

Week 2: Parties and party competition

A second introduction to formal political economy, Trinity Term 2026

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Preliminaries: Quick round of feedback

1. Was the first lecture too formal / informal?
2. Was the style of the lecture helpful?
3. Was the first assignment too easy / difficult?

Overview

1. Why political parties matter in representative democracy
2. The Downsian model of party competition and its logic
3. Limitations of the Downsian model: scope conditions and some empirics
4. Theoretical extensions and modifications:
 - Contextual assumptions (e.g., multi-dimensionality, dynamics)
 - Demand-side assumptions (e.g., strategic voting, uncertainty)
 - Supply-side assumptions (e.g., party goals, activist influence, niche parties)
5. Empirical illustrations of extensions

Outline

What is the deal with political parties?

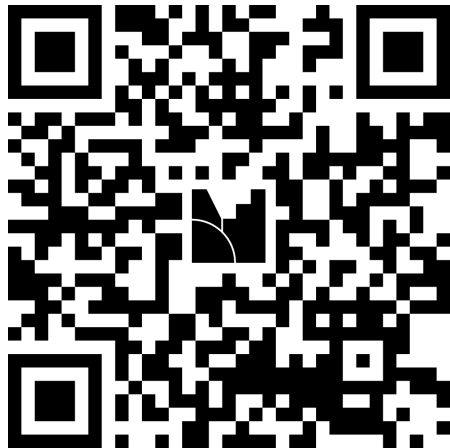
Theories of party competition

The Downsian model and the median voter theorem

Relaxing the assumptions underlying the Downsian model

Conclusion and outlook

Fixing our priors via a Mentimeter-aided discussion



Or use the following code: 1654 3058

Why do parties matter for making democracy in large societies work?

Elections are crucial for democracy (as we discussed last week), and political parties are crucial for (legislative) elections and, therefore, for large-scale societies with representative democracy, though this is contested (Baylor, [2026](#); Landemore, [2020, 2026](#)).

Definition of [political parties](#):

- “teams of [politicians] seeking to control the governing apparatus by gaining office in a duly constituted election.” (Downs, [1957](#), p. 25)
- “political group that presents at elections, and is capable of placing through elections, candidates for public office” (Sartori, [1976](#), p. 64)

Parties facilitate [compromise between different factions](#) who, while sharing broadly similar ideological commitments, differ in their specific policy views. As a result, they act as “intermediaries” between voters and politicians (Caillaud and Tirole, [2002](#))

What the formal theory literature tells us about the functions of parties

1. They **allocate scarce resources** among (potential) candidates and legislators.
2. They allow politicians to compete more effectively in (at least) two ways.
 - Address **moral hazard** and **collective action problems** inherent in electoral campaigns
 - Alleviate **commitment problems** individual candidates would face in multi-dimensional policy space
3. Under certain conditions, parties can **aggregate preferences or interests effectively**, i.e. so that they are “heard” in the policymaking process.
4. Parties facilitate collective policymaking in (at least) two ways.
 - Reduce the **transaction costs** of compromises (“Coasean rationale”)
 - Enable **credible log-rolling** between and within parties
5. Parties or party brands can serve as **informational shortcuts**, enabling voters to deal with the “democratic dilemma” (Lupia and McCubbins, 1998).

The allocation of scarce resources

Parties allocate the **scarce resource of political power** by deciding (i) which activists / members can run for office and (ii) which elected candidates are appointed to which parliamentary committees, cabinet posts, or other positions (Aldrich, 2011).

What is the strategic calculus for parties? They want their legislators to be **loyal** and **competent**.

Raises **three thorny** questions:

- How to induce loyalty?
- How to screen for competence?
- How to trade off loyalty and competence?

Question #1: Inducing loyalty via sunk political investments

Parties are 'incentive structures that encourage sunk political investment by their members' (Svolik, 2012, p. 163).

- Members are required to perform costly service early on in their careers (that can't be transferred to other parties); resources are allocated based on seniority and therefore only given to members who have already incurred cost.

Empirically, some support: more senior members – those who have shown long-standing loyalty – tend to be rewarded via e.g. high list positions in PR systems (Cirone, Cox, and Fiva, 2020)

Other means of creating sunk political investments or inducing loyalty:

- Requiring candidates or members of one's cabinet to say or do things they can't walk back from → Examples?
- Choosing candidates who have no outside options – whose success depends entirely on remaining in the good graces of the party bigwigs → Examples?

Question #2: Screening for competence

What are good proxies, metrics, or “sufficient statistics” for evaluating the competence of prospective candidates?

- Which characteristics do parties care about (education, charisma, occupational background, local ties, legislative initiatives for incumbents, etc.)?
- How to balance the need for clear promotion criteria and easily *gameable* metrics (Holmstrom and Milgrom, 1991)? → Strong recommendation to [read](#) Bueno de Mesquita's "Perils of Quantification" or [listen to his lecture](#)

In the appendix, I sketch a simple signalling game where candidates differ in competence, outside options, and the cost of producing observable effort → effort separates types only if it is sufficiently cheaper for competent types; outside options matter for whether promoted candidates accept the party reward.

Question #3: Trading off loyalty and competence

Often there **exists** a trade-off between loyalty and competence: if those with the lowest ability have relatively **unappealing outside options**, then they have the greatest incentive to be loyal, with the reverse holding for those with the highest ability.

How do parties navigate this trade-off? Two examples:

- Buisseret et al., [2022](#): party leaders use list positions strategically; safe list slots are given to loyalists, while marginal list positions are used to incentivise effort among more electorally valuable or skilled candidates
- Fiva, Izzo, and Tukiainen, [2024](#): the “gatekeeper’s dilemma” is whether to prioritise top individual performers or cohesive team players. Using Norwegian data, they find that parties often favour team compatibility and internal cooperation over individual superstar traits. This reflects a preference for loyalty and teamwork in parliamentary settings. Highlights a collective logic of candidate selection, where competence is understood relationally (as compatibility) rather than just individually.

A stylised model of loyalty via sunk costs

We consider a simple two-period model with one agent and one party.

- **Period 1:** Agent chooses whether to join the party track by paying sunk cost $c > 0$. If not, they take their outside option w .
- **Period 2:** Conditional on joining, the agent chooses between:
 - a party reward $R > 0$, or
 - the outside option $w > 0$
 - Both are known and fixed scalars.
- The sunk cost is non-transferable and cannot be recovered if the agent exits.

Loyalty is defined behaviourally: the agent is loyal if they stay with the party (i.e., accept R rather than take w).

Solving the model: period 2 decision

Suppose agent **paid** sunk cost c in period 1.

Period 2: Stay vs exit decision

$$\text{Payoff} = \begin{cases} R - c & \text{if stay} \\ w - c & \text{if exit} \end{cases}$$

$$\text{Agent stays (i.e. is loyal)} \iff R \geq w$$

- **Important:** sunk cost c does not affect the *relative* payoff of staying vs exiting
- Loyalty is determined solely by comparison $R \geq w$

Solving the model: period 1 decision

Agent compares the payoff from not joining, w , with the best payoff after joining.

Join condition

Agent joins if $\max\{R - c, w - c\} \geq w$

Observation: entering and then exiting is dominated by not entering, since $w - c < w$.

Hence: Join and stay $\iff R - c \geq w$.

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Hence: Join and stay $\iff R - c \geq w$.

Interpretation: sunk costs deter entry, not exit, but this can still create *selection effects*.

- Only agents with sufficiently low w join and stay, since they satisfy $w \leq R - c$.

→ Loyalty is the result of earlier self-selection; sunk costs are a tool to select those with fewer outside options.

Sunk costs as a screening mechanism

To make the selection effect concrete, consider two agent types:

- **Type L (loyalist)**: outside option w_L
- **Type H (high-opportunity)**: outside option $w_H > w_L$
- Both face the same sunk cost c and same party reward R

Entry condition for each type

Join and stay if $R - c \geq w_t$ for $t \in \{L, H\}$

- **Result**: if $w_L \leq R - c < w_H$, type L joins and stays while type H opts out.
- Sunk cost c screens in agents whose outside options are sufficiently unattractive.

Extending the sunk-cost model: competence and loyalty

We extend the above baseline model by adding heterogeneity in agent competence and two frictions that make the trade-off bite.

- Each agent has:
 - **Competence** $\alpha \in \{\bar{\alpha}, \underline{\alpha}\}$, drawn with $\Pr(\bar{\alpha}) = p_H$, and $\bar{\alpha} > \underline{\alpha}$
 - **Outside option** $w(\alpha)$, where $w(\bar{\alpha}) > w(\underline{\alpha})$
- Sunk cost $c > 0$ is still imposed in period 1 and is identical across types
- Party reward $R > 0$ is fixed and common knowledge; assume $R \geq w(\bar{\alpha})$
- **New: scarce-position cost** $K > 0$, paid by the party per recruited agent (committee slot, list spot)
- **New: exogenous exit risk** for competent types – with probability $\eta \in [0, 1)$ a high type is forced to exit in period 2 (windfall job, scandal, family obligation); low types never face this shock

Timeline and party objective

1. Party sets a sunk cost requirement $c > 0$
2. Agent observes type $\alpha \in \{\bar{\alpha}, \underline{\alpha}\}$ and chooses whether to join (pay c)
3. If the agent joins, the party pays K . In period 2: a high type is forced to exit with probability η (taking $w(\bar{\alpha})$); otherwise the agent compares R to $w(\alpha)$:

Stay (loyal) if $R \geq w(\alpha)$; exit otherwise

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Party payoff (per agent)

$$\text{Payoff} = \begin{cases} v \cdot \alpha - K & \text{if agent joins and stays} \\ -K & \text{if agent joins but exits (forced or strategic)} \\ 0 & \text{if no recruitment} \end{cases}$$

Goal: choose c to maximise expected payoff, balancing competence against wasted slots.

Type-specific participation condition

Each agent compares the expected payoff from joining (net of c) to the deterministic outside option $w(\alpha)$.

Join condition by type (assuming $R \geq w(\bar{\alpha})$)

$$\underline{\alpha}: R - c \geq w(\underline{\alpha}) \quad \bar{\alpha}: (1 - \eta)R + \eta w(\bar{\alpha}) - c \geq w(\bar{\alpha}) \Leftrightarrow c \leq (1 - \eta)(R - w(\bar{\alpha}))$$

- Low types' threshold: $c \leq R - w(\underline{\alpha})$
- High types' threshold: $c \leq (1 - \eta)(R - w(\bar{\alpha}))$, this is **tighter** both because $w(\bar{\alpha}) > w(\underline{\alpha})$ and because the reward is discounted by the survival probability $1 - \eta$

Observation: raising c deters high types first. Setting c in the interval $((1 - \eta)(R - w(\bar{\alpha})), R - w(\underline{\alpha})]$ attracts only low types.

The loyalty–competence trade-off in candidate selection

Compare the party's exp. payoff under low c (**recruit both**) and high c (**recruit only low**):

$$\Pi_{\text{both}} = p_H [(1 - \eta)v\bar{\alpha} - K] + (1 - p_H)[v\underline{\alpha} - K], \quad \Pi_{\text{low}} = (1 - p_H)[v\underline{\alpha} - K]$$

When does the party prefer to screen out high types?

$$\Pi_{\text{low}} > \Pi_{\text{both}} \iff (1 - \eta)v\bar{\alpha} < K$$

together with $K < v\underline{\alpha}$ for recruitment to be worthwhile at all.

- Feasible region: $(1 - \eta)v\bar{\alpha} < K < v\underline{\alpha}$, which requires $\eta > (\bar{\alpha} - \underline{\alpha})/\bar{\alpha}$: high-type exit risk must offset their competence advantage.
- In this region, raising c into $((1 - \eta)(R - w(\bar{\alpha})), R - w(\underline{\alpha}))$ implements the optimum.

Strategic tension: sunk costs are valuable to the party only when competent recruits are sufficiently flighty (high η) and the slot itself is costly (large K). Without these frictions the party would always prefer $c \rightarrow 0$.

The collective action and moral hazard problems of campaigning

Collective action problem:

- Campaigning is a team-based endeavour.
- Each candidate or party worker benefits from the party's collective success (e.g. national vote share), but has an incentive to free-ride on others' efforts.
- Effort is costly and (partly) non-observable.

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Moral hazard problem:

- A specific form of the collective action problem – one of hidden action.
- Party leadership (or campaign coordinator) cannot directly observe individual candidates' campaign effort. Only the outcome (vote share, seat win/loss) is observable (Holmstrom, 1982).
- The problem: [how to incentivise candidates to supply productive inputs](#), given limited observability and imperfect attribution.

How do political parties alleviate these problems?

What is the incentive of electorally safe candidates (e.g. those in safe districts or with high list positions) to campaign for their party (absent any other-regarding motives)?

Without a party organisation, teams would run into the **usual collective action problem**, with total campaign effort being too low.

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What is the incentive of electorally safe candidates (e.g. those in safe districts or with high list positions) to campaign for their party (absent any other-regarding motives)?

Without a party organisation, teams would run into the **usual collective action problem**, with total campaign effort being too low.

But because parties are **hierarchical organisations** that can, prior to the election, credibly promise to allocate benefits post election based on party rank, they can alleviate that problem → **make size of reward (monotonically) increasing function of party rank**, as Cox et al., 2021 show (Why is this credible? What happens if the party reneges on that reward rule?)

Then, even party grandees have incentives to put in effort.

Individual legislators' commitment problem and the beauty of parties

Parties allow politicians to compete more effectively for votes when the **policy space is multi-dimensional** (Levy, 2004), as is often the case in heterogeneous societies.

- Without parties, candidates compete in multiple dimensions by proposing policy vectors. **Most candidates face the problem that their ideologically most preferred vector diverges from the vote-maximising one.**

Individual legislators' commitment problem and the beauty of parties

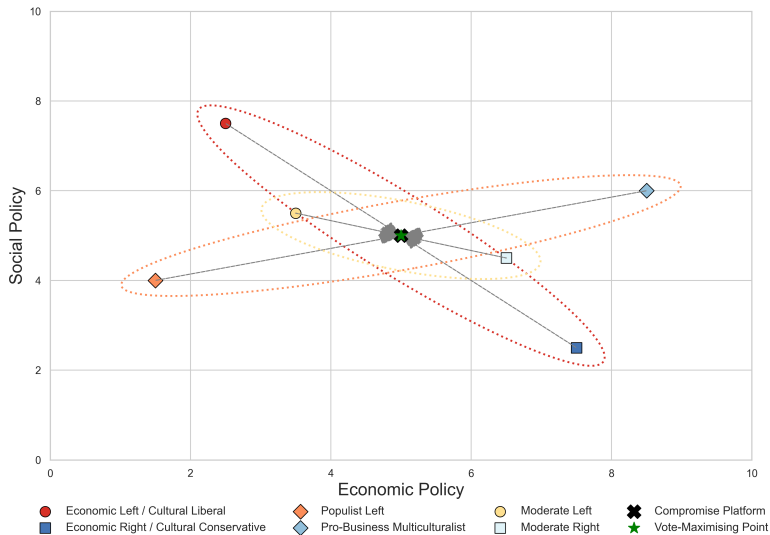
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- Without parties, candidates compete in multiple dimensions by proposing policy vectors. **Most candidates face the problem that their ideologically most preferred vector diverges from the vote-maximising one.**

Candidates cannot credibly promise to implement a compromise vector that is closer to the vote-maximising vector than their ideologically most preferred one. After all, without parties, no one can prevent them from breaking this promise once elected: **multiple dimensions create a commitment problem.**

- **Party-based enforcement mechanisms**, such as whipping, enable individual candidates to credibly commit to a compromise vector, which is some weighted average of the ideal vectors of the different intra-party factions.

Illustrating the argument



When do parties aggregate preferences effectively?

Key trade-off: Internal competition boosts effort, but may signal disunity (Caillaud and Tirole, 2002).

1. Incentive effects:

- Competitive structures encourage effort (to win nomination). Higher effort raises perceived platform quality, improving electability.
- But if quality is not observable, effort has limited payoff.

2. Party strategy:

- **High transparency:** open, decentralised structure is optimal.
- **High ideological value of victory:** parties internalise quality, prefer competition.
- **High polarisation or low transparency:** parties may centralise to avoid visible internal splits.

Conclusion: Parties balance internal competition and platform coherence to build credibility and win elections.

Deeper intuition: Why internal structure shapes electoral success

Competitive, open structures:

- Candidates exert effort to secure nomination—creates a meritocratic signal.
- Voters infer that high effort = higher quality → raises party credibility.
- Stronger incentive alignment when platform quality is observable.
- But public primaries risk exposing intra-party divisions, undermining unity.

Hierarchical, non-competitive structures:

- Party leaders select candidates—less responsive to performance.
- Lower candidate effort: no nomination incentive, unless ideology is very high.
- Preserves image of unity → useful under low transparency or when parties are ideologically distinct.

Core insight: Voters care about both candidate quality *and* party coherence. Parties act as “reputation managers,” trading off transparency-driven meritocracy with control over candidate selection.

Conditions for effective preference aggregation

1. Informational conditions:

- When voters can observe candidate/platform quality, internal competition enables parties to select responsive, high-effort candidates.
- Transparency means voters can reward merit → selection aligns with citizen preferences.

2. Organisational conditions:

- Competitive parties more likely to reflect internal diversity & public demands. Hierarchical parties may suppress diversity to maintain coherence, especially in polarised systems.

3. Political environment:

- Moderate ideological polarisation and high voter attentiveness favour parties as effective aggregators. In low-information or highly polarised environments, parties prioritise control over responsiveness.

Takeaway: *Parties aggregate preferences best when their internal competition is visible, meaningful, and trusted.*

Parties and log-rolling

Logrolling is the process whereby people trade votes or support on different matters to produce a prearranged outcome. The simplest example would be when legislators vote for something they do not particularly want (or even strongly oppose), as part of a deal where other people give their support to measures they do want. (McGann, 2019, p. 452)

Parties and log-rolling

Logrolling is the process whereby people trade votes or support on different matters to produce a prearranged outcome. The simplest example would be when legislators vote for something they do not particularly want (or even strongly oppose), as part of a deal where other people give their support to measures they do want. (McGann, 2019, p. 452)

Often legislation does not consist of a single policy but **bundles of policies**. By combining loosely or unrelated issues into a single bundle and having legislators vote on that bundle, rather than each component separately, majorities can form that would not otherwise be possible (Aksoy, 2012; Battaglini, Leone Sciabolazza, and Patacchini, 2023; Bochet, Khanna, and Siegenthaler, 2023; Casella and Palfrey, 2019, 2021; Jackson and Sonnenschein, 2007).

Caveat: Sometimes, however, the possibility of issue bundling can also induce **gridlock**: players may veto Pareto-improving policies so that they can bundle them at a later point with divisive issues (Lee, 2022).

A toy model of log-rolling: Setup

- **Legislators:** Three—Left (L), Moderate (M), Right (R)
- **Policy space:** Two dimensions, $x \in \mathbb{R}$ and $y \in \mathbb{R}$
- **Preferences:** Ideal points with quadratic loss:

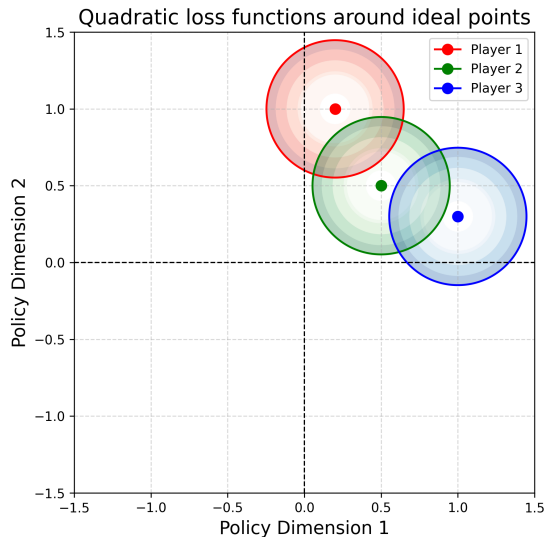
$$U_i(x, y) = -[(x - x_i)^2 + (y - y_i)^2]$$

Ideal points:

- L: $(x_L, y_L) = (0.2, 1.0)$
- M: $(x_M, y_M) = (0.5, 0.5)$
- R: $(x_R, y_R) = (1.0, 0.3)$

Key feature: Asymmetry in spatial preferences (not intensity) enables beneficial logrolling between L and R.

Visualising legislators' preferences



Case 1: Majority rule, no parties

- Each issue is voted on **separately** under simple majority rule.
- On each issue, the **median legislator's ideal point prevails**.

Policy outcome: $x = 0.5$, $y = 0.5$

Utilities:

$$U_L = -[(0.5 - 0.2)^2 + (0.5 - 1)^2] = -[0.09 + 0.25] = -\mathbf{0.34}$$

$$U_M = -[(0)^2 + (0)^2] = \mathbf{0}$$

$$U_R = -[(0.5 - 1)^2 + (0.5 - 0.3)^2] = -[0.25 + 0.04] = -\mathbf{0.29}$$

Baseline outcome

This is the default policy bundle in the absence of party coordination.

Case 2: Party-based bargaining with bloc voting

- L and R belong to disciplined parties that can **commit to vote as blocs**.
- They can bargain over a joint policy bundle (x, y) .
- If their combined votes pass a proposal, the bundle is implemented.
- If agreement fails, the outcome defaults to **issue-by-issue median voting**.

A successful log-roll proposal

- L and R coordinate to propose the bundle: $(x, y) = (0.6, 0.65)$
- This bundle passes due to bloc voting (2 out of 3 legislators)
- Both L and R are **strictly better off** than under the median-rule baseline

Utilities:

$$U_L = -[(0.6 - 0.2)^2 + (0.65 - 1)^2] = -[0.16 + 0.1225] = -\mathbf{0.2825}$$

$$U_R = -[(0.6 - 1)^2 + (0.65 - 0.3)^2] = -[0.16 + 0.1225] = -\mathbf{0.2825}$$

Key result

This outcome is **strictly Pareto-superior** to the median-rule baseline for L and R:

$$U_L = -0.2825 > -0.34, \quad U_R = -0.2825 > -0.29$$

Implications

- Parties act as **institutional commitment devices** that enforce cross-issue deals.
- Even in a one-shot setting, disciplined parties can **expand the Pareto frontier** of policies.
- This simple model helps formalise the conventional intuition that **party discipline enables credible logrolling**.

Another important reason for logrolling is that parties care to **different extents about different policy issues**.

An extension: Logrolling as a result of differences in issue salience

Let $\alpha_i \in (0, 1)$ denote the weight that party or legislator i attaches to issue x . Then party i 's utility is given by:

$$U_i(x, y) = - [\alpha_i(x - x_i)^2 + (1 - \alpha_i)(y - y_i)^2]$$

- α_i captures the **relative salience** of the two issues for party i .
- Even when parties hold **mirror-image ideal points**, divergent priorities give them an extra reason to logroll: each side is willing to **cede ground on its less-salient issue** in exchange for gains on what it cares about most.

Key insight: Asymmetric salience adds a second source of logrolling gains *on top of* spatial misalignment. The example below isolates how salience ($\alpha_L \neq \alpha_R$) sharpens the bargain L and R can strike.

A numerical example: Logrolling from divergent salience

- L and R now have **mirror-image ideal points across the diagonal** (y_R shifted from 0.3 to 0.2 to keep the symmetry clean), but care differently about the issues.
- L: $(x_L^w, y_L^w) = (0.2, 1.0)$, $\alpha_L = 0.3$ (cares more about y)
- R: $(x_R^w, y_R^w) = (1.0, 0.2)$, $\alpha_R = 0.7$ (cares more about x)
- M still at $(0.5, 0.5)$ and pivotal on each issue $\Rightarrow$ majority-rule outcome $(x, y) = (0.5, 0.5)$.

Utility under median rule:

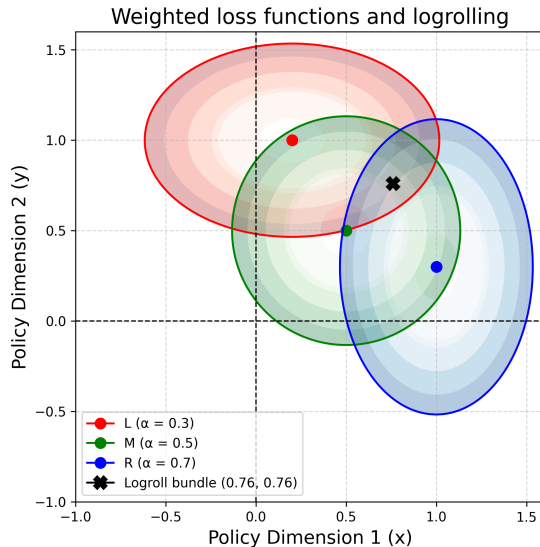
$$U_L^{\text{MR}} \approx -0.202, \quad U_R^{\text{MR}} \approx -0.202$$

Logroll proposal: $(x, y) = (0.76, 0.76)$

$$U_L^{\text{logroll}} = -0.1344, \quad U_R^{\text{logroll}} = -0.1344$$

Key result: Even with symmetric spatial preferences, divergent issue salience ($\alpha_L \neq \alpha_R$) enables **mutually beneficial logrolling**.

Visualising the result



A Coasean perspective on parties

Boix, 2009 argues that political parties follow a Coasean logic.

- Without parties, legislatures would consist of unorganised representatives.
 - For each piece of legislation, new coalitions would need to form.
 - This would be time-consuming and lead to inefficient lawmaking.
- Like firms in Coase's theory, parties emerge to reduce transaction costs.
 - They streamline legislative coordination.
 - Facilitate oversight and committee work.
 - Provide continuity and organizational stability.
- Thus, parties serve as institutional solutions to the collective action problems inherent in democratic legislatures.

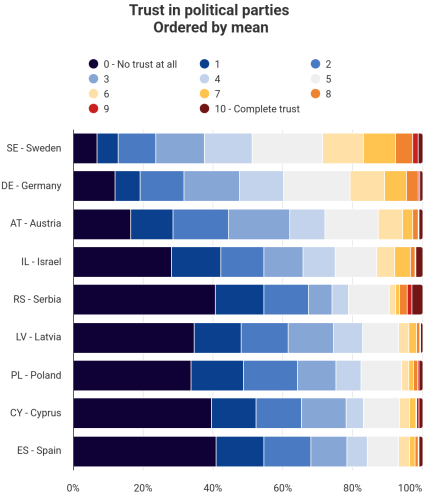
Party brands as informational shortcuts, or revisiting the democratic dilemma

Central idea: Parties reduce the cost of information acquisition for voters to determine the policy positions of a candidate → alleviates “democratic dilemma” (Lupia and McCubbins, 1998)

When voters are **imperfectly informed about candidates'** policy positions, then – under certain conditions – parties emerge endogenously in equilibrium as a **device that improves voters' information** about policy positions (Snyder and Ting, 2002).

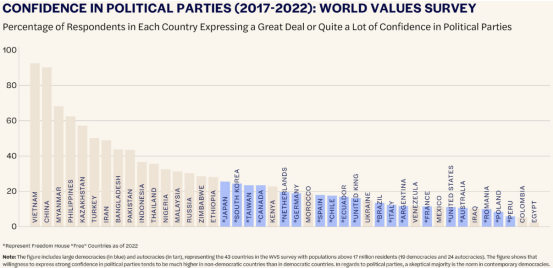
Lupu, 2016 applies and extends this logic to the Latin American context: parties diluted their brands, reducing their value as informational shortcuts → de-alignment → higher electoral volatility

If parties are so great, why are they so unpopular?



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See [here](#) for Susan Scharrow's post

Limitations of formal justifications for political parties

What formal justifications tend to ignore is the “sociological underbelly” of political parties, in particular their [organisational linkages](#) to certain segments of the electorate (Katz and Mair, [1995](#), [2018](#); Kitschelt, [2000](#); Kitschelt and Kselman, [2010](#), [2011](#); Kitschelt and Wilkinson, [2007](#); Kuo, [2025](#); Mair, [2013](#)).

With the [decline of unions](#) and [secularisation](#), these linkages have weakened in many “advanced” industrialised democracies → emergence of increasingly “hollow” parties (Schlozman and Rosenfeld, [2024](#))

Why does this matter strategically?

1. Decreases voter loyalty → makes it more difficult for parties to implement reforms that come with short-term costs in exchange for long-term gains
2. Previously, these costs could be imposed on core voters at relatively low electoral cost (Dixit and Londregan, [1998](#)) → lower willingness to engage in long-term policymaking / greater myopia or symbolic policymaking

Outline

What is the deal with political parties?

Theories of party competition

The Downsian model and the median voter theorem

Relaxing the assumptions underlying the Downsian model

Conclusion and outlook

Political competition: Structure

1. **Start with a benchmark:** the Downsian model
 - Assumes parties are unitary, vote-maximising actors in a unidimensional space
 - Produces clear predictions under strong assumptions
2. **Relax assumptions:**
 - Contextual (multi-dimensionality, dynamics, coalition formation)
 - Demand-side (strategic voting, intensity, uncertainty)
 - Supply-side (activists, reputations, niche parties, endogenous salience)
3. **Connect formal theory with empirical patterns**
 - When do predictions hold?
 - What does failure to converge reveal?

The setup for the Downsian model of party competition

Two parties compete in a (national) single-member-simple-plurality-rule district in a one-shot election, with the policy space being unidimensional.

Demand side

- Voters vote based on spatial proximity
 - Rules out voting based on valence, partisan ID, organisational linkages, or strategic voting
 - Preferences well defined
 - Know perfectly where parties stand
- All eligible voters vote (100% turnout).
- Voters ignore dynamic considerations.

Supply side

- Parties:
 - are homogeneous blocks solely interested in vote-maximisation,
 - cannot *blur* their positions, and
 - do not consider the dynamic consequences of their current strategic choices.
- The positions of voters are known with certainty.

The Downsian model of party competition

- Policy space: $X = [0, 1]$, unidimensional (left to right)
- Two parties A and B choose policy positions $x_A, x_B \in X$
- Continuum of voters $i \in [0, 1]$, each with ideal point $x_i \in X$
- Voters vote for the closest party: spatial model of voting (single-peaked preferences)

The Downsian model of party competition

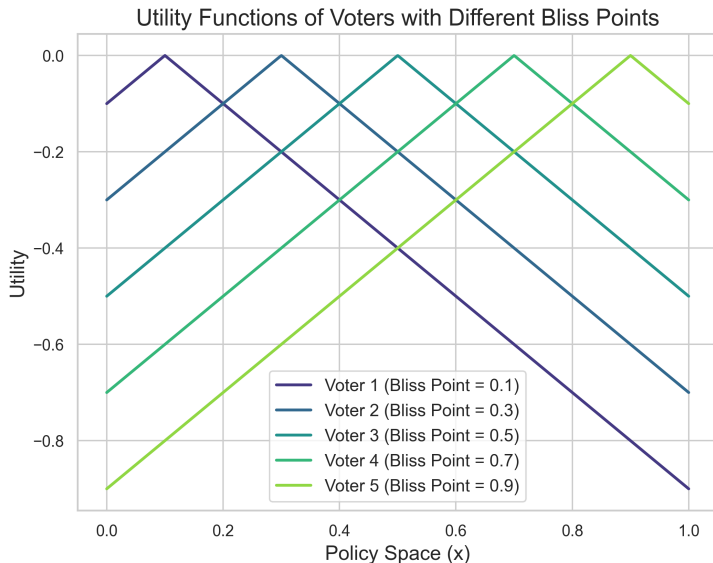
- Policy space: $X = [0, 1]$, unidimensional (left to right)
- Two parties A and B choose policy positions $x_A, x_B \in X$
- Continuum of voters $i \in [0, 1]$, each with ideal point $x_i \in X$
- Voters vote for the closest party: spatial model of voting (single-peaked preferences)
 - Each voter i derives utility from proximity:

$$U_i(x_j) = -|x_i - x_j| \quad \text{for } j \in \{A, B\}$$

Implication

Voter support for each party is determined entirely by policy distance, with the maximum achieved at the voter's bliss or ideal point.

Illustrating voters' utility functions



Party strategies and game form

- Parties choose $x_A, x_B \in X$ **simultaneously** (analogous to Hotelling's beach model, Gaspard, Missemer, and Mueller, 2024)
- Objective: maximise vote share
- Voter ideal points distributed by $F(x)$, with a unique median m such that:

$$F(m) = 0.5$$

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Equilibrium concept

Pure strategy Nash equilibrium in policy choices.

The median voter theorem

Key result

If $F(x)$ is continuous and strictly increasing, then the unique Nash equilibrium is:

$$x_A^* = x_B^* = m$$

where m is the ideal point of the **median voter**.

The median voter theorem

Key result

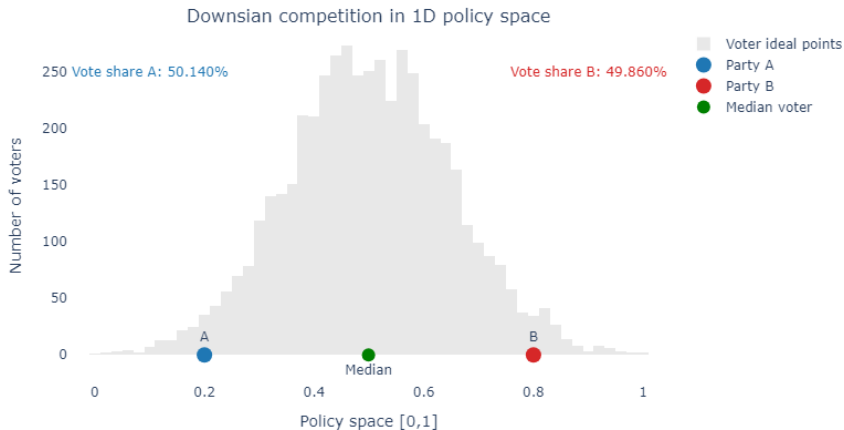
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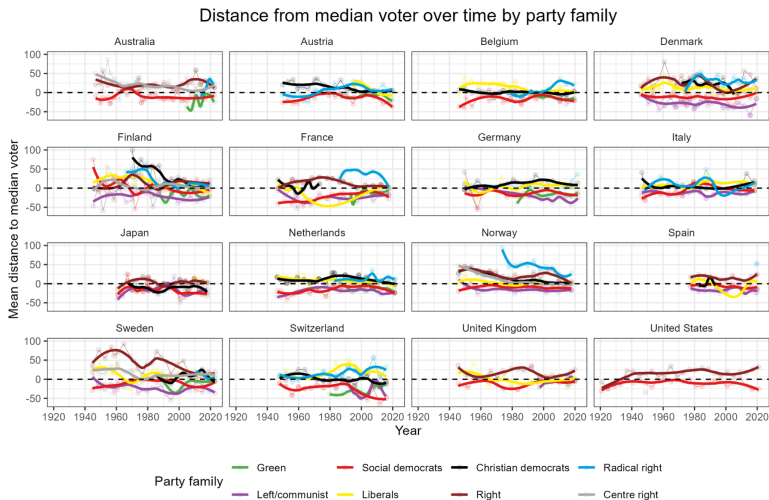
- Suppose $x_A < x_B$. Then A wins all voters left of midpoint.
- A can increase vote share by moving right $\Rightarrow$ convergence continues
- **No party can gain by deviating** from the median

Developing some visual intuition for the MVT



[Click here for interactive visualisation](#)

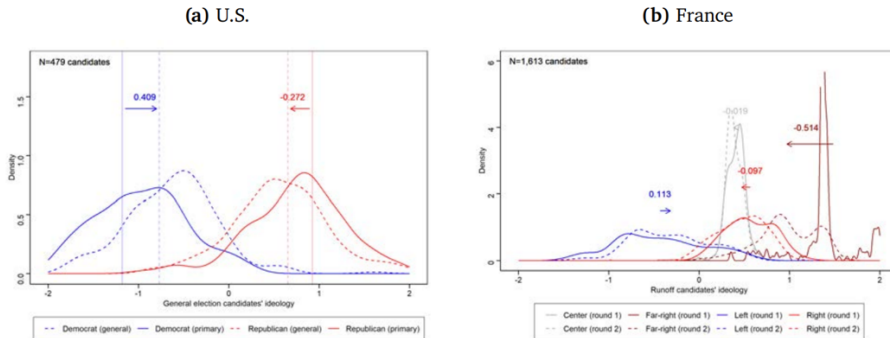
A very brief look at some descriptive empirical evidence



→ Measure of median voter position by Kim and Fording, 2003, based on [Manifesto Project Data](#)

From descriptive statistics to more robust empirical results (Di Tella et al., 2023)

Figure C.1: Ideology moderation (second round with exactly two candidates)



Notes: The sample is restricted to races where exactly two candidates, the leader and the qualified opponent, are present in the second round. Specifically, we exclude general elections where third-party candidates are present and where a primary election winner drops out before the general election, in the U.S.; and runoffs where more than two candidates qualify for the second round, as well as runoffs where only two candidates qualify but one of them drops out of the race, in France. Other notes as in Figure 1.

Quick-and-dirty summary of the empirical literature

There are some fairly convincing empirical studies documenting the importance of “Downsian” convergence to the median (Adams, Clark, et al., 2006; Adams, Merrill III, and Grofman, 2005; Di Tella et al., 2023; Ezrow, 2010).

- Sometimes empirical challenges reflect [ignorance of the model's scope conditions](#) (see assumptions above), rather than weakness of the model per se.

That said, there are other contexts where the scope conditions of the model seem to hold and yet we [do not observe convergence](#), e.g. Australia (Mussel and Schlechta, 2024).

Two points: scope conditions quite narrow and, even where they hold, the Downsian logic can fail → next look at (theoretical) extensions

Overview of theoretical extensions: Contextual assumptions

Challenge	Modification(s)	Illustrative references
Static (one election, one-shot game)	Consider incentives that arise from effects that materialize in future rounds	Battaglini, 2014 ; Castanheira, 2003 ; Duggan and Fey, 2006 ; Izzo, 2023
One-dimensional policy space	Introduce at least two dimensions of political competition	Roemer, 2001
Competition solely over policy platforms, not worldviews.	Sometimes competition might be less about policy platforms, but about views of the world ("ideologies").	Izzo, Martin, and Callander, 2023

Overview of theoretical extensions: Demand-side assumptions

Challenge	Modification(s)	Illustrative references
Voters often do not vote completely sincerely, but also strategically.	Allow for strategic voting theoretically; empirically, try to assess divergence between preferences and vote choice	Eggers and Vivyan, 2020 ; Myatt, 2007 ; Piketty, 2000 ; Spenkuch, 2018
Preference intensity is empirically and theoretically relevant.	Measure preference intensity empirically and allow parties to take it into account when choosing their policy positions	Hill, 2022a,b
Parties might have “reputational” constraints / voters might dislike “opportunistic” moves.	Impose constraints on parties’ ability to move to new positions on issues where they have strong reputations and/or modify voters’ utility function to allow for punishment of pure opportunism	Sniderman and Stiglitz, 2012 ; Tavits, 2007
No uncertainty about parties’ positions on a given dimension	Parties might sometimes be able to adopt vague/blurry positions on issues that, for instance, create internal division	Bräuninger and Giger, 2018 ; Kamphorst, 2024 ; Rovny, 2012 ; Tolvanen, Tremewan, and Wagner, 2022

Overview of theoretical extensions: Supply-side assumptions

Challenge	Modification(s)	Illustrative references
Parties are solely vote-maximising unitary actors.	In addition to vote-/office-seeking motivations, parties may also have policy-seeking ones. They also rely on activists, which can influence their positions.	Aldrich, 1983 ; Duggan and Fey, 2005 ; Gratton, 2014 ; Roemer, 2001 ; Strom, 1990
No uncertainty about median voter's position	Sometimes median voter's position is uncertain; this can influence the relative importance of vote- and policy-seeking motivations	Budge, 1994 ; Lindvall, Rueda, and Zhai, 2023
All parties are assumed to be qualitatively similar.	Allow for some parties to be <i>issue owners</i> or niche parties, whereas others are conventional catch-all, mainstream parties	Adams, Clark, et al., 2006 ; De Vries and Hobolt, 2020 ; Meguid, 2005 , 2008
In multi-party contexts, parties have to consider coalition formation.	Allow beliefs about likely coalitions to influence positional choices	Schofield and Sened, 2006
Parties can also select the issues they compete on, not just their positions	Political agenda and salience of issues becomes partly endogenous	Aragones et al., 2015 ; Dragu and Fan, 2016 ; Tavits and Potter, 2015

But are parties only *vote-maximisers*?

Strom, 1990, following Wittman, 1977, argues that parties have three types of incentives:

1. **Vote-seeking**

→ “Downsian” parties – they choose whichever policy platform yields the maximum number of votes

2. **Office-seeking**

→ Different from “Downsian” parties in that they seek to maximise the benefits from holding political power (“rents”) – e.g. positioning to anticipate coalition negotiations and to set up a bargaining position

3. **Policy-seeking**

→ Parties have policy preferences of their own: they derive utility from seeing certain policies implemented

Roemer, 2001 develops an elegant theory, where parties consist of, inter alia, “Downsians”, policy-seekers, and mixed types → Party-Unanimity Nash equilibrium

Relaxing the unitary actor assumption: What influence do party activists have on parties' policy platforms (Aldrich, 1983)?

- Thus far, we have assumed that parties are unitary actors.
- Parties rely on **activists** to, *inter alia*, conduct their electoral campaigns. These activists also have policy preferences (which are usually more extreme than those of the parties' voters).
- If activists' **level or quality of campaigning** depends non-trivially on the distance between their bliss points and the party's policy platform, the party might decide to move away from the median.
 - Doing so improves campaigning effort, which might translate into a higher expected number of votes.

Not all parties are equal – mainstream vs. niche parties (1/2)

The *Downsian* model implicitly assumes that all parties are qualitatively similar – which is plausible in two-party systems, but not so much in [multi-party contexts](#). This leads to the emergence of [niche parties](#) and “[issue owners](#)” (e.g. Greens on climate; radical right on immigration).

These parties occupy a [niche in the policy space](#), often because they have a “[patent](#)” [over an issue](#) (Budge, 2015; De Vries and Hobolt, 2020; Meguid, 2005) – and a small but non-negligible share of the electorate cares about this issue.

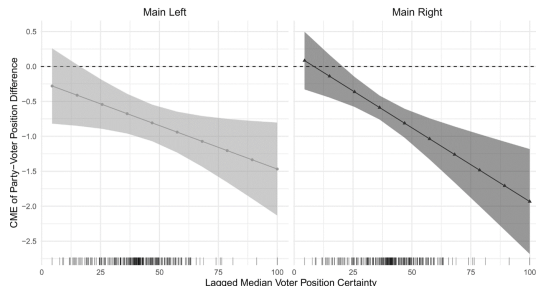
Not all parties are equal – mainstream vs. niche parties (2/2)

These parties are quite different from mainstream (“catch-all”) parties because:

- Given their focus on a single issue, their electoral success *tends* to depend more on successfully **mobilising core voters**, rather than attracting new voters via ideological moderation.
 - **Trade-off**: Moderation dilutes brand / “issue ownership” and alienates core voters, but potentially attracts new voters.
- The empirical literature (Adams, Clark, et al., 2006) shows that niche parties behave differently from mainstream parties:
 - Klüver and Spoon, 2016: large parties respond to the electorate’s issue priorities, whereas niche parties respond only to issue priorities of their own voters.
 - Abou-Chadi and Orlowski, 2016: large parties respond to greater electoral competitiveness via moderation (“*Downsian response*”), whereas niche parties move to the extremes (to “**mobilise**” **core voters**).

How does uncertainty about the median voter's position affect party competition?

- Lindvall, Rueda, and Zhai, 2023 argue that uncertainty affects the relative importance of vote- and policy-seeking motivations:
 - **Low uncertainty**: vote-seeking motives dominate (parties know where to move to win votes)
 - **High uncertainty**: policy-seeking motives dominate (parties don't know whether departures from their ideal point will bring electoral benefits)
- **Measure of uncertainty**:
 - Strength of 'signal' parties receive about the median's position (please refer to the paper)



Uncertainty about parties' positions: Why do parties sometimes adopt *blurry* positions?

Parties sometimes adopt *blurry* or *ambiguous* positions on certain issues (Rovny and Polk, 2020; Somer-Topcu, 2015). Why?

1. **Internal division**: Parties adopt ambiguous positions on issues where there are significant intra-party divisions.
→ Example: Immigration for some centre-right parties?
2. **Uncertainty about voters' preferences** combined with sufficient ideological similarity among candidates (Tolvanen, Tremewan, and Wagner, 2022).
3. **Avoiding polarising issues**: Parties avoid taking a stance on issues that voters are polarised on and that the party considers relatively unimportant (Han, 2020).
4. **Centrism and party unity**: Attract centrist voters while placating more extreme party members or activists (Bräuninger and Giger, 2018)

Does *blurriness* work? Revisiting the importance of issue salience in electoral competition (Kamphorst, 2024)

Blurriness can work (Somer-Topcu, 2015), especially when the **salience** of a topic is low. When salience is high, however, voters tend to **dislike ambiguity**.

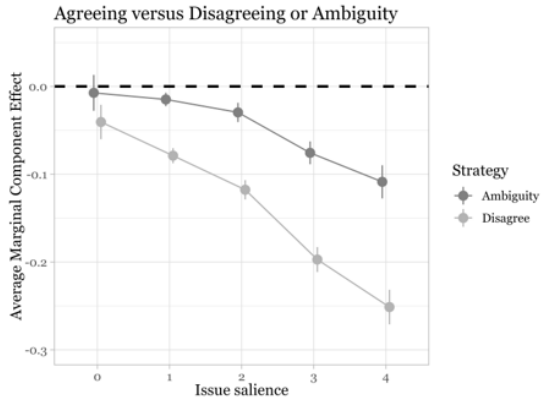
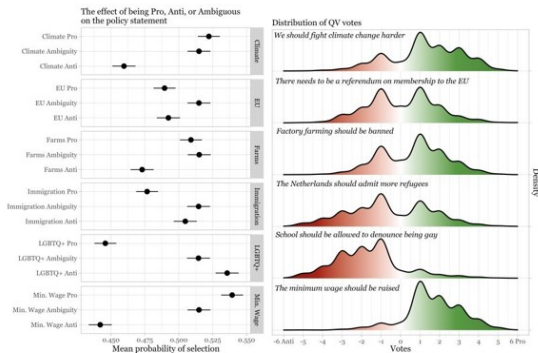


Figure 5: Counterfactual election strategies



Note: The figure plots the mean probability a party would be selected if they using different strategies towards a given policy statement. The left panel shows the effect of using different strategies and the right panel the distribution of respondents. The estimates for the effects of different strategies come directly from the predicted probabilities shown in Figure 1.

Reputational constraints, or when voters dislike opportunism (Tavits, 2007)

Theory

- Distinction between two types of issues: **pragmatic** and **principled**.
 - *Pragmatic* = party does not have a strong reputation or pre-existing commitments.
 - *Principled* = party has a strong reputation and pre-existing commitments.
- **Argument**: Voters value shifts on *pragmatic* issues since it signals *responsiveness*, but punish shifts on *principled* ones as it signals **opportunism**.

Empirics

- **DV**: vote change between elections; **IV**: economic domain is treated as pragmatic; social domain as principled (based on CMP)
- **Sample**: cross-national panel of democracies
- **Estimation**: pooled cross-sectional time-series analysis (country FEs + controls)

Outline

What is the deal with political parties?

Theories of party competition

The Downsian model and the median voter theorem

Relaxing the assumptions underlying the Downsian model

Conclusion and outlook

What have we learned, and where are we going?

- Political parties are central to the functioning of representative democracy – but they are complex organisations facing strategic trade-offs.
- The Downsian model provides a useful baseline, yet relies on restrictive assumptions (e.g., perfect information, unidimensional space, purely vote-maximising actors).
- Extensions help us understand more nuanced dynamics, such as:
 - Why parties may adopt ambiguous or extreme positions
 - How reputational constraints and activist influence shape party strategies
 - When internal structure enhances or undermines electoral success
- Outlook: Next week we will look at pork-barrel politics and how it is shaped by both party competition and electoral systems

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Outline

Appendix

Politicians' pay, selection, and motivation

Signalling game

Moral hazard in electoral teams

Should politicians be paid more?

A simple selection model

Potential candidate i has competence a_i , public-service motivation or honesty m_i , outside earnings $w(a_i)$, and entry/serving cost k_i . Political office pays W .

Enter politics iff $W + m_i - w(a_i) - k_i \geq 0$.

- If $w'(a) > 0$, low political pay can screen out high-competence citizens with good outside options.
- If m_i is intrinsic motivation, higher pay can attract less public-spirited candidates too.
- Social value might be $q_i = a_i + \beta m_i$: the wage raises quality only if the competence gain outweighs any motivation/honesty loss.
- Accountability matters because it changes the cost of electing low- m_i types.

Canonical models: entry and quality

Model	Core mechanism	Use for this lecture
Osborne and Slivinski (1996); Besley and Coate (1997)	Citizen-candidate models: citizens decide whether to stand; voters choose only from those who enter.	Pay changes the entry set, not just voters' choice among fixed candidates.
Caselli and Morelli (2004); Messner and Polborn (2004)	High-quality citizens may have higher market wages; low-quality or less honest citizens can have a comparative advantage in running.	"Bad politicians" can arise from selection, even if voters prefer good ones. Higher pay has ambiguous effects.
Besley (2004)	Political agency with adverse selection and moral hazard; wages affect both candidate pools and incentives in office.	Separate two questions: who enters, and how hard or honestly do officeholders work?

Canonical models: motivation and accountability

Model	Core mechanism	Pay implication
Benabou and Tirole (2003)	Extrinsic rewards can signal that the task is unattractive, or that the principal doubts the agent's motivation/ability.	Higher pay may weaken intrinsic motivation when political service is partly mission-driven.
Benabou and Tirole (2006)	Prosocial behavior signals altruism/reputation. Material rewards can blur that signal and create crowding out.	High pay may make politics less informative of public-service motivation.
Ferejohn (1986); Maskin and Tirole (2004)	Elections discipline politicians only when voters can observe and sanction performance; accountability can also induce pandering.	Office rents strengthen discipline only when monitoring and electoral sanctions are credible.

Canonical models: political careers

Model	Core mechanism	Pay implication
Diermeier, Keane, and Merlo (2005)	Structural career model: office has salary, re-election value, post-office returns, and nonpecuniary benefits.	The relevant reward is the whole career path, not just current salary.
Mattozzi and Merlo (2008)	Politics can be a long-term career or a stepping stone to private-sector work; people differ in market ability and political skill.	Higher salary can reduce turnover and may lower or raise average quality depending on who is attracted and who stays.
Keane and Merlo (2010)	Counterfactual career policies affect politicians differently by skill, age, party, and motivation for legislative accomplishment.	The same wage policy can retain some desirable types and leave others almost unchanged.

Empirical evidence: wages and candidate selection

Study	Design/context	Main finding
Ferraz and Finan (2009)	Brazilian municipal legislators; population-based salary caps generate discontinuities in pay.	Higher wages increase competition and improve measured legislator quality, including education, occupation, and political experience.
Gagliarducci and Nannicini (2013)	Italian mayors; regression discontinuity at population thresholds and term limits to separate selection from incentives.	Higher pay attracts more educated candidates and improves efficiency; much of the performance effect runs through selection.
Kotakorpi and Poutvaara (2011)	Finnish MPs; 35% salary increase, with municipal candidates as a comparison group.	Higher pay increased higher-education shares among female candidates, with little evidence of an effect for male candidates.

Empirical evidence: careers, rents, and representation

Study	Question	Lesson
Diermeier, Keane, and Merlo (2005); Keane and Merlo (2010)	How do politicians value office, re-election, higher office, and outside careers?	Wages affect entry and exit through a dynamic career calculus; effects differ sharply across politician types.
Dal Bo, Finan, Folke, Persson, and Rickne (2017)	Who becomes a politician in Sweden?	Political selection can be positively meritocratic and socially broad under strong institutions; wages are not the only entry lever.
Carnes and Hansen (2016)	Do higher legislative salaries improve working-class representation in US state legislatures?	Higher pay alone does not necessarily increase economic diversity; recruitment, parties, and career barriers remain binding.

How to assess the evidence

- The empirical literature is more optimistic about competence selection than a simple crowding-out story would suggest.
- But the outcome variable is usually education, occupation, experience, performance, or assets. It is rarely direct public-service motivation.
- The theory therefore remains useful: higher W can improve a_i , worsen m_i , or do both.
- The policy conclusion depends on institutions:
 - strong accountability makes higher pay more attractive;
 - weak accountability turns salary into one more office rent;
 - party recruitment can dominate the salary margin.

Model structure

We consider a two-player signalling game between an **agent** (prospective candidate) and a **party**. The key elements of the model are as follows:

- The agent has private information about their **competence level** $\alpha \in \{\underline{\alpha}, \bar{\alpha}\}$, where $\bar{\alpha} > \underline{\alpha} > 0$.
- Agents with higher competence enjoy a better outside option. That is:

$$w(\bar{\alpha}) > w(\underline{\alpha}) > 0$$

- Competent agents can also produce observable political effort at lower cost:

$$\kappa(\bar{\alpha}) < \kappa(\underline{\alpha})$$

- Competence types are drawn from a common prior:

$$\Pr(\alpha = \bar{\alpha}) = p_H, \quad \Pr(\alpha = \underline{\alpha}) = 1 - p_H, \quad p_H \in (0, 1)$$

- Loyalty is not a type, but an **endogenous decision**: after being offered a position, the agent chooses whether to accept the party reward or exit to their outside option.
- The party faces a scarce-position cost $K > 0$, so promotion is not automatic.

Game timeline

The game proceeds in the following stages:

1. Nature draws the agent's competence $\alpha \in \{\underline{\alpha}, \bar{\alpha}\}$, known only to the agent.
2. The agent chooses effort $e \in \{0, 1\}$. Effort is publicly observable. Exerting effort costs $\kappa(\alpha) > 0$.
3. The party observes e and forms a posterior belief $\mu(\alpha \mid e)$.
4. The party decides whether to **promote** the agent ($a = 1$) or not ($a = 0$), paying scarce-position cost K if it promotes.
5. If promoted, the agent receives a party reward $R > 0$ and chooses whether to:
 - accept the promotion (stay in the party), or
 - exit to the outside option $w(\alpha)$.

Preferences and strategy

Let $a \in \{0, 1\}$ denote the party's promotion decision, and $e \in \{0, 1\}$ be the agent's effort choice. The agent receives utility depending on α , e , and whether they accept promotion or not. Agent strategy: $s : \alpha \rightarrow \{0, 1\}$

Agent payoff

If promoted ($a = 1$):

$$U_{\alpha}(e) = \begin{cases} -\kappa(\alpha)e + R & \text{if they accept the party reward (i.e., if } R \geq w(\alpha)) \\ -\kappa(\alpha)e + w(\alpha) & \text{if they reject the reward} \end{cases}$$

If not promoted ($a = 0$):

$$U_{\alpha}(e) = -\kappa(\alpha)e$$

Party preferences and beliefs

The party values retaining high-competence agents, but promotion uses a scarce position. If the agent rejects the offer or is not promoted, the party receives zero. If the agent accepts promotion, the party receives payoff:

$$V(\alpha) = v \cdot \alpha - K, \quad \text{with } v > 0, K > 0$$

Beliefs

- After observing $e \in \{0, 1\}$, the party forms a posterior: $\mu(\alpha = \bar{\alpha} \mid e) \in [0, 1]$
- On the equilibrium path, beliefs are updated via Bayes' rule:

$$\mu(\bar{\alpha} \mid e = 1) = \frac{\Pr(\bar{\alpha} \cap e = 1)}{\Pr(e = 1)} = \frac{\Pr(\bar{\alpha}) \Pr(e = 1 \mid \bar{\alpha})}{\Pr(e = 1)} = \frac{p_H \cdot 1_{s(\bar{\alpha})=1}}{\sum_{\alpha \in \{\bar{\alpha}, \underline{\alpha}\}} \Pr(\alpha) \cdot 1_{s(\alpha)=1}}$$

Party strategy: $a : e \rightarrow \{0, 1\}$, based on updated belief. Objective:

$$\text{promote iff } \mathbb{E}[v\alpha \cdot 1\{R \geq w(\alpha)\} \mid e] \geq K$$

If $R \geq w(\bar{\alpha})$, this simplifies to $v\mathbb{E}[\alpha \mid e] \geq K$.

Separating equilibrium

We examine a **Perfect Bayesian Equilibrium** (PBE) in which:

- **Effort strategy:**

$$s(\bar{\alpha}) = 1 \quad (\text{high-competence agents exert effort})$$

$$s(\underline{\alpha}) = 0 \quad (\text{low-competence agents do not})$$

- **Party strategy:**

$$a(e) = \begin{cases} 1 & \text{if } e = 1 \\ 0 & \text{if } e = 0 \end{cases} \quad (\text{promote only those who exert effort})$$

- **Beliefs:** $\mu(\bar{\alpha} \mid e = 1) = 1, \quad \mu(\bar{\alpha} \mid e = 0) = 0$

Goal: Derive the conditions under which this equilibrium is sustainable. For the cleanest case below, assume $R \geq w(\bar{\alpha})$, so any promoted type accepts.

Incentive compatibility (IC)

To sustain a **separating equilibrium**, high-competence agents must prefer effort, and low-competence agents must prefer not to mimic. Assume $R \geq w(\bar{\alpha})$, so promoted agents accept.

$$U_{\bar{\alpha}}(e = 1, a = 1) = R - \kappa(\bar{\alpha})$$

If they do not exert effort, they are not promoted:

$$U_{\bar{\alpha}}(e = 0, a = 0) = 0$$

High-type IC: $R - \kappa(\bar{\alpha}) \geq 0 \Rightarrow R \geq \kappa(\bar{\alpha})$

Low-type no-mimic condition: $0 \geq R - \kappa(\underline{\alpha}) \Rightarrow R \leq \kappa(\underline{\alpha})$

Effort separates competence only if it is cheaper for high types.

Comparative statics: conditions for separation

Feasibility of separation

The proposed separating PBE exists if and only if:

$$\kappa(\bar{\alpha}) \leq R \leq \kappa(\underline{\alpha}), \quad v\underline{\alpha} \leq K \leq v\bar{\alpha}, \quad R \geq w(\bar{\alpha})$$

- First inequality: agent's IC (high type prefers effort; low type prefers not to mimic), with ties broken in favour of the equilibrium action.
- Second inequality: party's promotion rule (promote at $e = 1$, not at $e = 0$).
- Third inequality: post-promotion acceptance – without it, a promoted high type would exit and the party's payoff at $e = 1$ collapses to $-K$.

The first inequality automatically implies $\kappa(\bar{\alpha}) \leq \kappa(\underline{\alpha})$: effort can separate competence only if it is cheaper for high types.

Comparative statics: effort costs

- Raising the high type's effort cost $\kappa(\bar{\alpha})$:
 - Makes it **harder** to satisfy $R \geq \kappa(\bar{\alpha})$
 - Shrinks the separating region
- Raising the low type's effort cost $\kappa(\underline{\alpha})$:
 - Makes it **easier** to satisfy $R < \kappa(\underline{\alpha})$
 - Deters mimicry by low types
- There is a trade-off:
 - Reward too high relative to $\kappa(\underline{\alpha}) \rightarrow$ pooling
 - Reward too low relative to $\kappa(\bar{\alpha}) \rightarrow$ no high-type signal

Reward interval for separation

$$R \in [\kappa(\bar{\alpha}), \kappa(\underline{\alpha}))$$

Comparative statics: increasing the reward R

- Increasing R has two effects:
 - It helps satisfy high-type effort IC: $R \geq \kappa(\bar{\alpha})$
 - It helps satisfy retention: $R \geq w(\bar{\alpha})$
 - But it can violate low-type no-mimic IC: $R < \kappa(\underline{\alpha})$

Ambiguous effect

Higher rewards make competent candidates easier to attract, but also make the signal more attractive for low types to imitate.

Interpretation: excessive rewards induce pooling unless low types face sufficiently high effort costs.

Comparative statics: outside option of high types

- Suppose $w(\bar{\alpha})$ increases (e.g. competent candidates have better private sector options)

Effect on the high-type retention bound (a lower bound on R)

$R \geq w(\bar{\alpha})$ becomes harder to satisfy

- Outside options do not make effort more informative by themselves
- They raise the reward needed to retain high-competence candidates
- But increasing R to retain talent can make low-type mimicry more attractive

Interpretation: better outside options increase the cost of retaining talent and can tighten the reward interval that sustains separation.

Comparative statics: outside option of low types

- Suppose $w(\underline{\alpha})$ increases (e.g. more fallback jobs for incompetent types)

Effect on the low-type retention bound (a lower bound on R)

$R \geq w(\underline{\alpha})$ becomes harder to satisfy

- In the separating equilibrium, low types are not promoted, so their acceptance constraint is off-path. In pooling or partial pooling, higher low-type outside options can reduce retention after promotion
- If retaining all promoted types matters, R must rise, again increasing mimicry incentives.

Interpretation: outside options mainly affect retention; effort-cost differences do the work of signalling competence.

Summary: drivers of separation

Separating equilibrium feasible if

$$\kappa(\bar{\alpha}) \leq R < \kappa(\underline{\alpha}), \quad v\underline{\alpha} < K \leq v\bar{\alpha}, \quad R \geq w(\bar{\alpha})$$

- **Effort costs** must differ by type: high types need a lower signalling cost
- **Reward R** must be high enough for high types, but not so high that it attracts mimics
- **Promotion threshold K** must make high types worth promoting and low types not worth promoting
- **Outside options** drive selection:
 - Higher $w(\bar{\alpha})$: harder to retain talent after promotion
 - Higher $w(\underline{\alpha})$: matters mainly under pooling/partial pooling

Parties face a design trade-off: balancing screening, scarce promotions, and retention incentives

Pooling equilibrium

We consider a **pooling equilibrium** in which:

- **Agent strategy:** Both types choose the same action:

$$s(\bar{\alpha}) = s(\underline{\alpha}) = e^* \in \{0, 1\}$$

- **Party strategy:** After observing e^* , the party forms beliefs:

$$\mu(\bar{\alpha} \mid e^*) = p_H$$

since observing e^* reveals no new information

- The party chooses whether to promote based on expected value:

$$\mathbb{E}[\alpha \mid e^*] = p_H \cdot \bar{\alpha} + (1 - p_H) \cdot \underline{\alpha}$$

- The agent decides post-promotion whether to accept or exit, depending on whether $R \geq w(\alpha)$

Payoffs under pooling

Agent payoff (both types choose e^*)

If promoted:

$$U_{\alpha}(e^* = 1, a = 1) = -\kappa(\alpha) + \max\{R, w(\alpha)\}$$

If not promoted:

$$U_{\alpha}(e^* = 1, a = 0) = -\kappa(\alpha)$$

If $e^* = 0$, the same logic applies with zero cost:

$$U_{\alpha}(e^* = 0, a = 1) = \max\{R, w(\alpha)\} \quad \text{and} \quad U_{\alpha}(e^* = 0, a = 0) = 0$$

- Agent prefers to exert effort only if the expected net benefit outweighs $\kappa(\alpha)$
- Party promotes if expected retained value exceeds the position cost K

Party's strategy under pooling

Expected value from promotion

$$\mathbb{E}[v\alpha \cdot 1\{R \geq w(\alpha)\} \mid e^*] - K$$

- If $R \geq w(\bar{\alpha})$, the party promotes if and only if:

$$v \cdot \mathbb{E}[\alpha] \geq K$$

- Equivalently, promotion requires $\mathbb{E}[\alpha] \geq K/v$, a threshold productivity level.

Pooling removes all informational value from effort: the party's decision depends on priors alone.

Incentives in the pooling equilibrium

- If the party's action is unchanged after $e = 1$ and $e = 0$, agents will only exert effort in pooling if effort is costless.
- That is, for all $\alpha \in \{\underline{\alpha}, \bar{\alpha}\}$:

$$-\kappa(\alpha) + \max\{R, w(\alpha)\} \geq \max\{R, w(\alpha)\} \quad \Rightarrow \quad \kappa(\alpha) \leq 0$$

- This implies that:

Pooling with effort is not incentive compatible

If effort is costly ($\kappa(\alpha) > 0$), and effort does not change the party's action, agents strictly prefer to avoid effort.

Conclusion: pooling on effort is fragile; it requires off-path beliefs or party responses that make shirking unattractive.

When do pooling equilibria arise?

Pooling equilibria arise when:

- The reward R is too high to deter low-type mimicry, or too low to induce high-type effort.
- Effort costs $\kappa(\alpha)$ are too similar across types.
- The party's posterior belief is close to the prior and doesn't shift with effort.

Implications for party design

- Incentive-compatible effort thresholds are no longer cleanly informative
- The party must rely on other signals (e.g., past performance, recommendations, visibility)
- Or accept noisy selection

Summary: pooling vs separating

- In a **separating equilibrium**, effort is informative — only high types exert effort
- In a **pooling equilibrium**, effort is uninformative — both types behave the same

Key insight

If effort has no strategic value (i.e., it does not change beliefs), and is costly, then no one exerts it.

- Separation depends on credible differential signalling costs
- Pooling reflects a breakdown of screening: the party cannot distinguish types, and effort loses all informational content

Partial pooling equilibria

Partial pooling arises when:

- Some types exert effort ($e = 1$), while others do not.
- The party updates its beliefs partially: $\mu(\bar{\alpha} \mid e = 1) \in (0, 1)$
- For example: $s(\bar{\alpha}) = 1$, $s(\underline{\alpha}) = 1$ with probability $q < 1$

Interpretation

Effort becomes a noisy signal of competence. The party promotes based on mixed beliefs, and agents may use mixed strategies.

Partial pooling is less efficient than separation, but may arise when separating conditions fail.

Beliefs off the equilibrium path

In Perfect Bayesian Equilibrium (PBE), beliefs must be:

- **Bayesian on-path**: updated using Bayes' rule whenever possible
- **Specified off-path**: for actions not taken in equilibrium (e.g., if all types play $e = 1$, what does the party believe when it observes $e = 0$?)

Example

If $e = 0$ is off-path, then $\mu(\bar{\alpha} \mid e = 0)$ can be set arbitrarily – this may support:

- **Deterrent beliefs**: party assumes anyone choosing $e = 0$ is low type $\rightarrow$ does not promote
- **Lenient beliefs**: party assumes $e = 0$ is a high type (may destabilise separation)

Conclusion: off-path beliefs determine which equilibria are sustainable.

Equilibrium multiplicity

In this game, multiple equilibria may exist:

- **Separating equilibrium:** high types signal, low types do not
- **Pooling equilibrium:** all types behave the same
- **Partial pooling:** effort partially separates types

Why?

Effort costs $\kappa(\alpha)$, reward R , promotion threshold K , and outside options $w(\alpha)$ determine whether:

- Separation is incentive-compatible for agents
- Mimicry is profitable for low types
- The party's beliefs and promotion threshold support screening

Welfare and design implications

From the party's perspective:

- Separation allows better allocation of scarce positions
- But requires fine-tuning of incentives: $\kappa(\bar{\alpha}) \leq R < \kappa(\underline{\alpha})$ and promotion threshold: $v\underline{\alpha} < K \leq v\bar{\alpha}$
- Pooling leads to inefficient selection: High types may not be promoted; low types may be promoted without merit

Institutional design

To enable separation, the party can:

- Adjust R (e.g. promise greater long-term benefits) and the promotion threshold K
- Choose signals that are less costly for competent types than for incompetent types
- Supplement effort with additional screening mechanisms (e.g. tests, interviews, references)

How parties screen candidates in practice

Party tool (real world)	Model analogue	Strategic purpose
Unpaid party work, activism	Costly effort $\kappa(\alpha) > 0$	Screens only if costs differ systematically by type
Ideological signalling, loyalty oaths	Irreversible reputational cost	Raises c ; discourages hedging or defect-prone types
Party schools, cadre training	Effort investment with delay	Lengthens horizon; deters short-term opportunists
Seniority-based promotion	Sequential effort stages before R	Rewards long-term loyalty; raises cumulative c
Trial appointments	Intermediate effort + observation	Adds granularity to e ; allows performance screening
Internal endorsements	Delegated type verification	Supplements or substitutes direct signalling
Forced severing of outside ties	Reduces $w(\alpha)$	Makes party path relatively more attractive

Moral hazard in electoral teams: setup

- N candidates $i = 1, \dots, N$, each chooses unobservable campaign effort $e_i \in [0, 1]$
- Each candidate pays cost $c(e_i)$, with:

$$c'(e_i) > 0, \quad c''(e_i) > 0, \quad c(0) = 0$$

- Total electoral performance:

$$Y = f\left(\sum_{i=1}^N e_i\right) + \varepsilon \quad \text{where } f'(E) > 0, \quad f''(E) \leq 0, \quad \mathbb{E}[\varepsilon] = 0$$

- ε captures shocks (e.g. national trends, scandals, economic news)
- Party precommits to reward each candidate i with $\pi_i = \phi(r_i) \cdot f(E)$, where:

$$\phi'(r_i) < 0, \quad \sum_{i=1}^N \phi(r_i) \leq 1$$

(the inequality is the party's budget constraint: total compensation cannot exceed total output. The equal-sharing benchmark $\phi = 1/N$ saturates it; rank-based $\phi(r_i)$ can use any feasible weighting.)

Key friction: effort is hidden, but rewards must be fixed in advance

Team production with equal sharing: the free-rider problem

- Party output depends on total effort:

$$Y = f \left(\sum_{j=1}^N e_j \right), \quad \text{with } f' > 0, f'' \leq 0$$

→ Note: although electoral output is subject to shocks (ε), agents are risk neutral and payoffs depend only on expected output $f(E)$. Hence, ε drops out of the utility maximisation problem.

- All candidates share the outcome equally:

$$U_i = \frac{1}{N} f \left(\sum_{j=1}^N e_j \right) - c(e_i)$$

Team production with equal sharing: the free-rider problem (cont'd)

First-order condition (candidate i)

$$\frac{dU_i}{de_i} = \frac{1}{N} f' \left(\sum e_j \right) - c'(e_i) = 0 \quad \Rightarrow \quad c'(e_i^*) = \frac{1}{N} f' \left(\sum e_j \right)$$

- Each candidate internalises only $\frac{1}{N}$ of their contribution to output
- Planner's symmetric optimum: $c'(e_i^{\text{FB}}) = f'(Ne_i^{\text{FB}})$; decentralised symmetric Nash: $c'(e_i^*) = \frac{1}{N} f'(Ne_i^*)$.
To see $e_i^* < e_i^{\text{FB}}$, suppose for contradiction $e_i^* \geq e_i^{\text{FB}}$. Then $f'(Ne_i^*) \leq f'(Ne_i^{\text{FB}})$ (since $f'' \leq 0$) and $c'(e_i^*) \geq c'(e_i^{\text{FB}})$ (since $c'' > 0$), so

$$c'(e_i^*) \geq c'(e_i^{\text{FB}}) = f'(Ne_i^{\text{FB}}) \geq f'(Ne_i^*) > \frac{1}{N} f'(Ne_i^*),$$

contradicting the equilibrium FOC. Hence $e_i^* < e_i^{\text{FB}}$.

Result: classic free-rider problem — effort is underprovided in equilibrium

Solving the free-rider problem with rank-based rewards

- Party rewards candidates based on fixed pre-campaign rank:

$$\pi_i = \phi(r_i) \cdot f\left(\sum_{j=1}^N e_j\right), \quad \phi'(r_i) < 0$$

- Candidate i 's utility:

$$U_i = \phi(r_i) \cdot f\left(\sum e_j\right) - c(e_i)$$

- Best response:

$$\frac{dU_i}{de_i} = \phi(r_i) \cdot f'\left(\sum e_j\right) - c'(e_i) \Rightarrow c'(e_i^*) = \phi(r_i) \cdot f'\left(\sum e_j\right)$$

- **Higher-ranked candidates** (with larger $\phi(r_i)$) face stronger incentives to exert effort
- Individual i now internalises a personalised share of marginal team output

Solving the free-rider problem with rank-based rewards (cont'd)

Key insight

Differentiated reward structures restore incentives even when effort is hidden.

No observability $\Rightarrow$ design incentives via hierarchy

Comparative statics: Formal derivation

Equilibrium condition (Nash): $c'(e_i^*) = \phi(r_i) \cdot f' \left(\sum_{j=1}^N e_j^* \right)$

Let $E^* = \sum_j e_j^*$, and define: $F(e_i^*, \phi, f', c'') = c'(e_i^*) - \phi \cdot f'(E^*) = 0$

Implicit function theorem: totally differentiate $F = 0$ w.r.t. an exogenous parameter x , holding E^* fixed (i.e. ignoring how others' best responses shift):

$$\frac{\partial F}{\partial e_i^*} \cdot \frac{de_i^*}{dx} + \frac{\partial F}{\partial x} = 0 \Rightarrow \frac{de_i^*}{dx} = -\frac{\partial F / \partial x}{c''(e_i^*)}$$

Since $c''(e_i^*) > 0$, signs of effects depend on $\partial F / \partial x$.

Caveat: when $f'' < 0$, the full general-equilibrium effect also includes a $-\phi f''(E^*) \frac{dE^*}{dx}$ term and requires solving a linear system in $\{de_j^*/dx\}_{j=1}^N$. The expressions below are exact only in the linear case ($f'' = 0$); otherwise they capture the **direct** effect on best responses, with sign typically preserved.

Comparative statics: Parameter effects

A. Change in reward weight $\phi(r_i)$:

$$\frac{\partial F}{\partial \phi} = -f'(E^*) \Rightarrow \frac{de_i^*}{d\phi} = \frac{f'(E^*)}{c''(e_i^*)} > 0$$

B. Change in team productivity $f'(E)$:

$$\frac{\partial F}{\partial f'} = -\phi(r_i) \Rightarrow \frac{de_i^*}{df'} = \frac{\phi(r_i)}{c''(e_i^*)} > 0$$

C. Change in marginal cost curvature c'' :

$$\frac{de_i^*}{dc''} < 0 \quad (\text{since higher convexity makes effort more costly})$$

D. Change in rank r_i , assuming $\phi(r_i) = \frac{1}{r_i}$:

$$\frac{d\phi}{dr_i} = -\frac{1}{r_i^2} \Rightarrow \frac{de_i^*}{dr_i} = \frac{de_i^*}{d\phi} \cdot \frac{d\phi}{dr_i} = -\frac{f'}{c''} \cdot \frac{1}{r_i^2} < 0$$

Comparative statics: Summary

How key parameters affect equilibrium effort e_i^* :

- $\uparrow \phi(r_i)$: stronger reward $\rightarrow \uparrow e_i^*$
 - $\uparrow f'(E)$: higher team productivity $\rightarrow \uparrow e_i^*$
 - $\uparrow c''(e_i)$: more convex cost $\rightarrow \downarrow e_i^*$
 - $\uparrow r_i$: lower rank $\rightarrow \downarrow e_i^*$
-
- **Implication:** party leaders can shape effort incentives by:
 - $\rightarrow$ Steepening the reward function $\phi(r_i)$
 - $\rightarrow$ Choosing technologies or strategies that raise $f'(E)$
 - $\rightarrow$ Selecting candidates with flatter marginal cost of effort

Conceptual takeaway: differentiated rewards + team productivity drive candidate effort