation, antitrust, etc.). In light of what we have just defined:

1. Are interest groups **bad for democracy** — undermining representation by amplifying the voice of organised minorities? Or are they **good for democracy** — channelling the legitimate concerns of citizens too dispersed to represent themselves directly?
2. Whom should we expect to organise effectively in your policy area, and whom not? Why?
3. When should we expect organised interests to prevail over voters, and when not?

Two provocations (we will return at the end):

- **Madison** (*Federalist* 10): “factions” are dangerous but inevitable in any free society; the cure cannot be to eliminate them, only to design institutions that prevent any one from dominating. Was he right?
- Gilens and Page, [2014](#): economic elites and organised business have substantial influence; mass-based interest groups and average citizens have little or none. Is this right (Elkjær and Iversen, [2023](#); Enns, [2026](#))? Why, or why not?

The logic of collective action (Olson, 1965)

The free-rider problem: each individual's contribution to a shared goal is marginal but personally costly; people can benefit from others' contributions without incurring any cost themselves $\Rightarrow$ rational actors shirk; goals may go unmet.

A toy model (Mesquita, 2016): in a group of N , total benefit B , individual share B/n , cost of effort c with $B > c$. Assume the probability of success equals the fraction contributing, n/N . Believing $n - 1$ others contribute, individual i contributes iff:

$$\frac{n}{N}B - c \geq \frac{n-1}{N}B \iff c \leq \frac{B}{N} \iff cN \leq B$$

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Implication: the incremental benefit of contributing, B/N , vanishes as $N \rightarrow \infty$. **Large groups face chronic free-rider problems**, even when each member's stake is non-trivial.

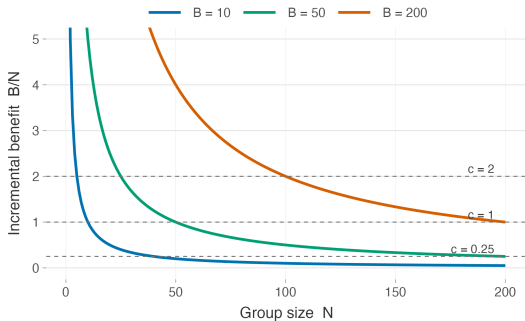
Two types of groups:

- **Privileged:** small, strong individual stakes, easy monitoring, organised effectively
- **Latent:** large, weak individual incentives, anonymity, hard to organise, chronically underrepresented

Illustrating the dismal logic

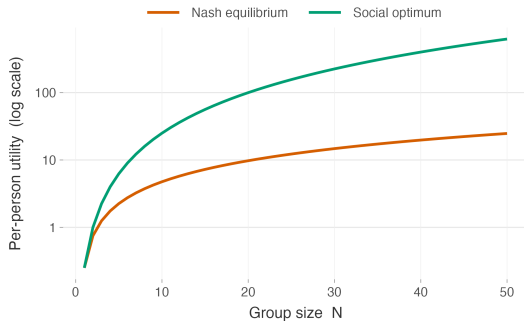
(A) Incremental benefit B/N collapses with N

Contribute iff c lies below the B/N curve



(B) Nash vs social optimum: per-person utility

Nash plateaus; the optimum grows in N (log y)



Selective incentives and asymmetric organisation

Olson's (1965) **second move**: large groups *can* solve the collective-action problem — but only if they offer their members *selective benefits* unavailable to non-members (see also Hansen, Mitchell, and Drope, 2005).

Three types of selective incentives:

- **Material**: tangible, member-specific benefits (AMA certification and malpractice insurance; AARP discounts; trade-association regulatory intelligence, contract templates, legal services)
- **Solidaristic**: social benefits from membership; most powerful in small or close-knit (“privileged”) groups
- **Purposive**: expressive value of contributing to a cause (single-issue NGOs — Sierra Club, NRA, Amnesty)

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Selective benefits are easier to supply for some groups than others.

- **Producer interests** (firms, professionals, organised workers): concentrated economic stakes; material selective benefits abound (regulatory intelligence, certification, defended price floors, even cartel discipline) ⇒ trade associations, professional bodies, unions thrive.
- **Consumer interests / diffuse publics:** dispersed households with small per-capita stakes; material selective benefits are hard to construct ⇒ chronic under-organisation, with cause-led exceptions sustained by *purposive* (not material) incentives. But see Trumbull, 2012: diffuse interests can prevail.

From collective action to interest group power

Olson tells us *which* groups solve the collective-action problem and organise.

He does *not* tell us:

- What organised groups actually *do* once organised
- Through what *mechanisms* they exercise influence
- When they *prevail* over voters – and when voters' preferences nevertheless prevail

For these questions, two analytically distinct channels of influence must be distinguished:

- **Structural power**: influence through *anticipation* – policymakers refrain from policies that would trigger costly business reactions, even without active lobbying.
- **Instrumental power**: influence through *action* – lobbying, information provision, campaign contributions, subsidies to aligned legislators.

Below we will examine: *when does the electoral channel discipline these two forms of organised power, and when does it amplify them?*

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Three forms of business power

Following Culpepper, 2025, business influence operates through three channels:

- **Structural power** (Lindblom, 1977; Przeworski and Wallerstein, 1988)
 - Rooted in business's *privileged position* in capitalist economies.
 - Influence *without direct action*: policymakers anticipate disinvestment, capital flight, or job losses if business confidence is undermined.
- **Instrumental power** (Culpepper, 2011)
 - *Deliberate political actions* by firms: lobbying, contributions, coalition-building, information, persuasion.
- **Institutional power** (Busemeyer and Thelen, 2020) – *bracketed in this lecture*
 - Emerges when the state delegates public functions (training, healthcare, infrastructure) to private actors; creates asymmetric dependence over time.

This lecture develops the first two in detail.

Why the structural–instrumental distinction matters

The two channels are analytically distinct and empirically complementary:

- **Empirical implications.**

- Structural: *non-events* (policies not proposed, reforms diluted before adoption).
- Instrumental: *observable inputs* (lobbying expenditure, contributions, meetings, drafted text).

- **Sources of variation.**

- Structural: capital mobility, sectoral embeddedness, asset specificity.
- Instrumental: organisational capacity, alignment with pivotal actors, resources.

- **Measurement problems.**

- Structural: non-events are hard to detect.
- Instrumental: confounding with structural power, alignment, and selection.

Conflating them produces systematic errors: studies of “lobbying effects” routinely attribute observed influence to active lobbying when it operates through anticipated business reaction (Culpepper, [2025](#)).

The privileged position of business (Lindblom, 1977)

Lindblom's core observation: in market economies, public functions rest in the hands of business.

- Jobs, prices, production, investment, growth, the standard of living — all depend on *private* decisions by owners of productive wealth.
- Government cannot afford to alienate them. Business is not “just another interest group” but an *indispensable functionary* for the political-economic system.

“... jobs, prices, production, growth, the standard of living, and the economic security of everyone all rest in their hands ... businessmen do not appear simply as representatives of a special interest. They appear as functionaries performing functions that government officials regard as indispensable.”

(Lindblom, 1977, pp. 172, 175)

Mechanism: anticipated punishment. Policymakers know that policies hostile to business confidence will be punished automatically by markets, without lobbying — the “*market as prison*”.

But is this actually true in equilibrium? Przeworski and Wallerstein, 1988 formalise the claim — and derive a *surprising* result.

P–W setup (Przeworski and Wallerstein, 1988)

Two-class economy. Wage earners consume all income; shareholders consume part and invest the rest.

Notation. National income $Y(t)$, wages $W(t)$, investment $I(t)$, after-investment profits $P(t)$. Wage share $m \equiv W(t)/Y(t)$. Investment rate $s \equiv I(t)/[(1 - m)Y(t)] \in [0, 1]$.

Linear technology: $Y'(t) = \nu s(1 - m)Y(t)$, so output and capital grow at rate $g = \nu s(1 - m)$ with $\nu > 0$ the productivity of capital.

Shareholder welfare:

$$P^* = \int_0^\infty e^{-\rho t} \ln P(t) dt, \quad \rho > 0$$

Government: taxes shareholder *consumption* at rate t_c (revenue transferred to workers). **Question:** does $t_c > 0$ depress investment? Is the state structurally dependent on capital?

P–W: why this setup?

The model is stripped down on purpose; each choice isolates one piece of the structural-dependence claim.

- **Two classes, not a representative agent.** The political conflict is over the *distribution* between wage earners and shareholders; a representative agent dissolves it.
- **A consumption tax, not a profit tax.** A pure consumption tax is the most innocuous instrument: if even this depresses investment, the structural-dependence claim holds even in what approximates a “least-like” case.
- **Linear technology.** Removing diminishing returns to capital isolates the intertemporal-substitution channel: any investment response must come from the shareholder’s choice between C and I .
- **Log utility, infinite horizon.** Tractability, and a clean trade-off between consumption now and consumption later – the margin the tax operates on.

If structural dependence *fails* on this stripped-down terrain – the most favourable to the claim – the channel that actually matters lies elsewhere. The FOC on the next slide does this work.

P–W: the shareholder's optimal investment rate

Shareholders choose s to maximise P^* given m, t_c, ρ, ν . The variational FOC yields the **market rate of investment**:

$$s^M(m) = 1 - \frac{\rho/\nu}{1 - m}$$

Properties of s^M :

- Decreasing in m : higher wage share leaves less for shareholders, who invest less.
- $s^M < 0$ when $m > 1 - \rho/\nu$: shareholders disinvest if wages eat the whole product.
- $s^M \rightarrow 1$ as $\rho/\nu \rightarrow 0$: patient shareholders with productive capital invest all profits.

Wage-share / wage-growth trade-off: at $s = s^M$,

$$\frac{W'(t)}{W(t)} = \nu(1 - m) - \rho$$

Higher m buys higher current wages at the cost of lower wage growth.

Crucial: the FOC depends on m, ρ, ν but not on t_c .

P–W: the static neutrality result

Introduce the shareholder consumption tax $t_c \in [0, 1)$. Tax revenue $T_c = t_c(1 - s)(1 - m)Y(t)$ is transferred to workers. The market rate of investment satisfies:

$$s^M(m) = 1 - \frac{\rho/\nu}{1 - m} \quad \text{independent of } t_c$$

Why: the tax falls on shareholder *consumption out of profits*, not on profits themselves. The shareholder's intertemporal allocation between consumption and investment is unaffected – she simply consumes less of the same after-tax income.

Implication: a government can use t_c to extract surplus and redistribute it to workers *at any rate* without changing investment or the long-run growth path.

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The static result, formally: the steady-state distribution between workers and capitalists is independent of the technological constraints of production. **Under appropriate tax instruments, the structural-dependence claim is false.**

Caveat: the result hinges on the tax instrument. A tax on *gross profits* (including reinvested earnings) would distort s^M and reduce equilibrium growth. The neutrality is about a *consumption* tax, not a profit tax.

P–W: when structural dependence holds

The static result relies on *instantaneous re-equilibration*. P–W show structural dependence does hold in a **transitional sense**.

Anticipated policy change. Suppose at t_a the government announces an increase in t_c to take effect at $t_i > t_a$. Between t_a and t_i , shareholders face the same after-tax marginal productivity of capital after t_i but a higher tax on consumption only after t_i . The intertemporal arbitrage is to shift consumption forward, before the tax bites.

Result. During $[t_a, t_i)$, shareholders reduce investment to fund higher consumption now. The investment rate drops below s^M during the anticipation window and returns to s^M after t_i . **The foregone investment is permanent.**

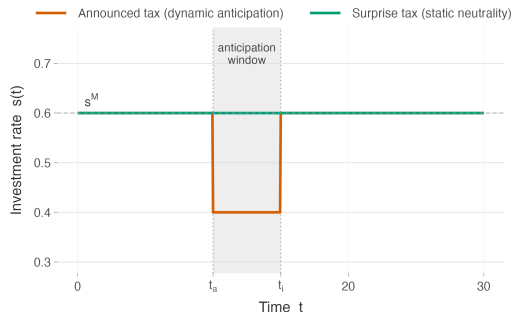
The transitional cost scales with the size of the announced change Δt_c , the length of the anticipation window $t_i - t_a$, and shareholders' patience (lower ρ raises responsiveness to intertemporal substitution).

Structural dependence is about expectations under non-commitment: the constraint binds during the transition, not after it.

P-W simulation: static neutrality vs dynamic anticipation

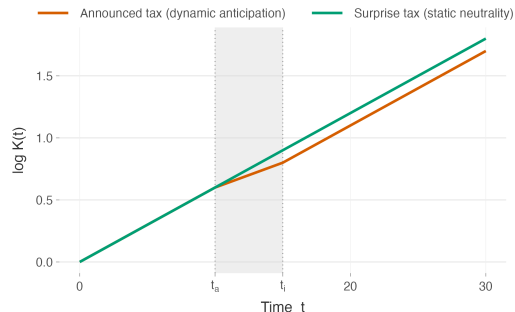
(A) Investment rate $s(t)$

Surprise tax holds s at s^M ; announced tax depresses s in $[t_a, t_i]$



(B) Log capital $\log K(t)$

Foregone transition investment is permanent: parallel growth, lower level



Three implications: (i) structural power is fundamentally about *beliefs* about counterfactual reactions; (ii) measurement is hard because the relevant variation is in *expected*, not realised, behaviour; (iii) this opens the door to lobbying as a *signalling channel* about expected reactions $\Rightarrow$ Bernhagen and Bräuninger, 2005.

Bernhagen and Bräuninger, 2005: the puzzle and the idea

Empirical puzzle. Lindblom and P-W say structural power operates *automatically* through anticipation: capital flight is the threat, governments back off, no visible action required. But empirically business often lobbies *loudly* against the very policies structural power should already have blocked. Why?

B-B's answer. Lobbying is a *costly signal* that conveys private information about how much a policy will actually hurt business. The government does not know which policies trigger severe reactions and which trigger mild ones – business does. Lobbying is the channel through which structural pressure is *communicated*, not just experienced.

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Three components:

- **Private information:** business knows the magnitude of its own reaction; government does not.
- **Costly action:** lobbying must be costly enough that misrepresenting one's type is unattractive – otherwise the signal carries no information.
- **Outside option:** government can withdraw the policy at a cost, so the signal has bite.

Implication: a mapping from structural-power to observable lobbying intensity. Visible business mobilisation becomes diagnostic of structural pressure, rather than orthogonal to it.

Bernhagen–Bräuninger: formal setup

Players: business B (privately informed) and government G .

Types. Nature draws state $t \in \{t_1, t_2\}$:

- t_1 (prob θ_1): severe inducement effect α on B ; G pays electoral cost u if she passes.
- t_2 (prob $1 - \theta_1$): minor cost $\beta < \alpha$ on B ; no inducement effect on G .

Actions. B sends signal $s \in \{s_1, s_2\}$ (lobby vs silent); G then chooses $a \in \{a_1, a_2\}$ (pass vs retain status quo).

Costs. B pays material cost l to lobby plus reputation cost k when lobbying in t_2 ; G pays pledge cost p to retreat and confidence cost v in open dispute.

Two parameter ratios determine equilibrium: l/k (lobbying vs lying) and p/u (pledge vs inducement).

Equilibrium concept: PBE.

► Full PBE derivation

Recap: PBE and the four equilibrium types

Perfect Bayesian Equilibrium (PBE) requires both:

- *Sequential rationality*: each player's strategy is optimal at every information set, given her beliefs.
- *Belief consistency*: beliefs about the unobserved type are derived via Bayes' rule on the equilibrium path.

In a two-type signalling game, strategies fall into three families based on how informative the signal is:

- **Separating**: types send different signals, so the signal fully reveals the type. In B-B: t_1 lobbies, t_2 silent.
- **Pooling**: all types send the same signal, so the signal carries no information. In B-B: both lobby (pooling I) or both stay silent (pooling II).
- **Semi-separating**: at least one type randomises, so the signal is partially informative. In B-B: t_1 lobbies for sure; t_2 randomises.

Which regime obtains depends on costs. The next slide partitions $(l/k, p/u)$ space into the regions where each PBE type prevails.

B–B: four equilibrium regions in $(l/k, p/u)$ space

Equilibrium	Condition	Interpretation
Separating	l/k intermediate; $p/u < 1$	B lobbies in t_1 , silent in t_2 ; G infers truthfully and withdraws under signal. <i>Structural power channelled through credible lobbying.</i>
Semi-separating	$l/k < \beta/k$; $\theta_1 < p/u < 1$	t_1 lobbies always; t_2 randomises. G 's posterior lies between prior and certainty. Partial transmission.
Pooling I (always lobby)	l/k small; $p/u < \theta_1$	Both types lobby; signal uninformative; G passes regardless. <i>Signalling fails: structural pressure not communicated.</i>
Pooling II (silence)	l/k large or $p/u < \theta_1$	B silent in both states; signal never sent. <i>Structural-power threat is realised automatically, not communicated.</i>

Implication: structural power operates effectively only in the intermediate-credibility region. When lobbying is too cheap, or pledge costs too low, the signalling channel cannot deliver structural-power influence. When we observe consistent business mobilisation against specific policies, structural pressure is likely being *communicated* (separating / semi-separating).

A direct anticipation game

A third route models policy *initiation* directly: structural power as a constraint on what the government even attempts.

The idea. The firm has private **exit capability** $\theta \sim F$ (mobility, asset substitutability, supply-chain alternatives). The government G chooses status quo S or a costly policy B of stringency d . If B , the firm acquiesces (taking policy loss d) or reacts at private cost $c(\theta)$, with c decreasing in θ . The firm reacts iff $c(\theta) \leq d$, defining the cutoff $\theta_R \equiv c^{-1}(d)$. A reaction by a type- θ firm inflicts political damage $g(\theta)$ on G ; G 's gross benefit from B is $a + b$.

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Latent **structural power**: $\mathcal{P}(d; g, F) = \int_{\theta_R}^1 g(\theta) f(\theta) d\theta$ collects the expected damage from anticipated reactions, weighted by the density of reactive types. G proposes B iff $a + b \geq \mathcal{P}$.

Three observable primitives. $\mathcal{P}$ moves with F (distribution of exit options), $c(\cdot)$ (cost of reacting), and $g(\cdot)$ (political damage of a reaction). Globalisation shifts F ; border-carbon adjustments shift c ; unemployment-elastic constituencies shift g . The comparative-static signs are testable.

Why $\mathcal{P}$ is hard to measure. It is observed only through the policies G declines to attempt.

Who has structural power?

Standard view: structural power $\approx$ exit credibility. Four types of proxies, each capturing a different facet:

- **Asset specificity / sectoral mobility** (Egerod and Justesen, 2022)
 - Sector indices from input–output structure and trade exposure; less-specific assets imply more credible exit. Cross-sectional design pooling 19 jurisdictions.
- **Firm-level market power** (Gratton and Lee, 2026)
 - Primitive: Market share from Lerner indices and product-market shares (De Loecker–Eeckhout).
- **Surveys of political elites**
 - List and conjoint experiments on civil servants, legislators, advisers — backing out which firms or sectors elites believe would credibly punish them. Captures the constraint $\mathcal{P}$ actually operates on.
- **Production-network centrality** (Cory, Lerner, and Osgood, 2021; Ederer and Pellegrino, 2023)
 - Upstream / downstream centrality from input–output tables — the third primitive, most often missed.

Who has structural power? The production-network channel

The standard proxies miss the supply-chain dimension. A firm's structural power is not only about *its own* exit option. It also depends on its position in the input–output network: how many downstream sectors depend on its outputs, and how concentrated those dependencies are.

Two ways production networks enter:

- **Upstream centrality.** A firm whose direct mobility is low can still wield high structural power if downstream sectors cannot easily substitute its inputs.
- **Downstream amplification.** Structural pressure spreads through supply chains: carbon-intensive suppliers constrain the policy positions of their customers, even where the suppliers themselves are politically marginal.

The “production function” of structural power:

$$\rho_i = f \left(\underbrace{\text{exit credibility}}_{\text{capital / asset mobility}}, \underbrace{\text{market power}}_{\text{Market share}_i}, \underbrace{\text{network centrality}}_{\text{upstream + downstream dependence}} \right)$$

The market-power term is developed on the next two slides; **ignoring the network term systematically under-estimates structural power** in supplier-heavy sectors (e.g. steel, petrochemicals, semiconductors).

Gratton–Lee 2026: market power *is* political power

Mechanism: political hold-up. The firm chooses a production technology *before* regulation is set. Consumers cannot commit to future regulation. If the firm picks a technology whose regulated production costs would be heavily passed through, ex-post consumers prefer to keep the externality unregulated – even if they would have voted to regulate ex-ante.

Setup intuition. A firm developing a new product chooses among technologies $t = (c_t, c'_t)$ where c_t is unregulated marginal cost and $c'_t > c_t$ regulated MC. Unregulated production imposes a per-consumer externality $e > 0$. Consumers vote on regulation; market share determines how many voters are exposed to the regulated price.

Central result. The firm's de facto regulatory power coincides with its equilibrium *market power*.

- *Pass-through*: how much of the regulated cost reaches consumers.
- *Market share*: how many voters bear that cost.
- *Markup*: whether the politically effective technology is profitable.

Market power is power. The mechanism operates *without* lobbying, contributions, or persuasion – and is therefore not addressed by campaign-finance reform.

Gratton–Lee: implications and remedies

Distortion of technological progress. The firm chooses politically effective technologies over economically efficient ones – equilibrium market surplus can fall below both the democratic first best and the unregulated benchmark.

Two implications for remedies:

- **Limits of campaign-finance reform.** Reforms aimed at limiting firms' use of economic resources to sway politics target the wrong margin.
- **Commitment-based remedies.** Supermajoritarian rules, independent oversight (antitrust, courts) can constrain political effects of market power – but only if voters can establish them with supermajoritarian instruments.

Complementary patterns. Lancieri, Posner, and Zingales, [2022](#): the decline in US antitrust enforcement coincides with rising estimated political influence of large firms. Bayer, [2023](#): foreign-owned plants of multinationals receive more lenient EU ETS treatment than domestic plants of the same firm.

Empirical challenges: who has structural power?

The theory points to three observable primitives (F, c, g) and three estimable components (exit credibility, $L \cdot$ share, network centrality). The obstacles are **primarily about gathering the right data**:

- **Network data are coarse.** Input–output tables are at the industry level; firm-level supplier and customer linkages are proprietary or fragmented across providers (Compustat, BvD, customs records).
- **Markup estimation is contested.** De Loecker–Eeckhout estimates rely on production-function assumptions; cross-country comparability is limited and revisions to the underlying methodology are ongoing.
- **Elite surveys are expensive and small-N.** Conjoint and list experiments on civil servants and legislators have low response rates and limited cross-jurisdiction coverage.
- **Asset specificity proxies are at the sector level.** Within-sector firm-level variation in mobility is hard to observe; the politically operative variation may be at a finer grain than the data allow.
- **Combining primitives requires linked datasets.** No single source has firm-level Lerner indices, supply-chain centrality, and exit-credibility proxies simultaneously across countries.

The frontier is about measurement and data collection: new linked-data efforts (firm registry $\times$ input–output $\times$ regulatory exposure) rather than new identification strategies.

Estimating the effects of structural power: a selection problem

The obstacle is not data quantity but **endogenous sample selection**—which observations enter the dataset depends on the very mechanism we want to estimate.

- **Endogenous selection on the outcome.** Policies enter the sample only if they reached the agenda. Suppression at the agenda stage — the dominant outcome when $\mathcal{P}$ is large — generates a non-random missing mass. The selection equation and the outcome equation share the same latent variable $\mathcal{P}$.
- **Selection on unobserved type.** Visible reactions are observed only when G misperceived θ and proposed B anyway. The reaction sample is conditioned on G 's belief being below the true $\mathcal{P}$ — producing systematic attenuation toward zero.

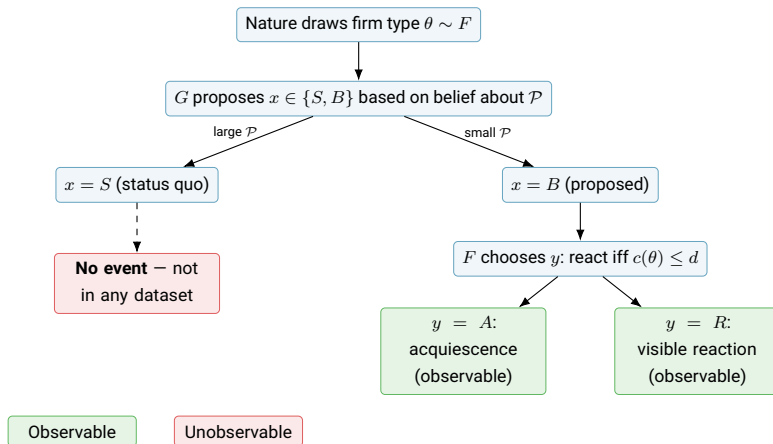
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The obstacle is not data quantity but **endogenous sample selection**—which observations enter the dataset depends on the very mechanism we want to estimate.

- **Endogenous selection on the outcome.** Policies enter the sample only if they reached the agenda. Suppression at the agenda stage — the dominant outcome when $\mathcal{P}$ is large — generates a non-random missing mass. The selection equation and the outcome equation share the same latent variable $\mathcal{P}$.
- **Selection on unobserved type.** Visible reactions are observed only when G misperceived θ and proposed B anyway. The reaction sample is conditioned on G 's belief being below the true $\mathcal{P}$ — producing systematic attenuation toward zero.
- **Left-truncation on firms.** Studies of firm responses to regulation condition on firms that survived to respond. Firms that exited pre-emptively, or that averted regulation by quiet anticipation, are truncated out of the sample.
- **Non-random unit-level sampling.** Country panels skew toward jurisdictions with rich disclosure regimes (US, EU). Where structural power is strongest, disclosure regimes are often weakest — and the relevant cases are absent.

Parallel to sanctions efficacy. Same data-generating process: we observe sanctions *imposed* (deterrence failures), not deterrence successes. The equilibrium outcome of structural power is *absence of conflict* — non-events that no conventional dataset captures.

Visualising the selection problem: what enters the dataset?



Implication. The observable sample is conditioned on $x = B$, which itself is conditioned on G 's prior belief over $\mathcal{P}$ being below the true value. Inference from the green nodes systematically understates $\mathcal{P}$; the red node – the modal cell when structural power “exists” – is the dog that did not bark.

Estimating the effects of structural power: identification strategies

- **Within-firm variation.** Bayer, 2023: foreign-owned plants receive more lenient EU ETS treatment than domestic plants of the same firm. Exit credibility differs across plant ownership; firm-level instrumental capacity is held fixed.
- **Credibility shocks.** Trade-agreement entry, capital-account liberalisations, sectoral liberalisations — each shifts $F(\theta)$ exogenously. Rare because shocks are often anticipated and bundled with confounding policy changes.
- **Structural estimation on policy withdrawal.** Treat policies dropped near passage as bid-shading of a latent $\mathcal{P}$; identify from cross-policy variation in withdrawal propensity. Largely unexploited but tractable once F and c are parametrised.

► Full model

Outline

Foundations: interest groups and the logic of collective action

Structural power: influence through anticipation

Instrumental power: influence through lobbying

When voters and interest groups interact: climate policy as a lens

Conclusion and outlook

Instrumental power: what does the interest group do?

The IG's strategic problem. An interest group seeks to shift policy in its favour. The policymaker (PM) — politician or bureaucrat — is constrained by:

- *voter preferences* on the salient dimension,
- *other organised groups* pulling in conflicting directions,
- *institutional rules* (legislative procedure, judicial review, agency autonomy),
- *state capacity* (analytical resources, independence from regulated entities).

Three places where the IG can act:

- On the *decision-maker directly* — bargain, inform, or pressure her over a given policy.
- On the *constraints she faces* — shift voter preferences, voter attention, or state capacity.
- On the *problem itself* — change which dimension of the policy space is politically operative.

The next two slides develop each option and the arenas in which they play out; I then introduce the two primitives that predict an IG's choice.

Three (nested) levels of contestation

- **Level 3 – policy choice.** The IG takes the salient dimension and the constraints as given and seeks to shift the PM's choice. *Three mechanisms* we develop below (Schnakenberg and Turner, 2024):
 - *Exchange*: transfers (donations, post-office employment) in return for policy.
 - *Informational*: cheap-talk or verifiable signals about the state of the world.
 - *Pressure / subsidy*: mobilised constituency, legislative-effort subsidies to allies.
- **Level 2 – constraint configuration.** The IG reshapes *what the PM must do* on a given dimension.
 - *Preferences*: what voters *want* (framing, narrative construction).
 - *Attention*: how much voter preferences *count* electorally (politicisation, depoliticisation).
 - *Capacity*: what the state can implement, and how independently.
- **Level 1 – problem structure.** The IG shifts which *dimension* is politically salient – what the conflict is *about*. Coalitions stable on one dimension may fracture on another; success here restructures the political landscape.

Two arenas of influence: political and administrative

Influence operates in two arenas or venues (Breunig and Klüser, 2025; Pralle, 2003) with different rules of access, observability, and decisive actor.

The political arena. The PM aggregates voter and IG preferences, potentially under *electoral visibility*.

- Two stages in parliamentary systems: *intra-party* (committees, advisory bodies) and *inter-party* (electoral competition aggregating party positions).

The administrative arena. A regulator chooses implementation intensity, with bureaucratic autonomy varying across systems. Two dimensions:

- *Capacity quantity*: staff, budget, analytical resources.
- *Capacity independence*: share of the regulator's information independent of regulated entities.

What predicts an IG's strategy? Two primitives

Two primitives summarise the IG's strategic position:

- **Alignment** α . Distance between the IG's preferred policy and the pivotal voter bloc's bliss point on the salient dimension.
- **Power** ρ . Capacity to affect outcomes relative to opposing organised interests. Two components:
 - *Instrumental*: lobbying expenditure, technical staff, media capacity.
 - *Structural*: market share, exit credibility, production-network centrality, etc.

The two primitives give rise to four *lobbying regimes*.

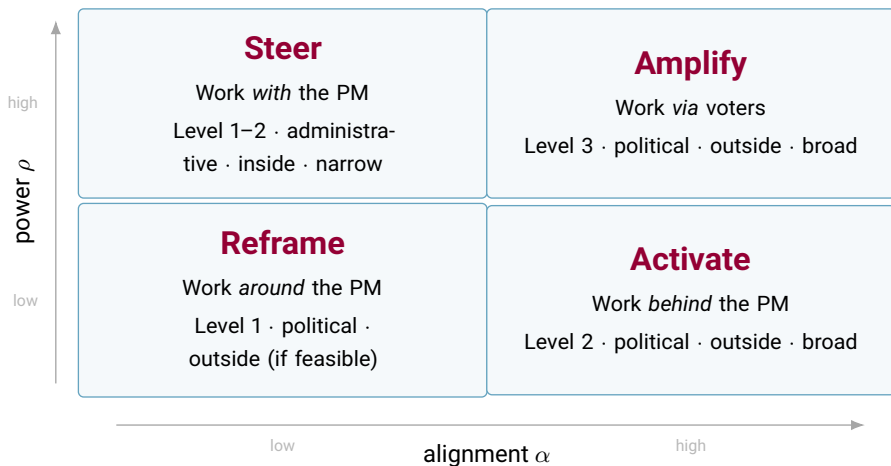
Strategic choices: arena, scope, means

Given its primitives (α, ρ) , an IG must choose along three dimensions:

- **Arena.** *Political* (electoral visibility, voter-facing) or *administrative* (technical, regulator-facing).
Misaligned actors typically avoid the political arena to limit public exposure; aligned actors prefer it.
- **Scope.** *Narrow* (single firm or sector association, insider access) or *broad* (cross-cutting alliance, mass mobilisation).
- **Means.** *Inside* or *outside* lobbying:
 - **Inside lobbying:** private, direct contact with the policymaker — technical comments, regulatory consultations, drafted text, hearings, revolving-door access.
 - **Outside lobbying:** public mobilisation aimed at changing voter behaviour — advertising, op-eds, framing campaigns, grassroots organisation, electoral threats. Operates *through* voters, not on the policymaker directly.

The three choices are interdependent: *inside means* fits the *administrative arena* with *narrow scope*; *outside means* fits the *political arena* with *broad scope*. Which combination an IG can sustain is determined by its (α, ρ) . The next slide presents the resulting map.

The four regimes in (α, ρ) space



From regimes to mechanisms: zooming in on Level 3

Where we are. The 2×2 map tells us *who* pursues which strategy — Steer, Amplify, Activate, Reframe — given the IG's primitives (α, ρ) .

What it does not tell us. *How* each strategy actually operates. What is the IG offering? What is the policymaker selling? What does the equilibrium look like?

Where the literature has the most to say. The formal lobbying literature concentrates on [Level 3](#) — policy choice given a fixed dimension and constraints — where three mechanisms organise everything:

- *Exchange*: the IG pays for policy directly.
- *Informational*: the IG shares what only it knows.
- *Subsidy*: the IG does the policymaker's work.

Why develop them carefully. The choice of mechanism shapes (i) what kind of IG can use it, (ii) which PMs get lobbied, and (iii) what counterfactual any empirical study can support.

Schnakenberg and Turner ([2024](#)) provide the unified framework that lets us compare the three mechanisms within a common setup. The next slides develop it.

Schnakenberg–Turner (2024) toolkit

A unified framework for comparing exchange-, informational-, and subsidy-based theories of lobbying.

Players. A policymaker (PM) and an interest group (IG).

Uncertainty. A state of the world $\omega \in \{\ell, m, b\}$ with prior $p(\omega) \geq 0$, $\sum_{\omega} p(\omega) = 1$. The IG knows ω ; the PM does not.

Policy. The PM chooses $x \in \{0, 1\}$ (no reform / reform). State-dependent payoffs:

	PM				IG		
	$\omega = \ell$	$\omega = m$	$\omega = b$		$\omega = \ell$	$\omega = m$	$\omega = b$
No reform ($x = 0$)	1	1	0		1	0	0
Reform ($x = 1$)	0	0	1		0	1	1

Ally vs opponent. PM and IG agree on $\omega = \ell$ (no reform) and $\omega = b$ (reform); they disagree on $\omega = m$. The PM is the IG's **ally** if $p(\ell) > 1/2$ or $p(b) > 1/2$; **opponent** if $p(\ell) < 1/2$ and $p(b) < 1/2$ (sufficient: $p(m) > 1/2$).

Interpreting the S–T setup intuitively

What the three states mean. Think of ω as *how strong the case for reform is*.

- $\omega = \ell$ (low): no genuine problem; reform would cost more than it solves.
- $\omega = m$ (medium): a problem exists for some, but not enough to justify the cost the PM would bear.
- $\omega = b$ (high): a clear, substantial problem; reform is socially worth the cost.

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Why preferences agree on ℓ and b but disagree on m .

- On ℓ : neither party wants reform.
- On b : both parties want reform.
- On m : the IG wants reform (it benefits from even moderate intervention); the PM does not (her voters punish costly policy unless the case is clear).

Example. Think about an environmental NGO lobbying for a new emissions standard. The NGO wants the standard whenever pollution is even moderately concerning ($\omega \in \{m, b\}$); the PM wants it only when pollution is clearly bad ($\omega = b$). They disagree on the borderline state m .

The IG's strategic problem is to influence the PM's decision on the disagreement state – but the mechanism it can use depends on what it can credibly transmit, offer, or supply.

Where can lobbying matter? The PM's no-lobbying baseline

Before considering any influence channel, ask what the PM does *without* lobbying.

PM's no-lobbying choice. Knowing only the prior $p(\omega)$, the PM chooses $x = 1$ iff her expected payoff from reform exceeds that from no reform:

$$\mathbb{E}[v_{PM}(1, \omega)] = p(b) > p(\ell) + p(m) = \mathbb{E}[v_{PM}(0, \omega)] \iff p(b) > \frac{1}{2}.$$

So the PM's default is $x = 0$ unless $p(b) > 1/2$ – which is one of the ally cases.

Where lobbying matters. In state $\omega = \ell$, both want $x = 0$; in $\omega = b$, both want $x = 1$. In neither does the IG need to act. **Lobbying matters only on the disagreement state $\omega = m$:** the IG, knowing $\omega = m$, must induce the PM to choose $x = 1$ when the PM (uncertain about ω) would not.

Two questions S–T ask of every paradigm.

1. **When** does the IG influence the PM? Under what conditions on p , the IG's preferences, and the available actions does the IG actually exert influence in equilibrium?
2. **Who** does the IG influence – allies or opponents? The next four slides answer both for each paradigm.

Exchange-based influence: quid pro quo

Specialisation. The IG offers a transfer $b_x \geq 0$ in exchange for policy x ; transfer cost is convex, $b_x^2/2$. Transfers are credible (escrow, repeated interaction). Payoffs:

$$u_{PM} = v_{PM}(x, \omega) + b_x, \quad u_{IG} = v_{IG}(x, \omega) - b_x^2/2.$$

IG's calculus. The IG pays only when the PM would otherwise choose against the IG. In states ℓ and b , the PM already does what the IG wants for free; offering a transfer there is wasted. Exchange-based influence is exercised only on $\omega = m$.

Result 1 (S–T). The IG engages in quid pro quo influence *if and only if* $p(m)$ is sufficiently large — the PM is sufficiently likely to be an opponent.

Intuition. The IG's expected benefit from offering b_1 to induce $x = 1$ is the policy gain in state m , weighted by $p(m)$, minus the convex transfer cost. The PM accepts only if the transfer offsets her policy disutility from reforming. Both conditions tighten as $p(m)$ falls.

Target: opponents. The IG never lobbies an ally; on the states where preferences are aligned, the PM already does what the IG wants. QPQ exchange targets *misaligned* PMs.

Exchange-based influence: a stylised example

Setting. A sugar-industry lobby wants to maintain US sugar tariffs that protect domestic producers. The relevant legislator's constituents are sugar *consumers* who would benefit from lower prices.

The IG–PM relationship.

- The PM (legislator) would, on her voters' preferences, prefer to lower tariffs — her constituents pay higher prices.
- The IG (sugar lobby) wants tariffs maintained.
- Preferences are misaligned: the PM is the IG's *opponent*.

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The mechanism. The lobby offers the PM a transfer (campaign contributions, post-office board seats, district investments) in exchange for a pro-tariff vote. The transfer compensates the PM for the electoral cost.

When does it work? Only when $p(m)$ is large enough that the PM is genuinely contestable: if her preferences clearly favour tariff removal ($p(b)$ small), no feasible transfer convinces her; if they clearly favour protection ($p(\ell)$ large), no transfer is needed.

The Grossman–Helpman case. This is the canonical setting for the protection-for-sale model we develop in Block C: organised producers, dispersed consumers, transfers across a misaligned policymaker.

Informational lobbying I: cheap talk + state-dependent preferences

Specialisation. The IG learns ω and sends a message $s \in \{\ell, m, b\}$ at zero cost — cheap talk, no truth constraint. The IG's preferences are *state-dependent*: it wants $x = 0$ when $\omega = \ell$ but $x = 1$ when $\omega \in \{m, b\}$ (it shares the PM's preferences in state ℓ).

Constraints on communication.

- A babbling equilibrium always exists (uninformative messages). Full revelation is impossible: in state $\omega = m$, the IG would deviate to $s = b$ to induce $x = 1$.

Best informative equilibrium. The IG can credibly separate ℓ from $\{m, b\}$: send $s = \ell$ when $\omega = \ell$; randomise between $s \in \{m, b\}$ otherwise. The PM's posterior on the pooled signal is

$$\Pr(\omega = b \mid s \in \{m, b\}) = \frac{p(b)}{p(m) + p(b)},$$

and she chooses $x = 1$ iff this exceeds $1/2$.

Result 2 (S–T). Under cheap talk + state-dependent preferences, an informative equilibrium exists *if and only if* $p(b) \geq p(m)$. **Intuition.** The PM acts on the IG's signal only if her posterior places more weight on the high state than the disagreement state.

Target: allies. The IG's information helps an aligned PM make better decisions; it cannot flip an opponent's preferred policy against her interests.

Cheap-talk informational lobbying: a stylised example

Setting. A regional-bank trade association lobbying a sympathetic Senate Banking Committee member about a proposed capital-requirements change.

The IG–PM relationship.

- The IG and the PM share an interest in a competitive banking sector; they disagree only on the borderline state ($\omega = m$, where regulation is somewhat costly but not catastrophic).
- Preferences are aligned: the PM is the IG's *ally*.

The mechanism. The IG has private knowledge about the regulation's likely impact on smaller banks. It transmits this information via testimony, committee submissions, and conversations. Communication is *cheap talk* – no verification required – but credible because the IG shares the PM's preferences in the low state ($\omega = \ell$, no need for regulation).

Why this works. If $p(b) \geq p(m)$, the PM can rely on the IG's signal: when the IG says “don't regulate,” the PM trusts her because the IG would say the same in the low state. Private information becomes politically operative.

The Awad 2024 case. The modern formalisation: state-dependent IG preferences plus cheap talk produce credible communication between allies. We develop this intuitively in Block C.

Informational lobbying II: verifiable signals + state-independent preferences

Specialisation. The IG has *state-independent* preferences: it always wants $x = 1$ regardless of ω (e.g. the NRA on firearm regulation). Set $p(\ell) = 0$, so $p(m) + p(b) = 1$. The IG can transmit a *verifiable* signal (a credible report whose content the PM can check) or stay silent. Verifiability rules out lying but not silence.

Two cases.

- **Ally:** $p(b) \geq 1/2$. The PM's prior already favours $x = 1$; she reforms without any influence. The IG stays silent.
- **Opponent:** $p(m) > p(b)$ (so $p(m) > 1/2$). The PM's prior favours $x = 0$. The IG transmits the verifiable signal " $\omega = b$ " when true; stays silent when $\omega = m$. The PM updates fully on receipt of a signal and reforms.

Result 3 (S-T). Under verifiable information + state-independent preferences, the IG lobbies opponents but not allies.

Why this reverses Result 2. Two changes matter. (i) State-independent preferences eliminate the cheap-talk constraint that the IG must sometimes prefer $x = 0$. (ii) Verifiability lets the IG send credible signals to opponents even when ex-ante preferences disagree. The combination flips the target from allies to opponents.

When each model applies. State-dependent preferences fit regulatory-burden-sensitive firms (Awad). State-independent preferences fit single-issue advocacy (gun-rights groups, environmental absolutists).

Verifiable informational lobbying: a stylised example

Setting. A gun-rights organisation lobbying a centrist legislator who is considering supporting an assault-weapons ban after a salient public event.

The IG–PM relationship.

- The IG has *state-independent* preferences: it opposes gun control regardless of evidence about its effectiveness.
- The PM is initially inclined to support the ban, responding to constituent pressure.
- Preferences are misaligned: the PM is the IG's *opponent*.

The mechanism. The IG cannot use cheap talk — its preferences are too obvious to be credible. Instead, it commissions or distributes *verifiable* research — studies whose data and methodology the PM or her staff can independently check — showing that the proposed ban would not reduce harm.

Verifiable informational lobbying: a stylised example

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The mechanism. The IG cannot use cheap talk — its preferences are too obvious to be credible. Instead, it commissions or distributes *verifiable* research — studies whose data and methodology the PM or her staff can independently check — showing that the proposed ban would not reduce harm.

Why this works only on opponents. If the PM were already aligned (an ally), she would oppose the ban anyway — the IG has nothing to add. The verifiable signal moves only the PM who would otherwise have voted the other way.

The Austen-Smith 1993 case. Verifiability supports informational lobbying directed at opponents, complementing the Awad case (allies, cheap talk).

Subsidy-based influence: lobbying as a matching grant

Specialisation. The PM has two activities: x (the IG's policy concern) and y (an alternative use of her time), with $e_x + e_y \leq B$. Working on x costs the PM c_x ; on y , c_y . The PM has a reservation value $r_{PM} > 0$ for working on y (or the status quo on x). The IG can subsidise:

- **Simple subsidy:** raise the PM's effort budget so she can pursue both x and y .
- **Specific subsidy:** reduce the PM's cost c_x toward zero, making x relatively cheaper.

Aligned PM ($p(b) = 1$). PM and IG both want $x = 1$. If she can only pursue one task, she chooses y if $r_{PM} - c_y > 1 - c_x$, else x .

- **Result 4** (aligned): the IG provides a simple subsidy when the PM already prefers x but lacks budget; a specific subsidy when she prefers y initially and the cost reduction can flip the inequality. **Target: allies.** Hall–Deardorff's canonical case.

Misaligned PM ($p(m) = 1$). PM prefers $x = 0$, IG prefers $x = 1$. A simple subsidy does not help.

- **Result 5** (misaligned): the IG provides a specific subsidy for y if $r_{PM} > 1 - c_x > r_{PM} - c_y$ – diverting the PM's effort away from x . **Target: opponents via agenda distortion.**

Operative point. Subsidy operates through resource constraints and time allocation, not through changing the PM's policy preferences. Targeting allies is the canonical case; the same mechanism can target opponents via diversion.

Subsidy-based influence: a stylised example

Setting. The American Legislative Exchange Council (ALEC) supplies state legislators with model bills on tort reform, regulatory simplification, and energy-market deregulation (Hertel-Fernandez, [2019](#)).

The IG–PM relationship.

- Many state legislators already share ALEC's policy preferences — pro-business, deregulatory — but lack the staff, drafting capacity, or technical research to pursue them effectively.
- Preferences are aligned: the PM is the IG's *ally*.

The mechanism. ALEC provides not contributions but *labour and expertise*: pre-drafted bills, talking points, expert testimony, witness preparation, follow-up policy analysis. The IG enables what the PM would have wanted to do anyway but could not have done alone.

Why this works on allies. A subsidy to an ally enables her to pursue *shared* goals more effectively. The same subsidy to an opponent would be used to advance *his* agenda — so it is wasted.

[The Hall–Deardorff 2006 case](#). Lobbying as legislative subsidy explains the empirical pattern of allies-lobbied-more without invoking vote-buying. We develop this in Block C.

Three Level-3 mechanisms

	Exchange	Information	Subsidy
The IG ...	pays the PM for her vote	shares what only it knows about the world	does the work the PM cannot afford
Works when	the PM would otherwise disagree with the IG	the IG and PM are partly aligned (cheap talk) or evidence is verifiable	the PM agrees with the IG but lacks time or resources
Target	Opponents	Allies (cheap talk); opponents (verifiable)	Allies (canonical); opponents via diversion
Welfare effect	welfare-reducing rent transfer	may improve the PM's choice by informing her	reallocates the PM's effort; ambiguous in net
Canonical model	Grossman–Helpman 1994	Awad 2024 (cheap talk); Austen-Smith 1993 (verifiable)	Hall–Deardorff 2006

Empirical implications I: same correlation, three causal stories

The empirical problem. Almost all lobbying data is reduced-form: who lobbied whom, how much, what policy followed. The data show *correlations*; the paradigm chosen determines what *causal* claim those correlations can support.

Take a single observation. An IG donates to PM X ; PM X then votes in the IG's direction. Three interpretation:

- Under **exchange**: the donation *caused* the vote — without it, PM X would have voted the other way. *Vote-buying*.
- Under **cheap-talk informational**: the donation accompanies private information sharing between allies; the vote would have followed once PM X learned what the IG already knew. *Information transmission*.
- Under **subsidy**: the donation funds PM X 's work on the IG's preferred issue. The policy choice is what PM X would have made on her own — the IG shifted *what she worked on*, not *how she decided*. *Effort reallocation*.

Implication. The three interpretations are observationally equivalent in the reduced form. A regression of policy on lobbying activity cannot, by itself, distinguish them. The next slide gives the three diagnostics that let us choose.

Empirical implications II: picking the right paradigm

If we cannot adjudicate between the three causal stories empirically, we must adjudicate them *theoretically* – by choosing the paradigm that best fits the institutional setting. Three diagnostics:

- IG preferences.

- *State-dependent*: the IG benefits in some states but not others (firms whose preferences over regulation depend on technology, market structure, or external shocks). Cheap-talk paradigm applies.
- *State-independent*: the IG benefits regardless of state (single-issue advocacy: NRA on guns; environmental absolutists on bans). Verifiable-info paradigm applies.

- Resource transferred.

- Money → exchange or subsidy.
- Information → informational (cheap talk or verifiable depending on IG preferences).
- Labour and expertise → subsidy.

- Enforcement of transfers.

- Legally enforceable contracts (e.g. corporate board seats with explicit terms): exchange feasible.
- Sustained by repeated interaction or reputation: any paradigm.

Steer: the classical capture arc

Steer is the densest quadrant in the lobbying literature. The classical capture tradition – voter-misaligned firms working inside the administrative arena – is its canonical body of work. The intellectual arc spans six decades:

- [Stigler \(1971\)](#). Regulation is supplied by politicians to industries that demand it. Concentrated producers outbid dispersed consumers because the per-capita stakes are higher. Origin of the “capture” framing.
- [Peltzman \(1976\)](#). Generalises Stigler: regulators maximise political support across multiple groups. Equilibrium regulation reflects each group’s marginal political weight. Introduces deadweight-loss as a constraint on capture.
- [Becker \(1983\)](#). Pressure-group competition: groups invest in influence; equilibrium policy minimises political deadweight. Influence is competitive rather than monopolised.
- [Laffont & Tirole \(1991\)](#). Information rents are the channel: regulators depend on regulated firms for technical knowledge, creating asymmetric-information rents. Capture as agency cost.

Commonality. Each generation refines what “capture” means. The early literature treated it as venality; the modern literature treats it as a *bargaining outcome* under information asymmetries and resource constraints.

Grossman–Helpman 1994: economic setup

Economy. Small open economy. $N + 1$ goods: numeraire (good 0) plus N differentiated traded goods indexed $i = 1, \dots, N$. Each consumer has identical quasi-linear preferences:

$$U = x_0 + \sum_{i=1}^N u_i(x_i).$$

Production. Good 0 produced one-for-one from labour. Each good i uses labour plus a sector-specific factor (capital) owned by a fraction of the population.

Trade. World prices p_i^w are exogenous. Government chooses tariff vector $\mathbf{t} = (t_1, \dots, t_N)$; domestic prices become $p_i = p_i^w(1 + t_i)$. Output $X_i(p_i)$, demand $D_i(p_i)$, imports $M_i(p_i) = D_i - X_i$.

Aggregate welfare. The standard welfare functional sums consumer surplus, producer rents, and tariff revenue: $W(\mathbf{t}) = \sum_{i=1}^N \left[\underbrace{S_i(p_i)}_{\text{cons. surplus}} + \underbrace{\Pi_i(p_i)}_{\text{producer rents}} + \underbrace{t_i p_i^w M_i(p_i)}_{\text{tariff rev.}} \right].$

Welfare-maximising benchmark. Without lobbying, the welfare-maximising tariff is $t_i = 0$ for all i (free trade). Any positive tariff produces deadweight loss in this small-open-economy framework.

GH 1994: the political game – contributions for protection

Lobbies. A subset of sectors $L \subseteq \{1, \dots, N\}$ are organised. Let α_L denote the fraction of the population that owns the sector-specific factor of *some* organised sector.

Contribution schedules. Each organised lobby $i \in L$ posts a contribution schedule $C_i(\mathbf{t}) \geq 0$ – not a single payment, but a *menu* that specifies how much the lobby would pay for every possible tariff vector $\mathbf{t}$. The government picks the tariff vector; the schedule pins down the contribution. Lobby i cares about its own sector's profits plus consumer welfare for its members: $V_i(\mathbf{t}) = \Pi_i(p_i) + \alpha_i \cdot W(\mathbf{t}) - C_i(\mathbf{t})$.

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Government's objective. The government chooses $\mathbf{t}$ to maximise a weighted sum of contributions and aggregate welfare: $G(\mathbf{t}) = \sum_{i \in L} C_i(\mathbf{t}) + a \cdot W(\mathbf{t})$, where $a \geq 0$ is the weight on welfare (relative to contributions).

Game structure. Common-agency menu auction:

1. Lobbies simultaneously post $C_i(\cdot)$.
2. Government observes the schedules and chooses $\mathbf{t}^*$ to maximise G .
3. Contributions $C_i(\mathbf{t}^*)$ are paid.

Interpretation. Lobbies bid for influence weights with state-contingent contribution schedules.

Aside: what is a “menu auction”?

The standard auction problem. Bidders submit prices for a single object; the seller picks the highest bid. The auctioneer commits to selling *one* item.

A menu auction generalises this in two ways (Bernheim and Whinston, 1986).

- **Multiple “items” chosen jointly.** The principal (here: the government) chooses an entire policy vector $\mathbf{t}$, not a single yes/no decision. The choice set is rich — any combination of tariff levels across N sectors.
- **Bidders pay state-contingent prices.** Each agent (here: each lobby) does not submit a single number. It submits a *schedule* $C_i(\mathbf{t})$ that specifies how much it would pay *for every possible policy choice* the principal might make. The principal then picks the policy; the schedule pins down what each bidder owes.

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A menu auction generalises this in two ways (Bernheim and Whinston, 1986).

- **Multiple “items” chosen jointly.** The principal (here: the government) chooses an entire policy vector $\mathbf{t}$, not a single yes/no decision. The choice set is rich — any combination of tariff levels across N sectors.
- **Bidders pay state-contingent prices.** Each agent (here: each lobby) does not submit a single number. It submits a *schedule* $C_i(\mathbf{t})$ that specifies how much it would pay *for every possible policy choice* the principal might make. The principal then picks the policy; the schedule pins down what each bidder owes.

Why this framing fits lobbying. Lobbies do not buy a single piece of policy; they care about the whole tariff vector. They cannot commit to a flat payment because their willingness-to-pay depends on what the government ends up doing. A schedule is the natural language: “if you give us $\mathbf{t}^A$, we pay $C(\mathbf{t}^A)$; if you give us $\mathbf{t}^B$, we pay $C(\mathbf{t}^B)$.”

The puzzle the next slide solves. Many schedules can support the same equilibrium policy — the menu-auction game has a serious multiplicity problem. Bernheim–Whinston’s *truthful* schedules are the standard refinement. (See App. C.5 for the formal derivation.)

GH 1994: truthful contribution schedules

The problem. The menu-auction game has many equilibria: many different schedules can support the same equilibrium tariff. Bernheim and Whinston, 1986 refine the equilibrium concept to *truthful* schedules, where each lobby's schedule reflects its true marginal preferences.

Truthful schedule. Lobby i 's schedule is *truthful* relative to baseline b_i if, for every $\mathbf{t}$:

$$C_i(\mathbf{t}) = \max\{0, V_i^{\text{gross}}(\mathbf{t}) - b_i\}, \quad V_i^{\text{gross}}(\mathbf{t}) \equiv \Pi_i(p_i) + \alpha_i W(\mathbf{t}).$$

The baseline b_i is set so the lobby's net payoff at equilibrium equals its outside option (no participation: $C_i \equiv 0$, payoff V_i^{gross} evaluated at the no-lobbying tariff).

Intuition. A truthful lobby "pays for what it gets" at the margin:

$$\nabla C_i(\mathbf{t}^*) = \nabla V_i^{\text{gross}}(\mathbf{t}^*).$$

A one-unit change in t_i that raises the lobby's gross payoff by some amount Δ also raises its contribution by exactly Δ . The schedule's *slope* reveals true marginal preferences; only the *level* (b_i) is strategically chosen.

GH 1994: from contribution schedules to the government's FOC

Government's first-order condition. At equilibrium $\mathbf{t}^*$, the government's FOC for choosing the tariff vector is:

$$\underbrace{\sum_{i \in L} \nabla C_i(\mathbf{t}^*)}_{\text{lobby contributions}} + a \cdot \nabla W(\mathbf{t}^*) = 0.$$

Substituting truthful schedules. From C4a, truthfulness implies $\nabla C_i(\mathbf{t}^*) = \nabla V_i^{\text{gross}}(\mathbf{t}^*) = \nabla \Pi_i + \alpha_i \nabla W$. Summing over organised lobbies (with $\alpha_L \equiv \sum_{i \in L} \alpha_i$):

$$\sum_{i \in L} \nabla \Pi_i(\mathbf{t}^*) + (a + \alpha_L) \nabla W(\mathbf{t}^*) = 0.$$

What this equation says. The marginal political gain to the government from twisting any tariff in favour of organised producers – $\sum_{i \in L} \nabla \Pi_i$ – is balanced against the marginal aggregate-welfare loss, weighted by $a + \alpha_L$. The next slide gives this its compact reformulation.

GH 1994: the equilibrium “as if” welfare function

The “as if” welfare function. The equilibrium tariff is identical to the tariff a government would choose if it were maximising

$$\widetilde{W}(\mathbf{t}) = \sum_{i \in L} \Pi_i(\mathbf{t}) + (a + \alpha_L) W(\mathbf{t}).$$

Weight on producer rents and on consumer welfare.

- Organised producer rents enter with weight **1** – each organised lobby pushes for its own sector’s tariff as if sitting inside the government.
- Aggregate welfare enters with weight $a + \alpha_L$ – the government’s own welfare weight a plus the population share that is itself organised (organised lobbies internalise some consumer surplus on behalf of their members).

Key insight. The ratio $1/(a + \alpha_L)$ measures the weight of producer rents *relative* to consumer welfare. Pure capture ($a = 0, \alpha_L \rightarrow 0$): the ratio diverges and producer rents dominate. As a rises or the organised share grows, consumer welfare regains weight.

GH 1994: the protection-for-sale formula

Substituting the welfare and profit gradients into the equilibrium FOC and rearranging yields the central GH result: $\frac{t_i^*}{1+t_i^*} = \frac{I_i - \alpha_L}{a + \alpha_L} \cdot \frac{X_i/M_i}{e_i}$

Notation.

- $I_i \in \{0, 1\}$: indicator that sector i is organised.
- α_L : population share that owns sector-specific factors in some organised sector.
- a : government's weight on aggregate welfare.
- X_i/M_i : ratio of domestic output to imports (inverse import-penetration ratio).
- $e_i \equiv -(\partial M_i / \partial p_i)(p_i / M_i)$: elasticity of import demand.

Interpreting the formula. The LHS $t_i^* / (1 + t_i^*)$ is the ad-valorem markup of the domestic over the world price. The RHS decomposes into two intuitive factors:

- *political weight*: how heavily the government's "as-if" welfare function favours this sector's rents relative to aggregate welfare.
- *technological feasibility*: large domestic production share (more rent to capture) and low import-demand elasticity (less deadweight loss) make protection cheaper to deliver.

GH 1994: comparative statics

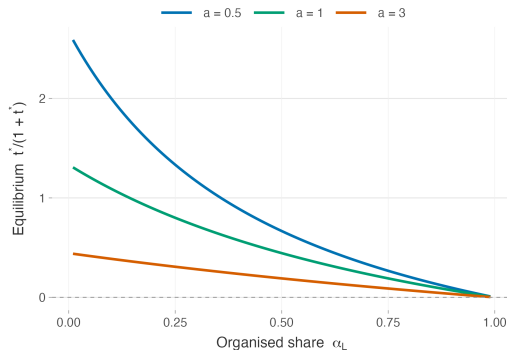
- **Organisation.** $I_i = 1$ (organised) yields positive protection. $I_i = 0$ (unorganised) yields a *negative* tariff – a consumer-favouring import subsidy – whenever $\alpha_L > 0$: the unorganised sector's losses help fund organised sectors' lower consumer prices.
- **Lobby breadth.** Larger α_L shrinks the cross-sector subsidies the organised can extract: when more of the economy is organised, each lobby internalises more consumer harm to its own members.
- **Welfare weight.** Higher a pushes t_i^* toward zero. Pure capture ($a = 0$) gives the highest protection; pure welfare-maximisation ($a \rightarrow \infty$) gives free trade.
- **Import penetration.** Higher M_i/X_i (more imports relative to domestic output) lowers t_i^* – protection is costlier when many consumers pay the higher price.
- **Elasticity.** Higher e_i (more elastic import demand) lowers t_i^* – deadweight loss grows faster, making each unit of protection politically more expensive.

Empirical prediction. Across sectors of the same economy, equilibrium tariffs should be *higher* in organised, output-intensive, inelastic sectors and *lower* in unorganised, import-intensive, elastic ones.

GH 1994: simulation and empirical bite

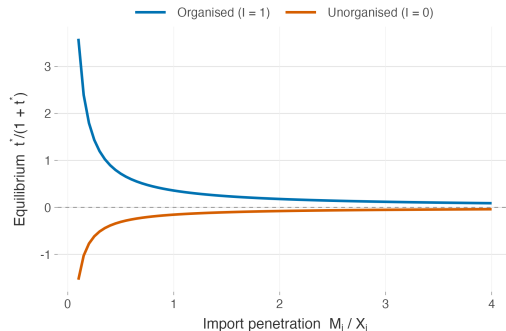
(A) Equilibrium protection vs organised share

Organised sector; higher welfare weight a flattens protection



(B) Protection vs import penetration

$\alpha_L = 0.3$, $a = 1$; unorganised sectors get a consumer-favouring subsidy



Goldberg & Maggi 1999. The canonical empirical test of GH using US tariff data: they estimate a and α_L structurally, find the model fits cross-sectoral tariff variation well, but the implied a is implausibly large (governments appear to value welfare almost $100\times$ contributions). [The empirical pattern supports the structure; the magnitudes do not.](#)

Applying GH to the “freedom-day” tariffs

Context. On 2 April 2025 (“Liberation Day”), the Trump administration announced a 10% baseline tariff on all US imports plus higher “reciprocal” tariffs on specific trading partners. The subsequent year produced a flood of sectoral carve-outs, exemptions, etc.

GH’s predictions for who wins carve-outs. The protection-for-sale formula tells us that:

- **Organised** ($I_i = 1$): established trade associations, existing lobbying infrastructure.
- **Output-intensive relative to imports** (X_i/M_i large): large domestic production to protect.
- **Facing inelastic demand** (e_i small): consumers cannot easily substitute, so the deadweight cost of protection is low.

Observed pattern.

- **Steel and aluminium:** retained heavy protection — the canonical GH case (high I , high X/M , inelastic).
- **Pharmaceuticals:** PhRMA lobbied for delays and phased implementation; the sector retained exemptions or favourable timing on later tariff escalations. **Agriculture:** facing foreign retaliation, secured federal subsidy programmes — well-organised, electorally pivotal in rural districts.
- **Less-organised downstream manufacturers and small businesses:** subject to the full tariff with no carve-out channel; bore the bulk of the cost.

Hall & Deardorff 2006: lobbying as legislative subsidy

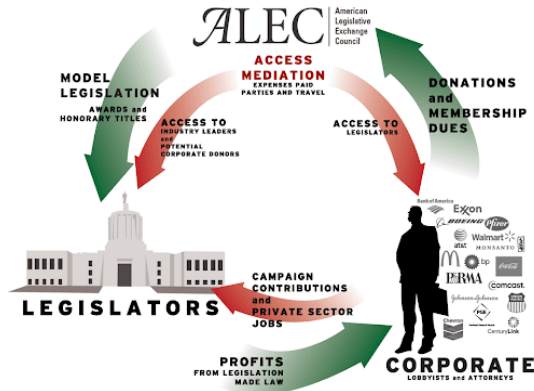
The puzzle that motivates the model. The classical exchange view (GH) predicts that IGs lobby *opponents*: there is no point paying allies for what they would do anyway. Empirically, lobbyists overwhelmingly target *allies* – the same legislators who already share their preferences. Why?

The answer: lobbying is a matching grant. Hall & Deardorff reconceptualise lobbying as the supply of *policy-relevant labour and intelligence*. The IG gives an allied legislator the resources to act on preferences she already holds.

- **Why allies, not opponents.** A subsidy to an ally enables her to pursue *their shared* goal. The same subsidy to an opponent is wasted – he would use the resources to advance his own (opposed) agenda.
- **Result 4 of S–T.** Aligned PM with binding resource constraints: the IG provides a simple or specific subsidy. Ally-targeting follows directly.

Why this matters for Steer. Subsidy is the second formal anchor of the quadrant: misaligned-with-voters but resource-rich firms work with allied legislators in the administrative arena via the labour-and-expertise channel.

An empirical illustration of legislative subsidies (Hertel-Fernandez, 2019)



Awad 2024: informational lobbying with allies

Setting. An IG has private knowledge of the state of the world relevant to a policy decision; allied legislators can use that information to make better-informed policy choices.

Why this works only for allies. Cheap talk with state-dependent preferences (S–T Result 2): informative communication is sustained only when the PM is the IG's ex-ante ally. The IG reveals what it knows when revealing serves both parties; opponents cannot credibly be informed because the IG would always have an incentive to spin the message.

Key result. The mechanism produces ally-targeting endogenously. Information flows where preferences are aligned enough to make it credible.

Empirical anchor: financial regulation. Banks lobbying allied regulators with technical risk analyses, stress-test inputs, accounting-rule comments, etc.

Why this matters for Steer. Awad is the third formal anchor of the quadrant: misaligned-with-voters firms communicate with allied regulators via the information channel. Together with GH (exchange) and Hall–Deardorff (subsidy), this completes the S–T trichotomy as the formal apparatus for Steer.

Activate: voter sympathy without organisational power

The quadrant. High α (aligned with voter preferences) but low ρ (lacking resources, networks, or institutional access). The IG has *latent support* but no inside leverage.

Strategic challenge. Allies exist among voters – but they are politically dormant. The IG's job is to convert latent sympathy into electoral pressure by raising issue salience.

What Activate looks like. Protests and demonstrations; op-eds and media campaigns; voter education and turnout efforts; reframing issues to capture voter attention. The instruments are outside lobbying aimed at the broader public, not at policymakers directly.

Climate examples. Environmental NGOs (Sierra Club, 350.org, Greenpeace); Fridays for Future and the wave of climate-protest movements; smaller clean-tech advocacy before the IRA-era industry coalition crystallised.

Empirical implication. Activate actors look small in lobbying registers but large in media. They convert public attention into an electoral signal – when they succeed.

Lohmann 1998: cost-asymmetric mobilisation

The puzzle. Olson predicts diffuse interests cannot organise effectively. Yet they sometimes do — and prevail. How?

The mechanism. What matters is not group *size* but per-capita *mobilisation cost*. A small group facing low individual costs can outmobilise a large group facing high costs — a cost asymmetry can deliver a numerical minority disproportionate political weight.

Why this matters for Activate. The Activate quadrant assumes diffuse but high- α voters. Lohmann shows they can be mobilised when mobilisation is cheap — low-stakes actions (signing petitions, attending rallies, online posting) that aggregate into a credible electoral signal.

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Empirical illustration. Lohmann documents how participation in the 1989–90 Leipzig Monday demonstrations cascaded through a fearful population: visible participation lowered the cost for the next person to join, triggering an information cascade and eventual regime change.

Implication. An Activate strategy succeeds when the IG can lower mobilisation costs for sympathetic but politically dormant voters — through framing, focal events, organisational scaffolding, or technology (social media in modern movements).

The Ansolabehere puzzle: why so little money in US politics?

The numbers. US federal campaign spending is roughly \$5–10bn per election cycle. The US federal budget is roughly \$6tn annually. Policy stakes vastly exceed campaign spending.

The puzzle. If contributions bought policy at scale, we should see far more money in politics than we do. Compared to corporate R&D, marketing, or even the implied returns from a single tax loophole, total campaign spending is trivial.

Ansolabehere et al.'s interpretation. The discrepancy suggests money is *not* primarily a vote-buying mechanism. The exchange-based view of campaign contributions over-states what money actually does.

Three reinterpretations on the table:

- *Consumption*: donors give for expressive reasons, not policy returns.
- *Investment with low marginal returns*: contributions are inputs to long-term relationships already in equilibrium.
- *Access, not policy*: contributions buy face time and agenda priority, not votes.

The next slide develops each, then evaluates which interpretation has fared best empirically.

Three answers to the Ansolabehere puzzle

- **Consumption** (Gordon, Hafer, Landa). Donors get utility from contributing itself — civic expression, group identity, ideological signalling. Money is consumption, not investment. *Predicts*: small donors, no observable policy returns, contributions tracking expressive cycles.
- **Investment with low marginal returns** (Snyder; Stratmann). Contributions are inputs to long-term relationships at steady state; each marginal contribution has small returns because the relationship is already in equilibrium. *Predicts*: large repeat donors, persistent IG–PM ties, low cross-sectional variance.
- **Access, not policy** (Hall–Wayman; Hall–Deardorff). Contributions buy meetings, face time, and agenda priority — not votes. The mechanism is subsidy/information, not exchange. *Predicts*: contributions correlate with meeting logs and committee influence; allies, not opponents, get the money.

Empirical assessment. The access interpretation has fared best. Meeting-log data confirm money buys access; vote-buying patterns are weak; the dominant empirical pattern is allies-lobbied-more — consistent with subsidy and informational mechanisms, not pure exchange.

Weschle 2022: three substitutable channels of influence

The question. If we ban one channel of IG influence, does the influence disappear — or migrate to other channels?

The three channels.

- **Campaign contributions:** money for elections; the most-regulated channel.
- **Private-sector employment:** legislators taking corporate jobs during or after office — the revolving door.
- **Network access:** personal relationships, social capital, informal communication; the least visible and least regulated.

Substitution as the key mechanism. Each channel produces broadly similar policy returns — access, influence, sometimes votes. Restricting one channel raises its cost relative to the others, so IGs reallocate effort.

Why this dissolves the Ansolabehere puzzle. E1 implicitly assumed contributions are the dominant channel. Once we recognise three substitutable channels, the puzzle dissolves: little money flows through the regulated channel because IGs have shifted to the unregulated ones.

Weschle 2022: implications for measurement and reform

Empirical result. Weschle's data on European parliamentarians: stricter campaign-finance rules coincide with higher rates of private-sector employment during and after office. The revolving door grows when contributions become legally constrained.

Implication for measurement. A study capturing only one channel systematically under-states IG influence. The right object of measurement is the *joint distribution* of activity across all three channels.

Implication for reform. Campaign-finance reform alone does not eliminate IG influence; it redirects it.

- Tighter contribution limits without restrictions on post-office employment shift activity to the revolving door.
- Restrictions on revolving-door employment without limits on contributions shift activity to direct payments.
- Effective reform requires *simultaneous* regulation of all three channels.

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- Effective reform requires *simultaneous* regulation of all three channels.

The importance of post-political careers. A central margin in modern democracies: legislators anticipating private-sector careers shape their voting in office to maintain attractiveness to future employers. Career anticipation is itself a substitute for contemporaneous contributions.

Cross-country pattern. The share of legislators who transition to lobbying or corporate roles has risen steadily since the 1990s, particularly in jurisdictions with binding contribution limits.

Van Parys 2026: agenda control as a missing-data problem

The empirical strategy that dominates the field: correlate observed contributions with observed votes or policy outcomes.

The missing data. Datasets include only bills that reached the floor — where votes happened. Bills suppressed before a vote, through committee blocks, agenda decisions, or pre-emptive amendment, are absent.

Why this matters.

- Successful influence can show up as *no event* — bill suppressed, no vote, no observation.
- Observed money–vote correlations measure only failed influence that reached a vote.
- Cross-bill regressions systematically under-state real influence; the most powerful IGs leave the smallest footprints.

The structural parallel. This is the same selection problem we encountered with structural power in §2 (the dog-that-didn't-bark). Effective influence operates by preventing the policymaker from acting, which leaves no observable trace.

Van Parys 2026: the BBB / IRA illustration

Inflation Reduction Act (2022): the successor bill, ~\$700bn, focused on climate and prescription-drug pricing; passed in heavily modified form.

What we observe.

- The vote pattern: a near-tie outcome.
- The contribution pattern: extensive lobbying expenditure by pharmaceutical, fossil-fuel, and renewables industries; significant donations to pivotal senators.

What we do not observe well.

- What *got into* the bill at draft stage — and what didn't. Which provisions were dropped or weakened during negotiations. Which adjacent reforms (e.g. broader drug-pricing measures) were excluded from the legislative vehicle entirely.

Implication. The deeper IG influence on BBB / IRA may have been on what was excluded *before* the vote — which we observe poorly. Money-in-politics measurement faces the same equilibrium-invisibility problem as structural power.

Five biases in measuring instrumental power

A taxonomy of the systematic biases recurring across the lobbying literature.

- **Alignment confounding.** An observed IG–PM correlation may reflect pre-existing alignment rather than causal influence. Without a counterfactual, the two are observationally indistinguishable.
- **Structural-power misattribution.** Observed lobbying may co-occur with anticipated business reactions. Attributing influence to lobbying alone over-states the channel.
- **Level mismatch.** Studies typically measure Level 3 (policy choice) only; Level 2 (constraints) and Level 1 (problem structure) influence go uncounted.
- **Arena selection.** Registry-based studies over-cover the political arena and under-cover the administrative arena.
- **Observability bias.** Effective deterrence is invisible: no proposal, no contest, no observable action — the equilibrium outcome of successful influence is often a non-event.

Implication. A credible empirical strategy must (i) specify a counterfactual, (ii) name the level and arena being measured, and (iii) account for the equilibrium-invisibility problem.

Inside vs outside lobbying – the strategic choice

Inside lobbying. Direct private contact with policymakers – meetings, technical comments, drafted text, regulatory consultation, revolving-door access.

Outside lobbying. Public mobilisation aimed at changing voter behaviour – advertising, op-eds, framing campaigns, grassroots organisation, electoral threats.

The naive view: substitutes. Inside is cheaper and lower-risk if available. IGs use outside only when inside fails – a tool of the weak or marginalised.

Why the data don't fit. Aligned, well-resourced IGs – clean-energy industry on the IRA, pharma on Medicare, big tech on platform regulation – deploy outside lobbying *alongside* inside lobbying even when insider access is available. Outside is plainly more than a tool of last resort.

Wolton 2021's alternative. Inside and outside lobbying are *strategic complements*, not substitutes. Going public disciplines what gets said in private. The next slide develops the mechanism.

Wolton 2021: outside as commitment device

Setup intuition. An IG can communicate privately with a policymaker (inside) or publicly with voters who then reward the PM for responsive policy (outside). Outside lobbying is costly. The PM is uncertain about the state of the world.

The key insight. An IG with *good news* (favourable state) can credibly signal it by paying the cost to go public. An IG with bad news has no incentive to pay – so going public is itself a credible signal.

Why outside disciplines inside. If outside-going is credible, then a *refusal* to go outside is also informative – it implies the news is not as favourable as the IG would claim in private. The inside channel becomes more informative *because* the outside option exists.

Empirical signature: Amplify. High-salience policy debates feature parallel inside and outside lobbying by aligned, resource-rich IGs. The two channels reinforce each other.

Implication. Outside lobbying is part of the equilibrium signalling structure – not a tool of last resort. Restricting outside lobbying weakens inside lobbying too.

Wolton in practice: a stylised walk-through

Setup. An aligned, resource-rich IG — say the clean-energy industry on a green-investment package — privately knows whether the policy's economic case is strong or weak. The policymaker is sympathetic but uncertain; voters can be activated at a cost.

Strong-case scenario. The IG runs a visible coalition: op-eds, advertising, public endorsements, public hearings — *alongside* the usual inside meetings. The public expenditure is costly, so the IG would only pay it if the underlying case is genuinely defensible. The policymaker now interprets the matching inside testimony as informative rather than self-serving.

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Weak-case scenario. The IG quietly opts out of the public campaign and lobbies only inside. The policymaker observes the silence and downweights the inside claims — the IG had the option to amplify and declined.

What this rationalises. The empirical regularity that aligned, well-resourced IGs deploy inside and outside lobbying *in parallel* on high-salience legislation — clean-energy on the IRA, the tech sector on selected platform-regulation bills — rather than reserving outside for moments of insider exclusion.

Diagnostic. Look for the joint pattern. Outside lobbying without parallel inside access points to Activate; inside lobbying without an outside flank points to classical Steer; the two running together is the Amplify signature.

Reframe: shifting which dimension matters

The Reframe problem. An IG is misaligned with the pivotal voter and weak. Inside lobbying is closed (no allies); outside lobbying on the operative dimension would mobilise opponents, not allies.

The strategy. Change *which dimension* is salient. Reframe the issue along a different axis where the IG is better positioned.

Climate examples.

- **Fossil-fuel industry:** reframe climate policy as *cost-of-living / competitiveness*, not *climate / science*. Activates cost-sensitive voters who would otherwise be neutral or pro-action.
- **Coal-dependent communities:** reframe as *just transition / regional fairness*, not *decarbonisation*.
- **Energy-intensive industry:** reframe as *industrial base / national security*.

When Reframe works. The IG needs credibility on the new dimension — and the new dimension must be salient enough that voters care. If neither holds, the result is strategic exclusion (no viable strategy).

Formal status. Unlike Steer (Grossman–Helpman), Activate (Schnakenberg–Turner subsidy paradigm), and Amplify (Wolton), Reframe sits at the boundary of formal theory. The closest anchors are Wolton (2021) — where a misaligned outside option disciplines inside communication — and the older heresthetics tradition.

From actor strategies to voter–IG configurations

Each (α, ρ) quadrant has its own logic, mechanism, and empirical signature:

- **Steer**: inside lobbying via exchange, subsidy, or information; the classical capture quadrant.
- **Activate**: outside lobbying via cost-asymmetric mobilisation; converts latent voter sympathy into pressure.
- **Amplify**: inside + outside operating together; aligned IGs signalling credibly.
- **Reframe**: outside lobbying that shifts the operative dimension itself.

What remains. Each strategy converts *into* voter behaviour. Whether voters then *discipline* IG pressure or *amplify* it depends on the structure of voter attention and producer-side cohesion.

§4 asks. When does the electoral channel discipline IG pressure, and when does it amplify it? The answer requires a two-pressure framework: voter demand $\times$ producer configuration. Six configurations emerge, with different stability and durability properties.

The lecture's payoff. The actor-level framework of §3 is a vocabulary; the configuration framework of §4 is the structural answer. Climate policy is the natural test case.

Outline

Foundations: interest groups and the logic of collective action

Structural power: influence through anticipation

Instrumental power: influence through lobbying

When voters and interest groups interact: climate policy as a lens

Conclusion and outlook

Climate policy as a window on voter–IG interaction

Why climate? Climate policy in advanced democracies is now less about *adoption* than about *durability* (Edenhofer et al. 2026). Most countries have committed to net zero in some form; the question is whether those commitments survive turnover, dilution, and reversal.

What makes climate a sharp test.

- *Long-term policy problem*: near-term costs for delayed, hard-to-claim benefits.
- *Intermittent salience*: voters care episodically, not steadily.
- *Asset devaluation*: stringency makes some producers' business models nonviable, creating existential resistance.

The framework's two pressures.

- **Electoral demand** — characterised by *salience* and *clarity*; yields three states (latent, noisy, clear activation).
- **Producer configuration** of the dirty sector — unified in resistance, or fragmented through defection.

Their interaction yields **six configurations**, each with characteristic stringency and durability properties. The next slides develop the building blocks; the configurations follow.

The electoral side: three types of climate demand

Two factors generate three states.

- *Salience*: is climate important enough relative to other issues to affect political behaviour?
- *Clarity*: when climate is salient, does the distribution of preferences identify a vote-maximising direction?

Latent demand. Preferences exist but do not structure political behaviour. Voters tell pollsters they care; they do not vote on it. Other issues — prices, employment, security, immigration — dominate.

Clear activation. Climate is salient *and* the preference distribution identifies a vote-maximising direction. The office-seeking calculus is unambiguous; the median-voter logic binds.

Noisy activation. Climate is salient but the signal is unclear — preferences are dispersed, polarised, or contested by competing IG frames. The office-seeking calculus does not pin down the policymaker's response.

Important distinction. Salience and clarity are different things. Climate can be salient without producing a clear signal; preferences can be concentrated without being activated. Noisy activation is its own analytical category, not a hybrid.

The electoral side: traceability

The electoral asymmetry (Arnold, 1993). Voters punish costs more than they reward *benefits*, especially when costs are traceable to a specific government decision. Under latent demand, inaction is electorally cheap; action is electorally costly.

Pass-through. Whether voters bear policy costs — and whether they see them as such — depends on how much of a regulatory burden producers can shift onto households via prices, layoffs, or service withdrawal.

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Two channels of traceability.

- **Direct traceability:** voters bear costs directly — fuel taxes, heating mandates, building-retrofit requirements. Pass-through is mechanical.
- **Producer-mediated traceability:** organised producers transmit costs.

Strategic implication. Acting policymakers have incentives to *hide* or *diffuse* costs along temporal, geographic, or instrumental margins. This explains why climate policy tends toward instruments with diffuse or delayed costs.

The framework's claim. Latent demand constrains *the design of action*, not whether action occurs. For action to occur in the absence of activated demand, the framework looks to the producer side.

The producer side: adjustment and dirty-sector (dis)unity

Two sectors.

- **Dirty sector:** fossil-fuel-intensive firms; lose from climate policy (compliance burdens, asset devaluation, existential risk where business model is incompatible with decarbonisation).
- **Clean sector:** producers of low-carbon substitutes; gain via market expansion, subsidies, infrastructure investment.

Firm-level position depends on adjustment costs. Low-adjustment-cost firms (viable substitutes, limited stranded assets) defect more readily; high-adjustment-cost firms resist. Some low-cost firms even *support* stringency when it raises rivals' costs by more than their own (Kennard, [2020](#)).

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Channels of resistance:

- **Structural power:** anticipation of disinvestment, capital flight, job losses.
- **Instrumental power:** inside lobbying on design and exemptions; outside lobbying via workers, regions, cost framing.

Sectoral (dis)unity. Aggregating firm choices yields the framework's main producer-side variable. **Unified:** most firms resist; **fragmented:** enough have defected to give clean producers allies among them.

Endogeneity to past policy. The configuration is partly endogenous — subsidies, mandates, and procurement build constituencies among adjusting and clean firms, eroding dirty unity over time.

The policymaker's strategy space: accommodation vs transformation

Most climate-policy instruments lie on a continuum between two strategies, distinguished by their political function.

Accommodation. Manages the political consequences of climate policy, taking the current configuration as given. Tools: revenue recycling, targeted compensation for affected workers and regions, financial support for adjusting firms.

- *Credibility challenge*: affected actors must believe promised transfers continue.
- *Information challenge*: policymakers often lack data to target support efficiently.

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Transformation. Alters the configuration future policymakers face, through policy feedback. Tools: industrial policy and subsidies expanding the clean sector; negotiated phase-outs that fragment dirty opposition; mandates and standards that induce firm-level adjustment.

- *Feedback channel*: new beneficiaries form quickly enough to raise the cost of later reversal.
- *Speed challenge*: feedback must materialise before turnover brings opponents back.

Strategic interdependence. The two strategies are *complements* when accommodation cushions losses and buys time for transformative feedback; *substitutes* when fiscal capacity is tight and one crowds out the other.

The six configurations of climate politics

	Producers unified	Producers fragmented
Latent demand	Quiet dirty dominance	Quiet producer transformation
Noisy activation	Noisy dirty dominance	Noisy contest
Clear activation	Weak electoral dominance	Strong electoral dominance

Latent demand: quiet dirty dominance vs quiet producer transformation

Commonality. Climate is not salient; voters do not punish inaction and dislike traceable costs. Inaction is electorally cheap; action, if it occurs, must be disguised.

Quiet dirty dominance (unified producers).

- Structural power and inside lobbying suffice; outside lobbying is unnecessary and would risk activating opposition.
- Outcome: low stringency. Where action occurs, it is justified on adjacent grounds (energy security, industrial strategy) and constrained by dirty-sector accommodation (cost-opaque instruments, free allocations, exemptions).
- **Self-reinforcing**: no clean beneficiaries form to demand more; no defection erodes dirty unity.

Quiet producer transformation (fragmented producers).

- Some dirty firms have defected; clean firms find allies among them.
- Limited reform proceeds through *cost-opaque* instruments. Voter costs avoided because demand is latent; producer opposition muted because the coalition has cracked.
- Durability hinges on whether feedback materialises fast enough to lock in beneficiaries.

Interpretation. The latent row produces low-headline policy. But the fragmented variant can support substantial behind-the-scenes transformation if instruments are well designed.

Noisy activation: noisy dirty dominance vs noisy contest

Commonality. Salience is high but the signal is unclear. The policymaker is punished both for inaction (loses pro-action voters) *and* for costly action (loses cost-sensitive voters).

Noisy dirty dominance (unified producers).

- Unified dirty sector mobilises through media, regional and labour constituencies, and cost-of-living narratives.
- Climate is framed primarily in terms of *costs* — energy prices, household burden, regional employment — with benefits receding to the background.
- Outcome: action, when it occurs, is framed in non-climate terms (competitiveness, jobs, security); prior stringency vulnerable to reversal where cost-framing makes weakening politically cheap.

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Noisy contest (fragmented producers).

- Adjusters and clean producers actively lobby for stringency-expanding instruments through inside and outside channels; resisters operate but no longer dominate.
- Outside lobbying on *both* sides; framing terrain contested rather than dominated.
- Policymaker tilts toward transformation; feasibility depends on fiscal capacity.
- Failure modes: *reversal* (opponents return before feedback locks in) or *dilution* (formal policy survives but is weakened through inside lobbying).

Clear activation: weak vs strong electoral dominance

Commonality. Voters give a clear pro-climate signal; the median-voter logic binds at adoption. The question is what kind of policy survives implementation.

Weak electoral dominance (unified producers).

- Clear electoral pressure forces adoption.
- Unified dirty producers retain structural power and extract design concessions: exemptions, free allocations, generous compensation.
- Outcome: nominal stringency $\gg$ effective stringency. The statute survives; the substance is eroded through ongoing inside lobbying on design and implementation.

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Strong electoral dominance (fragmented producers).

- Clear electoral pressure aligned with fragmented producers.
- Clean and adjusting producers consolidate around the policy, raising the cost of later reversal; resisters retain influence only on technical details.
- Outcome: adoption *plus* durable implementation. The framework's benchmark for "the system works."

Note. Even under a clear pro-climate signal, unified producers can substantially weaken policy in the implementation cycle. The producer-side condition is the binding constraint on durability.

Outline

Foundations: interest groups and the logic of collective action

Structural power: influence through anticipation

Instrumental power: influence through lobbying

When voters and interest groups interact: climate policy as a lens

Conclusion and outlook

Substantive takeaways of today's lecture

Who organises effectively?

- Concentrated stakes plus low mobilisation costs make producers, professionals, and organised workers easier to mobilise than diffuse consumers (Olson; Hansen). But see also Trumbull, [2012](#).
- Who organises in $t + 1$ depends partly on what policy was in t – the producer configuration is endogenous to past policy through feedback effects.

When do organised interests prevail over voters?

- Structural power (anticipation) operates without action; instrumental power (lobbying) requires it. Together they cover the influence space.
- Whether voters discipline organised pressure depends on the configuration of *voter demand* (latent / noisy / clear) and *producer cohesion* (unified / fragmented).
- Six configurations span the range from quiet dirty dominance to strong electoral dominance.

Are interest groups bad or good for democracy?

- It depends on the configuration. Unified-producer cells produce capture; fragmented-producer cells produce pluralist contest.
- Madison was right that the institutional question is which configurations dominate, not whether factions can be eliminated.

Today's lecture in broader context

The course so far built up the electoral channel.

- **Week 1** — *electoral accountability*: how voters discipline policymakers through retrospective and prospective voting.
- **Week 2** — *party competition*: how parties compete for votes, with convergence and divergence properties.
- **Week 3** — *distributive politics*: how politicians use targeted transfers to build electoral and legislative coalitions.

Week 4 added the second channel. Organised interests — producers, lobbies, advocacy groups that exert pressure between elections — shape policy alongside voters. The two channels operate together:

- Sometimes the electoral channel disciplines organised pressure (strong electoral dominance).
- Sometimes it amplifies it (noisy dirty dominance, where cost-framing turns voter attention against costly policy).
- Sometimes it leaves room for organised power to operate quietly (quiet dirty dominance, weak electoral dominance).

What integrates the four weeks. The political economy of advanced democracies works through two institutions — elections and organised interests — whose interaction determines policy adoption *and* durability.

Methodological theme. Across the four weeks, formal political-economy models do disciplined work: they specify counterfactuals, isolate mechanisms, and force us to take measurement problems seriously.

The course in one slide

The political economy of advanced democracies operates through two channels — voters and organised interests — whose interaction shapes which policies are adopted and how durable they are.

Week 1 — electoral accountability. Voters punish and reward policymakers via retrospective and prospective voting. We saw that the disciplining power of elections is weaker than the median-voter theorem suggests, once we model voter information and incumbent commitment problems.

Week 2 — party competition. Parties compete for votes through positioning, mobilisation, and turnout. Convergence to the median is the exception, not the rule, once we model heterogeneous voters, probabilistic voting, and party constraints.

Week 3 — distributive politics. Politicians use targeted transfers to build coalitions. The institutional context (electoral rule, party system, fiscal capacity) shapes who gets what; the core-vs-swing logic depends on it.

Week 4 — interest groups and lobbying. Organised interests operate through structural (anticipation) and instrumental (action) power. When interest groups prevail depends on the configuration of voter demand and producer cohesion — not on their power alone.

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Outline

Appendix A: Foundations

Appendix B: Structural power

Appendix C: Steer — formal foundations

Appendix D: Other formal models

A.1 — Trumbull, 2012: the puzzle and resolution

The puzzle. Olson predicts that diffuse beneficiaries cannot organise, so consumer interests should be chronically out-lobbied by producers. Empirically, advanced democracies have built extensive consumer-protection regimes: food and drug safety, product liability, antitrust, financial-consumer regulation.

Trumbull's resolution: weak interests prevail through alliances.

- **State actors as protagonists.** Regulators, prosecutors, and bureaucratic entrepreneurs build careers on advancing diffuse-interest causes; they supply the organisational capacity that consumers themselves lack.
- **Reformist parties.** Progressive and centre-right parties at different historical moments championed consumer protection as a public-good plank that wins votes from cross-cutting majorities.
- **Institutional venues that privilege diffuse interests.** Courts, independent agencies, and judicial review create entry points that bypass the legislative collective-action problem.

A.1 — Trumbull (continued): evidence and connection to the framework

Empirical anchor. The historical sequence of US and EU consumer regulation does not fit a pure Olson model: producer counter-mobilisation is consistent with the data, but the legislative and regulatory wins of the diffuse side are systematic, not anomalous. Trumbull documents the pattern across food-safety, drug-pricing, product-liability, and consumer-financial regulation in the post-war US and EU.

Mechanism, restated. The crucial input is not consumer mobilisation but the existence of *state-side allies* with career incentives to advance diffuse-interest causes. Where those allies are absent — e.g. in jurisdictions with politicised bureaucracies or weak independent agencies — the Olson prediction survives.

Connection to the framework. In the (α, ρ) typology, Trumbull's mechanism is a population shift on the *power* dimension: state allies and institutional venues raise ρ for diffuse interests that would otherwise be stuck in *Activate* or *Reframe*, moving them toward *Amplify*. The framework therefore accommodates both Olson's pessimism (when ρ stays low) and Trumbull's optimism (when allied state actors raise ρ).

Outline

Appendix A: Foundations

Appendix B: Structural power

Appendix C: Steer — formal foundations

Appendix D: Other formal models

B.0 — Primer: continuous-time discounting (1/2)

Discrete-time benchmark. A patient agent values utility flows as

$$V = \sum_{t=0}^{\infty} \beta^t u(c_t), \quad \beta = \frac{1}{1+r} \in (0, 1).$$

β is the per-period discount factor. Time runs in integer periods.

Continuous-time analogue.

$$V = \int_0^{\infty} e^{-\rho t} u(c(t)) dt, \quad \rho > 0.$$

ρ is the *instantaneous rate of time preference*; the integral replaces the sum.

The link. Set period length Δ and discount factor $\beta = e^{-\rho\Delta}$. As $\Delta \rightarrow 0$, the Riemann sum becomes the integral. Discrete and continuous time are notational alternatives for the same idea.

Why $e^{-\rho t}$ specifically? It is the unique kernel that is positive, decreasing in t , and multiplicatively separable in time:

$$e^{-\rho(t+s)} = e^{-\rho t} e^{-\rho s}.$$

Deferring everything by s just multiplies value by $e^{-\rho s}$ — no time inconsistency creeps in.

Interpreting ρ . The rate at which the agent discounts future utility. Lower $\rho \Leftrightarrow$ more patient. The half-life of a utility flow is $t_{1/2} = \ln 2 / \rho$. At $\rho = 0.04$ (P–W’s calibration), the half-life is about 17 years; the weight on a flow one year ahead is $e^{-0.04} \approx 0.96$; one hundred years ahead, $e^{-4} \approx 0.018$.

B.0 — Primer: continuous-time discounting (2/2)

- **PV of a constant flow.** For a perpetuity of u utils per unit time:

$$\int_0^{\infty} e^{-\rho t} u dt = \frac{u}{\rho}.$$

A perpetual flow of one util per unit time is worth $1/\rho$ utils today.

- **PV of a growing flow.** For $u_0 e^{gt}$ with $\rho > g$:

$$\int_0^{\infty} e^{-\rho t} u_0 e^{gt} dt = \frac{u_0}{\rho - g}.$$

The Gordon growth formula. The condition $\rho > g$ is what makes the integral finite.

Why P-W needs this. Output and profits grow geometrically along an investment path: $Y(t) = Y(0) e^{gt}$ with $g = \nu s(1 - m)$. The log-utility flow then grows *linearly*:

$$\ln P(t) = \ln(1 - s) + \ln(1 - m) + \ln Y(0) + gt.$$

Integrating against $e^{-\rho t}$ gives the closed-form present value

$$\int_0^{\infty} e^{-\rho t} \ln P(t) dt = \frac{\ln(1 - s) + \ln(1 - m) + \ln Y(0)}{\rho} + \frac{g}{\rho^2}.$$

Why this gives a closed form. Log payoff $\times$ exponential discount $\times$ exponential growth produces a value function with log-linear structure $V(Y) = A + B \ln Y$, where $B = 1/\rho$. The FOC for s then becomes algebraic, yielding the market investment rate $s^M = 1 - \rho/[\nu(1 - m)]$.

Static neutrality, restated. A consumption tax shifts consumption by factor $(1 - t_c)$, which enters $\ln$ additively:

$\ln((1 - t_c)(1 - s)(1 - m)Y) = \ln(1 - t_c) + \dots$. The new term is constant in s , so the FOC — and hence s^M — is unchanged. The structural-dependence puzzle starts here.

B.1 – P–W: setting up the shareholder's problem

Recall the primitives: wage share m fixed; investment rate $s \in [0, 1]$; linear technology

$Y'(t) = \nu s (1 - m) Y(t)$; profits net of investment $P(t) = (1 - s)(1 - m)Y(t)$.

Shareholders maximise:

$$\max_{\{s(t)\}} P^* = \int_0^\infty e^{-\rho t} \ln P(t) dt = \int_0^\infty e^{-\rho t} [\ln(1 - s(t)) + \ln(1 - m) + \ln Y(t)] dt$$

Capital / output dynamics (taking Y as the state):

$$\dot{Y}(t) = \nu s(t) (1 - m) Y(t), \quad Y(0) = Y_0 > 0$$

Solving by Hamilton–Jacobi–Bellman. Let $V(Y)$ be the present value of P^* from Y . The HJB equation:

$$\rho V(Y) = \max_{s \in [0,1]} \left\{ \ln(1 - s) + \ln(1 - m) + \ln Y + V'(Y) \nu s (1 - m) Y \right\}$$

Guess: $V(Y) = A + B \ln Y$ for some constants A, B to be determined. This is the natural guess given the log-linear structure of payoffs and the linear Y -dynamics.

B.1 – P–W: solving for s^M

Differentiate the HJB w.r.t. s (interior solution):

$$-\frac{1}{1-s} + V'(Y) \nu (1-m) Y = 0$$

With the guess $V(Y) = A + B \ln Y$ we have $V'(Y) = B/Y$, so $V'(Y) Y = B$. The FOC becomes:

$$\frac{1}{1-s} = B \nu (1-m) \iff s = 1 - \frac{1}{B \nu (1-m)}$$

Pin down B via the HJB identity. Substitute the optimum s back in:

$$\rho(A + B \ln Y) = \ln \frac{1}{B \nu (1-m)} + \ln(1-m) + \ln Y + B \cdot \nu (1-m) \left[1 - \frac{1}{B \nu (1-m)} \right]$$

Matching the $\ln Y$ coefficient: $\rho B = 1$, so $B = 1/\rho$. Plugging back:

$$s^M = 1 - \frac{1}{(1/\rho) \nu (1-m)} = 1 - \frac{\rho/\nu}{1-m}$$

The market rate of investment. Constant of A (the value-function intercept) can be solved from the HJB but is irrelevant for s^M .

B.2 – B–B: game structure

Players: business lobbyist B and policymaker G .

Types and states: Nature draws state $t \in \{t_1, t_2\}$:

- t_1 (prob θ_1): policy has severe negative inducement effects of size α on B ; if G passes, G pays electoral cost u
- t_2 (prob $1 - \theta_1$): policy imposes only minor cost β on B ; no inducement effect on G

Information: B observes t ; G knows only the prior $(\theta_1, 1 - \theta_1)$.

Actions:

- B sends signal $s \in \{s_1, s_2\}$: s_1 = lobby, s_2 = silent
- G then chooses action $a \in \{a_1, a_2\}$: a_1 = pass, a_2 = retain status quo

Cost structure:

- B pays material lobbying cost l whenever $s = s_1$
- B pays reputation cost k if it sends s_1 in state t_2 (caught misrepresenting)
- G pays pledge cost p if she chooses a_2 (withdraws policy she had pledged to pass)
- G pays confidence cost v from open dispute (when $s = s_1$ and $a = a_1$)

Parameter restriction: $\alpha > \beta > 0$ and $u, v, p, k, l > 0$.

B.2 – B–B: payoffs and equilibrium concept

Payoffs (lobbyist, policymaker) for each (s, a, t) combination:

Signal s_1 (lobby)	t_1	t_2
a_1 (pass)	$(-\alpha - l, -u - v)$	$(-\beta - l - k, -v)$
a_2 (status quo)	$(-l, -v - p)$	$(-l, -v - p)$

Signal s_2 (silent)	t_1	t_2
a_1 (pass)	$(-\alpha - k, -u)$	$(-\beta, 0)$
a_2 (status quo)	$(0, -p)$	$(0, -p)$

Equilibrium concept: Perfect Bayesian Equilibrium (q^*, r^*, μ^*) :

1. B 's strategy q^* best-responds to G 's strategy r^* .
2. G 's strategy r^* best-responds to B 's, given posterior beliefs μ^* .
3. Beliefs $\mu^*(t | s)$ satisfy Bayes' rule on the equilibrium path.

Two parameter ratios determine equilibrium: l/k and p/u .

B.2 — B–B: the separating equilibrium

Proposition 1 (separating PBE). A separating PBE exists when:

- Case (a): $\beta/k < l/k < \alpha/k + 1$ and $p/u < 1$; strategy $(s_1 \mid t_1, s_2 \mid t_2; a_2 \mid s_1, a_1 \mid s_2)$.
- Case (b): $l/k < 1$ and $p/u > 1$ (with appropriate further conditions).

Logic of Case (a):

- B in t_1 lobbies: pays l , but G withdraws and B avoids inducement cost α .
- B in t_2 stays silent: lobbying costs l plus risk of lying cost k — not worth it.
- G withdraws after s_1 (inferring t_1): pledge cost $p < u$ inducement cost.
- G passes after s_2 (inferring t_2): no inducement effect to fear.

Incentive-compatibility checks:

- Type t_2 does not deviate to s_1 : $-l - k < 0$, so $l + k > 0$ (trivially).
- Type t_1 does not deviate to s_2 : $-\alpha < -l$, so $l < \alpha$.
- G 's response is optimal given correct posterior beliefs.

Interpretation: the separating equilibrium captures structural-power influence channelled through credible lobbying. The signal reveals private information, and G rationally defers to it.

B.2 – B–B: semi-separating and pooling equilibria

Proposition 2 (semi-separating PBE). When $l/k < \beta/k$ and $\theta_1 < p/u < 1$, a semi-separating PBE exists in which t_2 randomises between s_1 and s_2 . The mixing probabilities solve:

$$y = \frac{\theta_1(u - p)}{p\theta_2}, \quad x = \frac{\beta - l}{\beta + k}, \quad \pi = \frac{p}{u}$$

B partially reveals state; G 's posterior beliefs lie between the prior and certainty.

Proposition 3 (pooling type I – always lobby). When $l/k < \beta/k$ and $p/u < \theta_1$, both types of B send s_1 . G 's posterior coincides with the prior. G passes (the lobbying signal is uninformative).

Proposition 4 (pooling type II – silence). Multiple sub-cases. The Commonality: B does not lobby in either state. Required either l/k large (lobbying too costly) or $p/u < \theta_1$ (pledge cost too low). G 's response varies across sub-cases.

Substantive implication. Structural power operates effectively only in the intermediate-credibility region. When lobbying is too cheap, or pledge costs too low, the signalling channel cannot deliver structural-power influence.

B.4 — Anticipation game: setup

Players: government G and a representative firm F .

Type space. $\theta \in [0, 1]$ indexes the firm's exit capability. F observes θ ; G knows only $F(\theta)$ with positive density f on $(0, 1)$.

Order of moves.

1. Nature draws θ ; F observes, G does not.
2. G chooses $x \in \{S, B\}$: status quo or business-costly policy of stringency d .
3. If $x = B$: F chooses $y \in \{A, R\}$: acquiesce or react (disinvest, relocate, downsize, exit).

Payoff primitives.

- G : gross benefit $a + b$ from B (a = ideological / political pay-off; b = policy gain under acquiescence); damage $g(\theta) \geq 0$ when a type- θ firm reacts, g increasing in θ .
- F : policy loss d under acquiescence; private reaction cost $c(\theta) \geq 0$, c strictly decreasing in θ .

B.4 – Anticipation game: firm best response

Firm's problem (conditional on $x = B$). Pick the cheaper of acquiescence (cost d) and reaction (cost $c(\theta)$):

$$F \text{ reacts} \iff c(\theta) \leq d \iff \theta \geq \theta_R \equiv c^{-1}(d)$$

The reaction cutoff θ_R .

- Types $\theta \geq \theta_R$ react; types $\theta < \theta_R$ acquiesce.
- Decreasing in d : more onerous policies trigger reaction from more firms.
- Increasing in c pointwise: any technology or institution that raises the cost of reacting (CBAMs, capital controls, asset-specific regulation) shrinks the reactive set.

Reactive mass: $\Pr(\theta \geq \theta_R) = 1 - F(\theta_R)$.

Existence and uniqueness. Under continuous, strictly decreasing c and f positive on $(0, 1)$, $\theta_R \in (0, 1)$ is unique and continuous in d – so comparative statics are well-defined.

B.4 – Anticipation game the structural-power burden $\mathcal{P}$

Government's expected payoff from B (given the firm's best response):

$$\mathbb{E}[u_G(B)] = a + b - \underbrace{\int_{\theta_R}^1 g(\theta) f(\theta) d\theta}_{\equiv \mathcal{P}(d; g, F)}$$

Policy-initiation rule. G proposes B iff

$$a + b \geq \mathcal{P}(d; g, F)$$

Interpretation.

- $\mathcal{P}$ is the expected damage from anticipated reactions, weighted by the density of reactive types.
- Without structural power, G would propose B whenever $a + b \geq 0$. With structural power, the bar rises by $\mathcal{P}$.
- $\mathcal{P}$ is therefore the *policy space foregone*: the set of substantively attractive policies G rationally declines to attempt.

When $\mathcal{P}$ is large, equilibrium play is $x^* = S$: no proposal, no conflict, no observable signal – the constraint is fully operative but produces no events to measure.

B.4 — Anticipation game: comparative statics

Three comparative statics on $\mathcal{P}(d; g, F)$:

- **Distribution shift:** F moves toward higher θ (globalisation, financialisation) $\Rightarrow$ reactive mass $1 - F(\theta_R)$ rises $\Rightarrow \mathcal{P} \uparrow$.
- **Reaction-cost shift:** $c(\theta)$ rises pointwise (CBAMs, capital controls, asset-specific regulation) $\Rightarrow \theta_R \uparrow \Rightarrow$ reactive mass falls $\Rightarrow \mathcal{P} \downarrow$.
- **Damage shift:** $g(\theta)$ rises pointwise (more politically damaging reactions) $\Rightarrow \mathcal{P} \uparrow$ for any cutoff.

Three concrete scenarios (carbon tax of stringency d):

- Globalisation: F shifts right; $\mathcal{P} \uparrow$; the tax becomes less feasible.
- CBAM: c rises pointwise; θ_R rises; $\mathcal{P} \downarrow$; the same tax becomes more feasible.
- Strict capital controls: F effectively truncated below the high- θ region; $\mathcal{P} \downarrow$; stringent variants become viable.

Bridge to identification. Each primitive F, c, g has empirical analogues. Variation in F or c that is exogenous to g is exactly the design the memo proposes — the same logic as identifying sanctions efficacy from exogenous variation in sanction credibility, not from observed sanctions imposed.

Outline

Appendix A: Foundations

Appendix B: Structural power

Appendix C: Steer — formal foundations

Appendix D: Other formal models

C.1 — Stigler, 1971: primitives

Actors. An *industry* (or occupation) that demands regulation; *politicians* who supply it; *voters* in the background. Politicians maximise re-election prospects; industries maximise the present value of rents. The defining asset of the state is its monopoly on coercion (to tax, prohibit, compel).

Four supply instruments. What an industry may buy from the state:

1. direct cash subsidies;
2. control of entry by new rivals;
3. regulation of substitutes and complements;
4. price-fixing.

Why diffuse interests lose. Political decisions are coercive, infrequent, and bundled. Voting is rationally uninformed. Small, concentrated groups have higher per-capita stakes, can monitor representatives, and can deliver bloc votes, money, and organisation per member. The diffuse majority that bears the cost cannot.

Status. The model is verbal, not formal: there is no objective function the regulator solves. The formal structure comes in with Peltzman.

C.1 – Stigler: central proposition and evidence

Central proposition. *“As a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit.”* Equilibrium regulation reflects effective political demand, not the public interest. Capture is the rule, not the exception.

Two empirical anchors.

- **1959 US oil import quotas.** The cross-section of allocations within the industry is regressive: the smallest refiners received 11.4% of imports; the largest received 3.8%. Producer rents are deliberately allocated to favour the smaller, politically pivotal firms.
- **State truck weight-limits.** A reduced-form regression $X_i = a + bX_3 + cX_4 + dX_5$ links state-level weight limits (X_i) to trucks per 1000 agricultural workers (X_3), average rail haul (X_4), and the share of high-quality highway (X_5). Weight limits rise with farming demand and highway quality, fall with rail substitutability.

Slide summary. Regulation is allocated through a political market in which small, concentrated groups outbid the diffuse majority; industries capture the regulator to obtain entry control, price-fixing, or favourable cross-industry rules.

C.2 — Peltzman, 1976: setting up the politician's problem

From verbal to formal. A vote-maximising regulator/politician chooses the size of a beneficiary group n (out of N voters), the transfer T , and organisation/mitigation spending K . Beneficiaries are taxed at rate t on wealth B per non-member.

The political objective.

$$M = n f(g) - (N - n) h(t, z),$$

with

$$g = \frac{T - K - C(n)}{n}, \quad z = \frac{K}{N - n}, \quad T = t B (N - n).$$

Interpreting the building blocks.

- $f(g)$: per-capita support response of beneficiaries to net gain g .
- $h(t, z)$: per-capita opposition response of taxpayers to tax t and spending z that mitigates their reaction.
- $C(n)$: organisational cost of running a coalition of size n .

The endogenous variables. Group size n , transfer T , organisation K — all chosen to maximise M .

C.2 – Peltzman: main result and comparative statics

First-order conditions. The vote-maximiser's FOC for T yields, after substitution,

$$f_g = h_t \cdot \frac{1}{B + tB_t}, \quad t^* < t_m,$$

where t_m is the revenue-maximising tax. The equilibrium tax is therefore strictly below the cartel-maximising tax: *partial*, not full, capture.

Equilibrium group share

$$\frac{n}{N} = 1 - \frac{f_g(g + a)}{f + h - f_g(m - a)}, \quad a = C/n, \quad m = C_n.$$

Four predictions.

- Regulated price lies *between* the competitive and the monopoly price ($f_p \neq 0$).
- Regulation is most attractive in oligopolistic industries with intermediate pre-regulation rents – not pure monopolies or pure competitiveness.
- Cost reductions or demand growth raise the total surplus and so raise the political payoff to regulation.
- Coalitions are *mixed*: some consumers may be subsidised, some producers taxed – “pure producer protection” is a special case.

Advance over Stigler. Endogenises group size, the tax rate, and the regulated price. Replaces single-industry capture with cross-group coalitions and predicts shared spoils. Left open: dynamics; the political-power function $M(\cdot)$ itself; informational micro-foundations.

C.3 — Becker, 1983: pressure-group competition

Players. Two homogeneous groups, subsidised s (size n_s) and taxed t (size n_t). Each member chooses effort m_i ; aggregated into a group-level *pressure* $p_i = p(m_i, n_i)$ with controllable free-riding.

Influence functions. Pressures map into per-capita transfers R via:

$$n_t F(R_t) = -I^t(p_s, p_t, x), \quad n_s G(R_s) = I^s(p_s, p_t, x),$$

with deadweight-cost technologies $F' \leq 1, F'' \leq 0$ (taxes wedge between burden and revenue) and $G' \geq 1, G'' \geq 0$ (subsidies inflate beyond their direct cost). Political budget balance: $I^s + I^t \equiv 0$ (the influence game is zero-sum).

Group payoffs. $Z_s = Z_s^0 + R_s - a_s, Z_t = Z_t^0 - R_t - a_t$, where a_i is the group's aggregate spending on pressure.

Insight. Politicians and voters are passive transmission belts. The action is in the Cournot competition *between* groups, weighted by the deadweight-cost wedges.

C.3 — Becker: equilibrium and propositions

Nash equilibrium. Each group sets the marginal return of effort to ± 1 :

$$\frac{I_{p_s}^s p_m^s}{G'} = 1, \quad -\frac{I_{p_t}^t p_m^t}{F'} = -1.$$

Taxpayer “intrinsic advantage.”

$$-\frac{dR_s/da_s}{dR_t/da_t} = \frac{F'}{G'} < 1,$$

which *rises* as marginal deadweight costs rise — the harder it is to redistribute, the more taxpayers gain at the margin.

Two propositions.

- **Proposition 1.** Greater efficiency in producing pressure (better free-riding control) raises a group's subsidy or cuts its tax.
- **Proposition 2.** A rise in the marginal deadweight cost of a transfer reduces the equilibrium subsidy — the “tyranny of the status quo”.

Advance over Stigler / Peltzman. Replaces the regulator-as-vote-maximiser with explicit Cournot–Nash competition among groups. Deadweight cost itself disciplines redistribution: politically successful programmes are ones that are *cheap at the margin*, not necessarily small in level. Unifies the “capture” and “market-failure” views.

C.4 — Laffont and Tirole, 1991: the hierarchy

Three-tier structure. Firm $\rightarrow$ Agency $\rightarrow$ Congress.

- *Firm.* Produces q at cost $C = (\beta - e)q$. Type $\beta \in \{\underline{\beta}, \bar{\beta}\}$, $\Pr(\underline{\beta}) = \nu$. Effort disutility $\psi(e)$; net rent $U = t - \psi(e)$.
- *Agency.* Observes signal $\sigma \in \{\beta, \emptyset\}$ with probability ζ ; reports $r \in \{\sigma, \emptyset\}$ to Congress; reservation income s^* .
- *Congress.* Designs the mechanism. Interest group i can offer side payments to the agency at a cost of $\$(1 + \lambda_i)$ per \$1 delivered.

Congress's problem.

$$\max W = [S(q) + \lambda P(q)q] - (1 + \lambda)(s^* + (\beta - e)q + \psi(e)) - \lambda U - \lambda V,$$

where λ is the shadow cost of public funds, subject to: firm IR ($U \geq 0$), agency IR ($V \geq 0$), incentive compatibility, and a *collusion-proofness constraint* that prevents the agency from concealing a favourable signal in exchange for side payments from the firm.

What's new. Capture is no longer about voter coalitions or pressure-group spending — it is about *collusion over private signals* inside the regulatory hierarchy.

C.4 – Laffont–Tirole: equilibrium and capture distortion

Full-information benchmark (Ramsey rule).

$$\psi'(e) = q, \quad \frac{p - (\beta - e)}{p} = \frac{\lambda}{1 + \lambda} \cdot \frac{1}{\eta(p)}.$$

Asymmetric information. The inefficient type's effort is distorted *downward* to limit the rent paid to the efficient type:

$$\psi'(\bar{e}) = \bar{q}^*(\bar{e}) - \frac{\lambda\nu}{(1 + \lambda)(1 - \nu)} \Phi'(\bar{e}), \quad \bar{e} < \bar{e}^*.$$

Four implications.

- Capture distorts *rules*, not just outcomes – it shapes how much discretion the agency is given, how high-powered incentive schemes are, how informative the agency's reports must be.
- Producer-protection threats induce *low-powered* (cost-plus-like) incentive schemes for regulated firms.
- Strong consumer groups induce uniform pricing across products (anti-cross-subsidisation).
- Interest-group power is highest where informational asymmetry $\Delta\beta$ is largest.

Advance over Becker. Agency-theoretic supply side; collusion-proof side contracts; institutional design responds endogenously to capture risk. Rents arise from informational asymmetries, not from vote-buying or pressure competition.

C.5 — Bernheim and Whinston, 1986: the menu-auction game

The general game. A single *principal* (auctioneer) selects an action s from a finite set S . There are M *agents* (bidders), indexed $i = 1, \dots, M$. Each agent has a gross payoff $g_i : S \rightarrow \mathbb{R}$; the principal has a disutility $d : S \rightarrow \mathbb{R}$.

The bidding language. Each agent simultaneously offers a *schedule* $f_i : S \rightarrow \mathbb{R}_{\geq 0}$ — a contingent-payment function. The principal then chooses

$$s^* \in \operatorname{argmax}_{s \in S} \left\{ \sum_i f_i(s) - d(s) \right\}.$$

Bidder i 's net payoff is $n_i(s) = g_i(s) - f_i(s)$. Pareto-efficient actions are $S^* = \operatorname{argmax}_s [\sum_i g_i(s) - d(s)]$.

Truthful schedules (Defn. p. 12). f_i is *truthful relative to* s^0 iff, for all $s \in S$, either

$$n_i(s) = n_i(s^0), \quad \text{or} \quad n_i(s) < n_i(s^0) \quad \text{and} \quad f_i(s) = 0.$$

Equivalently, away from the non-negativity floor, $f_i(s) - f_i(s^0) = g_i(s) - g_i(s^0)$. A *Truthful Nash Equilibrium* (TNE) is a Nash equilibrium in truthful strategies.

Why a refinement is needed. The menu-auction game has many Nash equilibria. Without a refinement, the model makes no sharp prediction about which policy or which transfer the principal selects.

C.5 – Bernheim–Whinston: the three refinement theorems

Theorem 1 (truthfulness is costless). For any profile of opponents' bids $\{f_j\}_{j \neq i}$, agent i 's best-response correspondence *contains* a truthful strategy. Truthful play is never strictly dominated.

Theorem 2 (efficiency). In every TNE, the principal selects an action $s^0 \in S^*$ – the equilibrium is Pareto-efficient. Net payoffs lie on the Pareto frontier of

$$\Pi_{\Gamma}(s) = \{n \in \mathbb{R}^M : N_J \leq [G_{\bar{J}}(s) - d(s)] - [G_{\bar{J}}(s^{\bar{J}}) - d(s^{\bar{J}})] \forall J \subseteq \mathcal{I}\}.$$

Theorem 3 (coalition-proofness). Every TNE is a Coalition-Proof Nash Equilibrium, and the set of bidder net payoffs achievable in CPNE coincides with that in TNE. Truthful equilibria are essentially the only equilibria robust to non-binding coalition communication.

Intuition. Under truthful schedules, each bidder internalises the marginal social value of varying s . The first-price menu auction therefore implements the Groves–Clarke outcome up to lump sums.

Why this matters for GH. Bernheim–Whinston gives Grossman–Helpman the refinement that turns a multiplicity-ridden lobbying game into a clean equation. Local truthfulness $\nabla C_i(\mathbf{p}^o) = \nabla W_i(\mathbf{p}^o)$ is the engine of the protection-for-sale formula.

C.6 – GH 1994: full derivation, setup

Economy. Small open economy, numeraire good 0 and n sector-specific goods. Representative consumer indirect utility:

$$V(\mathbf{p}, E) = E + s(\mathbf{p}), \quad s(\mathbf{p}) = \sum_i u_i(d_i(p_i)) - \sum_i p_i d_i(p_i).$$

Tariff revenue (lump-sum redistributed):

$$r(\mathbf{p}) = \sum_i (p_i - p_i^*) [d_i(p_i) - \frac{1}{N} y_i(p_i)].$$

Lobby and government objectives. A subset L of sectors is organised. Lobby $i \in L$ has gross welfare

$$W_i(\mathbf{p}) = \ell_i + \pi_i(p_i) + \alpha_i N [r(\mathbf{p}) + s(\mathbf{p})].$$

Aggregate welfare: $W(\mathbf{p}) = \ell + \sum_i \pi_i(p_i) + N[r(\mathbf{p}) + s(\mathbf{p})]$. Each lobby offers a schedule $C_i(\mathbf{p}) \geq 0$. The government maximises

$$G(\mathbf{p}) = \sum_{i \in L} C_i(\mathbf{p}) + a W(\mathbf{p}), \quad a \geq 0.$$

C.6 – GH 1994: local truthfulness and the government FOC

Step 1 – Apply Bernheim–Whinston Proposition 1. At a differentiable equilibrium, two conditions hold simultaneously:

$$\nabla W_i^o(\mathbf{p}^o) - \nabla C_i^o(\mathbf{p}^o) + \sum_{j \in L} \nabla C_j^o(\mathbf{p}^o) + a \nabla W(\mathbf{p}^o) = 0,$$

$$\sum_{i \in L} \nabla C_i^o(\mathbf{p}^o) + a \nabla W(\mathbf{p}^o) = 0.$$

Step 2 – Local truthfulness (eq. 9). Subtracting gives, for each $i \in L$:

$$\nabla C_i^o(\mathbf{p}^o) = \nabla W_i(\mathbf{p}^o).$$

Each lobby's marginal contribution equals its marginal gross welfare – the lobby pays exactly for the marginal policy shift it cares about.

Step 3 – The government FOC (eq. 12). Summing the truthful condition over L and substituting into the government's FOC:

$$\sum_{i \in L} \nabla W_i(\mathbf{p}^o) + a \nabla W(\mathbf{p}^o) = 0.$$

Interpretation. The equilibrium price vector is the one a hypothetical planner would choose if she gave *aggregate* weight a to welfare and *additional* weight 1 to each organised lobby's gross welfare.

C.6 – GH 1994: deriving the protection-for-sale formula

Step 4 – Differentiate. Using

$$\frac{\partial W_i}{\partial p_j} = (\delta_{ij} - \alpha_i) y_j(p_j) + \alpha_i (p_j - p_j^*) m'_j(p_j),$$

$$\frac{\partial W}{\partial p_j} = (p_j - p_j^*) m'_j(p_j).$$

Define $I_j = \sum_{i \in L} \delta_{ij} \in \{0, 1\}$ (whether sector j is organised) and $\alpha_L = \sum_{i \in L} \alpha_i$.

Step 5 – Substitute into the FOC sector by sector. For each j :

$$(I_j - \alpha_L) y_j(p_j^o) + (a + \alpha_L)(p_j^o - p_j^*) m'_j(p_j^o) = 0.$$

Step 6 – Rearrange (Proposition 2). Using $t_i^o = (p_i^o - p_i^*)/p_i^*$, $z_i^o = y_i/m_i$, and elasticity $e_i^o = -m'_i(p_i^o) p_i^o/m_i(p_i^o)$:

$$\boxed{\frac{t_i^o}{1 + t_i^o} = \frac{I_i - \alpha_L}{a + \alpha_L} \cdot \frac{X_i/M_i}{e_i}.$$

Note. $I_i - \alpha_L > 0$ for organised sectors, < 0 for unorganised (they get implicit taxation). The ratio $1/(a + \alpha_L)$ is the relative weight of producer rents to aggregate welfare. X_i/M_i measures who has more to gain per unit of distortion. $1/e_i$ is the modified Ramsey term – smaller distortions where deadweight loss is larger.

C.6 – GH 1994: comparative statics and the “as if” welfare function

The “as if” welfare function. The equilibrium $\mathbf{p}^o$ solves

$$\mathbf{p}^o = \operatorname{argmax}_{\mathbf{p} \in \mathcal{P}} \left[\sum_{j \in L} W_j(\mathbf{p}) + a W(\mathbf{p}) \right] = \operatorname{argmax} \widetilde{W}(\mathbf{p}),$$

where $\widetilde{W}$ assigns weight $1 + a$ to organised individuals and weight a to unorganised ones. This is the formal microfoundation of the reduced-form “political-support functions” used in earlier work.

Four comparative statics.

- **Welfare weight a .** As $a \uparrow$, $|t_i^o| \downarrow$. In the limit $a \rightarrow \infty$, free trade.
- **Organised share α_L .** If $\alpha_L = 1$ (everyone organised), tariff demands cancel and $t_i^o = 0$. If $\alpha_L = 0$, only organised sectors ($I_i = 1$) get positive tariffs.
- **Import penetration X_i/M_i .** Protection rises with the domestic-output / imports ratio – the per-unit benefit of distortion is larger.
- **Elasticity e_i .** Higher elasticity means greater deadweight loss per unit of distortion: $|t_i^o|$ falls. A modified Ramsey rule emerges from the political economy.

Note. A single closed-form mapping from primitives $(\alpha_i, I_i, a, e_i, X_i/M_i)$ to equilibrium tariffs. The first formal model where “influence” is microfounded as a menu auction rather than imposed as a reduced-form weight.

Outline

Appendix A: Foundations

Appendix B: Structural power

Appendix C: Steer — formal foundations

Appendix D: Other formal models

D.1 — Schnakenberg and Turner, 2024

Unifying environment. A policymaker (PM) chooses $x \in \{0, 1\}$ (no reform / reform). PM and IG share a state $\omega \in \{\ell, m, b\}$ with prior $p(\omega)$.

Preference structure.

- PM prefers $x = 1$ iff $\omega = b$.
- IG prefers $x = 1$ iff $\omega \in \{m, b\}$.

The state $\omega = m$ is the unique *preference-divergence* state, so $p(m)$ indexes ex-ante misalignment.

Definition of “ally” vs “opponent.”

- Ally: $p(\ell) > 1/2$ or $p(b) > 1/2$.
- Opponent: otherwise.

What varies across paradigms.

1. Information structure: who knows ω ; cheap talk vs verifiable messages.
2. IG action space: transfers, messages, or effort subsidies.
3. Whether IG preferences are state-dependent.

The framework’s organising claim. Each paradigm restricts the same three primitives in a different way; predictions about *who is targeted* (ally vs opponent) and *welfare effects* drop out as comparative statics within the common skeleton.

D.1 — Schnakenberg–Turner: the four paradigms

- **Exchange (quid pro quo).** Canonical model: Bernheim–Whinston / Grossman–Helpman menu auction. Neither party knows ω . IG offers transfer $b_x \geq 0$ with convex cost; PM is linear in transfers. Influence mechanism: payment-for-policy. Welfare effect: *uniformly negative* — the transfer is pure rent.
- **Cheap-talk informational.** IG learns ω and sends $s \in \{\ell, m, b\}$. IG preferences are *state-dependent*: misrepresenting on average hurts the IG too. Influence mechanism: incentive-compatible disclosure (Crawford–Sobel logic). Welfare effect: *can be Pareto-improving* — PM sometimes learns $\omega = b$ and reforms.
- **Verifiable information.** IG always prefers $x = 1$ and can transmit hard evidence or stay silent. Influence mechanism: persuasion via certifiable disclosure. Welfare effect: *weakly positive* — the PM cannot be misled.
- **Subsidy (Hall–Deardorff).** Adds a second task y and a PM budget B . IG provides a *simple subsidy* (raises B) or a *specific subsidy* (lowers c_x or c_y). Influence mechanism: relaxes the PM's resource constraint and reallocates effort. Welfare effect: *ambiguous* — output rises but attention can be diverted.

Why the paradigms matter. Different stylised facts pick out different paradigms. “Money buys policy” → exchange. “Lobbying transmits information” → cheap-talk. “Hard evidence persuades” → verifiable. “Lobbying as gift to a busy ally” → subsidy.

D.1 — Schnakenberg–Turner: the five Results

Result 1 (exchange). The IG engages in quid-pro-quo lobbying *iff* $p(m)$ is sufficiently large — bribery targets *opponents* and only when ex-ante divergence is large enough to make the bribe-for-policy trade worthwhile.

Result 2 (cheap-talk, state-dependent). If $p(b) \geq p(m)$, there is an informative equilibrium in which the IG reveals $\omega = \ell$ truthfully and pools $\{m, b\}$, inducing $x = 1$ on $\{m, b\}$. If $p(b) < p(m)$, no information transmits on path. Cheap-talk lobbying targets *allies*.

Result 3 (verifiable, state-independent). With verifiable evidence and a state-independent IG, the IG lobbies *opponents* but not *allies*: under allied priors the PM already chooses $x = 1$; under opposed priors the IG profitably certifies $\omega = b$.

Result 4 (subsidy, aligned PM, $p(b) = 1$). No subsidy if $1 - c_x \geq r_{PM} - c_y$. Otherwise simple subsidy. If additionally $1 - c_x < r_{PM} - c_y < 1$: specific subsidy for x . Subsidies target *allies* and operate through effort reallocation.

Result 5 (subsidy, misaligned PM, $p(m) = 1$). Specific subsidy for y if $r_{PM} > 1 - c_x > r_{PM} - c_y$ — the IG pays the PM to work on the *non-conflict* issue, crowding out attention to the conflict policy.

Interpretation. Allies are targets in cheap-talk and subsidy paradigms; opponents are targets in exchange and verifiable paradigms. Welfare flips between paradigms.

D.2 – Wolton, 2021: setup

Players. Decision-maker D , pro-change SIG P , status-quo SIG Q .

Policy space. D chooses bill content $b \in [0, 1]$ (0 = status quo, 1 = comprehensive reform).

Types. Each $J \in \{P, Q\}$ has private *resolve* $\tau^J \in \{H, L\}$ with $\Pr(\tau^J = H) = \pi^J$. Intensities: $\gamma_H^J > \gamma_L^J$.

Actions.

- *Inside lobbying* $l_i^J \in \mathbb{R}_+$ – costly signal at stage 2.
- *Outside lobbying* $l_o^J \in \{0, 1\}$ at stages 4–5, cost c .

Outside lobbying changes enactment probability: status quo prevails with prob. $1 - \bar{p}$ if only $l_o^Q = 1$; $1 - \underline{p}$ ($\underline{p} < \bar{p}$) if both engage.

Payoffs. $u^D = y$; $u^P = \gamma_\tau^P y - l_i^P - c l_o^P$; $u^Q = -\gamma_\tau^Q y - l_i^Q - c l_o^Q$ with $y \in \{0, b\}$.

Equilibrium concept. Perfect Bayesian Equilibrium refined by the Intuitive Criterion.

D.2 – Wolton: equilibrium logic and the central result

The compromise bill. Define $b_H := c/(\bar{p}\gamma_H^Q)$ – the bill that leaves $Q(H)$ indifferent between $l_o^Q = 1$ and $l_o^Q = 0$.

Going outside (Assumption 1, Lemma 2).

- $Q(H)$ goes outside whenever D proposes $b > b_H$.
- $P(H)$ goes outside to defend $b = 1$ when $\gamma_H^P > c/(\bar{p} - \underline{p})$.
- Low types ($\tau = L$) never go outside.

Inside-lobbying separation for Q . $l_i^{Q*}(H) = \bar{l}_i^Q(b_H) := \gamma_L^Q(1 - b_H) > 0$ and $l_i^{Q*}(L) = 0$. The separating PBE for Q exists iff

$$1 - \bar{p} \leq \frac{c}{\bar{p}\gamma_H^Q} \leq (1 - \bar{p}) \frac{c}{\bar{p}\gamma_L^Q}.$$

Central result (Proposition 3, Remark 1) – outside disciplines inside.

$$l_i^{P*}(L) \leq c \quad (\text{strictly a.e.}).$$

Inside expenditures are dominated by the outside cost they substitute for. The credibility of inside signalling is *parasitic* on the off-equilibrium outside action.

Measurement implication. Pure “amplify” (positive l_i^P together with $l_o^P = 1$) does not arise on the equilibrium path. Inside expenditures are downward-biased proxies for Q ’s influence and *wrongly signed* for P ’s influence – this is the empirical critique the paper delivers.

D.3 — Lohmann, 1998: information rationale

Players. N voters (odd); M general-public voters (ideal point $\hat{a}_J$); $N - M$ special-interest voters (ideal point $\hat{a}_I \neq \hat{a}_J$). Office-seeking incumbent of quality $q \sim \mathcal{N}(0, \sigma_q^2)$ chooses $a \in \mathbb{R}$.

What voters observe. Voter h 's underlying utility is $U_h = -\frac{1}{2}(a - \hat{a}_h)^2 + q$, but she sees only a noisy individual outcome

$$\Pi_h = -\frac{1}{2}(a - \hat{a}_h)^2 + q + p_h, \quad p_h \sim \mathcal{N}(0, \sigma_{p,h}^2).$$

Voters form $\mathbb{E}[q \mid \Pi_h]$ via signal extraction and vote retrospectively.

Endogenous monitoring asymmetry. Information acquisition is costly. The smaller minority free-rides less (Olson), so $\sigma_{p,I}^2 < \sigma_{p,J}^2$ in equilibrium — well-organised minorities have higher signal-to-noise in Π .

Incumbent's problem. Maximises aggregate welfare plus office rent $\bar{S} > 0$, taking voters' signal-extraction problem as given.

The information rationale. Better-informed voters' votes are more responsive to Π_h , so their votes load more on q . The incumbent rationally panders to them — not because they pay her, but because their vote is more pivotal at the margin.

D.3 – Lohmann: main result and the 1995 signalling add-on

Proposition 1 (PBN equilibrium policy).

$$a_1^* = \hat{a}_J \cdot \frac{M(1 + \phi_J \bar{S}\varepsilon)}{N + M\phi_J \bar{S}\varepsilon + (N - M)\phi_I \bar{S}\varepsilon} + \hat{a}_I \cdot \frac{(N - M)(1 + \phi_I \bar{S}\varepsilon)}{N + M\phi_J \bar{S}\varepsilon + (N - M)\phi_I \bar{S}\varepsilon},$$

where $\phi_h = f_h(0)$ decreases in $\sigma_{p,h}^2$. The incumbent shifts policy toward $\hat{a}_I$ *even though the majority loses more than the minority gains*.

Proposition 2. The bias $|a_1^* - a_2^*|$ rises in the information disparity $\sigma_{p,J}^2 - \sigma_{p,I}^2$ and in office rent $\bar{S}$. Propositions 3–4: surviving incumbents are above-average quality ($\mathbb{E}[q \mid S = \bar{S}] > 0$) – selection bias partly offsets the policy bias.

Empirical signature. Policy tilt toward small, well-informed groups (rural / agricultural subsidies, narrow tariffs) even where contributions play no role; magnitude scales with monitoring asymmetry.

Lohmann 1995 add-on (signalling with access). A Spence-type signalling model: aligned IGs have costless access; opposed groups must pay $\bar{c} > 0$ to certify credibility. Contributions are costly signals of credibility, *not* bribes; information aggregates fully in equilibrium; contributions are small relative to the quid-pro-quo benchmark.

Summary. Lohmann delivers a non-pecuniary microfoundation for special-interest influence: monitoring asymmetry alone – with no money changing hands – generates equilibrium policy bias toward narrow groups.

D.4 — Awad, 2020: persuasive lobbying with allied legislators

Players. Interest group S and n legislators voting under k -majority on a binary proposal vs. the status quo.

State and preferences. Multi-dimensional state $\omega \in [0, 1]^2$. Legislator i 's payoff is linear:

$$v_i(\omega) = \alpha_i \omega_1 + \beta_i \omega_2 + C, \quad \alpha_i, \beta_i \geq 0.$$

S 's payoff is state-independent: 1 if the proposal passes, 0 otherwise.

Information and timing. S observes ω , then chooses (i) a verifiable report to a chosen subset $G \subseteq N$ of *intermediaries* and (ii) a public cheap-talk message m . Intermediaries publicly endorse ($e_j \in \{0, 1\}$); other legislators update on $(s, (e_j)_{j \in G})$ and vote.

Alignment. Define $D^i = \{\omega : v_i(\omega) \geq 0\}$. Legislator i is more allied the larger $\int_{D^i} p(\omega) d\omega$.

The mechanism. Three strategies: no report, full disclosure, or selective disclosure to intermediaries.

Allies, having verified the report, endorse and thereby transmit a credible Bayes-plausible signal to the rest.

Selective disclosure lets S exploit preference heterogeneity across dimensions.

D.4 – Awad: central results and the taxonomy

Proposition 1 (existence). Assume cheap talk alone is uninfluential ($p \notin \text{co}(W_k)$). An equilibrium with intermediary set $\mathcal{G}$ exists iff

- (a) $D_k \subseteq D^{\mathcal{G}}$ – the strategy does no worse than full disclosure; and
- (b) $r(D^{\mathcal{G}}) \in \text{co}(W_k \cap \bigcup_{G \in \mathcal{G}} \Delta D^G)$ – the geometric condition that the implied posterior lands in the win-set.

Proposition 2 (who to lobby). S buys access from the *most allied moderate*. Too-allied legislators cannot persuade the median; the median itself is approached only absent moderate allies.

Proposition 3 (competition). Stronger competition pushes S toward more moderate intermediaries.

Welfare. Intermediary lobbying can be welfare-improving – verified reports raise the informational content of votes. It is harmful when S exploits multi-dimensional preference heterogeneity to engineer endorsements that persuade the pivot against her ex-post preference.

Awad 2024 taxonomy. A non-technical companion that places persuasion-via-allies inside a broader map: *incentives* (vote-buying, legislative subsidies) vs. *persuasion* (signalling, direct communication). Stresses that policymakers' priors set a hard ceiling on informational influence – IGs cannot “manipulate” the way unbounded vote-buying could.

Summary. Allied legislators are valuable not as proxies but as *certifiers*: their endorsement of a verifiable report is the only Bayes-plausible signal that pushes the pivot into the win-set.