La Cordata: Loyalty in Political Tournaments[*]

Wouter Dessein[†] Luis Garicano[‡]

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Abstract

We study the allocation of talent in tournaments between (political) teams. The winner-take-all nature of these contests implies that talented members may quit if the odds of winning diminish. A leader must choose between competent individuals who increase the chances of winning but may bolt at the first hint of bad news, and loyalists who have fewer outside options. The value of loyalty increases when outside options are more valuable, pre-election information (polls, primaries) is more predictive, or elections are more competitive. Monetary incentives do not negate the value of loyalty. We discuss organizational responses, such as ideological platforms and shorter campaigns, and show how leader loyalty can improve the talent-loyalty trade-off by enabling long-term relationships.

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[†]Columbia University, Graduate School of Business, and CEPR. Email: wd2179@columbia.edu.

[‡]LSE and CEPR. Email: l.garicano@lse.ac.uk.

1. Introduction

Various languages use the same term for mountaineers roped together for safety and for politicians forming alliances for power: a "*cordata*" in Italian,[1] or a "seilschaft" in German.[2] The analogy between mountaineers and politicians is quite apt. Like climbing parties, political groups bind themselves to a leader who guides their ascent to power. Success brings rewards for all—loyal followers gain influential positions. But the loss of a member can destabilize the ascent.

History offers many examples of these political rope teams. In the late 19th and early 20th centuries, US politicians from "Tammany Hall" in New York established vast networks of loyalists, offering jobs and favors in return for electoral support. In more recent times, close-knit, long-lasting cordatas can be observed across the political spectrum. Italian mogul Silvio Berlusconi drafted business associates and friends for his political adventure and then rewarded them with powerful jobs. Trump appointed loyalists to all key administration roles in 2025, while Biden's inner circle included advisors who had worked with him for decades. We examine these and other cases in Section 2.

This preference for loyalty over talent carries efficiency costs. Government positions may end up filled by those lacking proper skills. This is contrary to the interests of voters. As Besley (2005) has argued "if competence differs, then an important role of elections is to pick competent politicians."

Why does loyalty play such a crucial role in politics? Under what conditions does it come at the cost of merit? And what can societies do about it? In this paper, we aim to answer these questions.

A key feature of political campaigns is that non-monetary goals associated with the attainment of power are paramount, and those typically only accrue to the winners. Thus, our starting point is the observation that political contests are generally brutal, winner-take-all contests. This demands a solid team. Talented individuals with good outside options may abandon their leader during turbulent times, as they will only receive a reward when the

[1] "Cordata (feminine noun): (Mountaineering) roped party (figurative); (Politics) network, alliance system in financial and business world." Collins English Dictionary. Or as Moran, Abramson, and Moran (2014) explain, cordata refers to "the practice of pulling along friends and family in the climb up the corporate ladder."

[2] "Seilschaft (Femininum): Roped party of mountain climbers, rope party; Clique." Langenscheidt German English Dictionary.

team is successful. This leaves leaders with a dilemma: to recruit skilled individuals who are potentially less loyal, or to rely on those with fewer external opportunities.

The participation margin we study should be understood broadly. In some settings it is literally the exit in the middle of the campaign by advisers, staffers, financiers, or political allies. In others, such as a party or legislative group, it shows up as a decision to retire before a difficult election, or to distance oneself from a declining leader after observing polls or other signals of electoral prospects. This broader interpretation is important empirically: systematic data on campaign staff are scarce, while data on politicians' careers and stand-down decisions are much richer. We therefore use both campaign examples and, later, a descriptive exercise on UK parliamentary stand-downs to illustrate the mechanism.

To study this type of political organization and understand the incentives of both leaders and followers to participate, we set up a simple analytical model of a team that produces together. We start with a team consisting of a leader and one follower and we later extend the analysis to multiple followers.

Two teams face each other in a winner-take-all tournament (the election). The winning team takes the prize, the losing one gets nothing. Hence participating is valuable only if the tournament is won.[3] But winning is not just a matter of skill – luck plays a key role too. News during the campaign—from debates, polls, and scandals—reveals likely outcomes.

The winner-take-all tournament induces a threshold in the information received: when the news is sufficiently bad, more talented agents quit, leaving the leader in the lurch. As a result, the unique equilibrium of the tournament may have competing leaders choose less talented, but loyal followers.

Specifically, our analysis shows that loyalty prevails over merit when political talent has a high value outside of politics or, conversely, when skill is less valuable inside political campaigns. Interim information further plays a key role: when pre-election information is quite predictive of final results, loyal agents are preferred over talented agents.

We also show that strategic considerations matter. A meritocratic team may quit with bad interim news. On the other hand, it may also induce the rival team to give up when they face setbacks (whereas a loyal but low-skill team would not have had this effect). Because of this 'discouragement effect' on the rival team, talented followers may be optimally chosen even when they are known to quit when bad news arrives.

[3] "Tournament" models were proposed by Lazear and Rosen (1981) and Green and Stokey (1983). See Lazear and Shaw (2007) for a survey.

We then consider four extensions of the basic model. First, we consider how the value of loyalty changes as elections become more or less competitive. We start by considering the impact of asymmetries where one team has a natural, preexisting advantage—because its leader is better, because of an incumbency advantage or for any other reason. Such pre-existing asymmetries make elections less competitive. As we show, for a high enough asymmetry, merit trumps loyalty. Intuitively, the team that is ahead chooses a high-skill agent, because there is a lower risk that followers will quit when victory is quite likely. The leader who is behind, in contrast, knows that the chances of winning in case of bad interim news are slim and therefore cares less about loyalty; by hiring a high-skill agent, he gambles it all on the chance of winning when interim news is good. We subsequently study elections that are more competitive because more than two teams are competing. As competition intensifies, the value of loyalty increases, as those with more outside options are more likely to quit at the hint of any trouble.

In our second extension, we study monetary rewards. Political labor markets are special because of their winner-take-all nature. But similar dynamics may also play out in the private sector. Start-ups, for example, often use equity, stock options, and only modest salaries to attract talent. As in our model, talent may quit when the prospect of a successful exit becomes bleak, precipitating the demise of the venture. What is different from politics is that the 'prize' in case of success is now endogenously designed. As we show, as long as followers have limited liability, our results carry through qualitatively. The need for loyalty often results in the inefficient hiring of untalented agents (that is, if quitting was impossible, talented agents would have been hired). Intuitively, inducing loyalty from talented agents, while feasible, requires paying them rents on top of their outside option. As a result, a talented agent may either be endogenously disloyal or simply too expensive.

In our third extension, we introduce a team of followers, working together through an "O-Ring" production function on a set of tasks. In such a production function, complementarities are very strong: if any follower betrays the leader or quits, production is 0. We aim to capture the "team production" nature of the "cordata" where if one of the climbers (real or metaphorical) fails, she puts at risk the entire team.[4] We show that the resulting team is homogeneous (all followers are chosen either for their skill or their loyalty), and that the impact of information is as before. In a variation of this set-up, where production is

[4] This type of production function was first proposed by Becker (1991) and most famously used by Kremer (1993), using the metaphor of the cheap "O-Ring" whose failure destroyed an entire Space Shuttle, to account for bottlenecks in economic development and the role of talent allocation for growth.

sequential and later tasks are critical, Kremer (1993) argues that the most talented agents should be assigned to such critical "bottleneck" tasks. However, the task allocation in political tournaments may be the opposite: low-skill "loyalists" will be more likely allocated to the bottleneck tasks, since these are the tasks where an agent quitting can ruin the entire team's prospects.

In our final extension, we study ideology as a way to generate loyalty. More ideological movements and leaders have more dedicated, and hence loyal, followers. These followers may be less likely to jump ship when faced with bad news. Hence, the mechanism studied here means ideology will be correlated with loyalty and with the ability to attract talent.

We finally turn our attention to the potential solutions to these problems. What can society do about it? We explore three possible ideas: (i) *Length of campaigns and electoral system*. Longer campaigns increase interim information and the opportunity costs for talented agents. Hence shorter campaigns are more likely to select for merit. Also, a move towards electoral systems that are less winner-take-all (i.e. proportional) may facilitate, all else equal, the entry and retention of talented politicians. (ii) *Career Politicians*. Career politicians have limited outside career options. This discourages them from quitting and softens the loyalty-merit trade-off we have studied. (iii) *Leader loyalty*. A final solution is the formation of a long-term relationship between leader and follower. Such a relationship may incentivize high-skill followers to stick around when facing bad interim information, in the expectation that the leader will run again after a loss.

Each of these institutional responses involves a trade-off: Leader loyalty requires leaders to remain loyal to followers even when they are no longer the right ones for the job; shorter campaigns yield less information to voters; and talented agents may not want to become career politicians.

Related Literature. We are not the first to model a trade-off between loyalty and competence in a principal-agent framework. But our focus on loyalty as reducing the risk that team members quit when the path gets tough, is novel. For us, a loyal follower sticks around even in rough times. In contrast, other papers have focused on the risk that disloyal followers may "backstab" or "betray a leader." This leads to different predictions, as we discuss below.

In Egorov and Sonin (2011), an outside enemy may threaten a dictator. High-competence viziers (followers) can recognize when a dictator is weak and are therefore more prone to betrayal. The different mechanism and definition of loyalty (backstabbing vs quitting) yields different implications. First, a less competent vizier is more likely to be chosen when the dictator is weak relative to the outside enemy (Proposition 2). In contrast, in our model, when there is a weak and a strong team, both have an incentive to hire for merit, while the same teams would have hired for loyalty when evenly matched (Proposition 3). Second, loyalty is more valuable in our model when pre-election information (polls, primaries) is more predictive of success/failure, and competence yields no informational advantage. In contrast, Egorov and Sonin (2011) develops no comparative statics regarding the quality of information, and competence is uniquely about having more informative signals. Related, Zakharov (2016) builds a dynamic model where less competent affiliates exert more effort to defend their dictator and tend to be more loyal, as they face higher opportunity costs in the event the leader is deposed. The main comparative statics relate to the discount rates of the dictator and followers. Further, the focus in both papers on dictatorships abstracts from electoral competition with its strategic interdependences between the choices of two (symmetric) political teams. [5]

Our paper is also related to the literature on politician selection by their parties. Galasso and Nannicini (2011, 2015) find that more competent politicians (preferred by voters) are allocated to more competitive electoral districts and at the top of party lists in proportional elections. On the other hand, party leaders have an incentive to allocate loyalists (who provide more services to the party) to safe districts, where the result is less sensitive to a politician's valence. In contrast, in our model, political leaders are more likely to select party loyalists in elections that are more competitive. Mattozzi and Merlo (2015) provide a slightly different explanation for why political parties may deliberately choose to recruit only mediocre politicians, arguing that "super-stars" may discourage other party members in the internal competition within the party, inducing them to shirk. Internal competition also plays a central role in Besley, Folke, Persson, and Rickne (2017) who show, empirically and

[5] Empirical evidence for an anti-competence strategy by dictators can be found in Bai and Zhou (2019). They show that, during the Cultural Revolution, Mao Zedong actively replaced Central Committee competent members with mediocre ones and that education and military rank are shown to hurt the probability of remaining in the Committee. Indeed, a large recent literature has focused on the role of social ties and connections in the Chinese party hierarchy. Francois, Trebbi, and Xiao (2023) study factional arrangements within the CCP. They show that affiliation to some groups (eg. the Communist Young League of China) increases one's chance of promotion compared to unaffiliated politicians. Fisman, Shi, Wang, and Wu (2020), on the other hand, find evidence of a connection penalty for junior members when considering hometown and college connection. They argue that this penalty derives from the senior members' desire to maintain a dominant position within their network by blocking out in-group individuals that may threaten their dominant position. Jia, Kudamatsu, and Seim (2015) argue that in the Chinese context, the loyalty-competence trade-off is mitigated by a system of connections between junior and senior officials that fosters loyalty and thus increases the survival of top politicians.

theoretically, that more competent politicians choose more competent followers since they are less likely to be (internally) challenged and replaced by those followers.

Beyond politics, a number of papers show how an owner or manager, concerned with "backstabbing" or "expropriation" by a subordinate, may want to hire a less competent agent to reduce this threat (Glazer, 2002; Friebel and Raith, 2004).[6]

Our novel focus on "quitting" differs significantly from the focus on "backstabbing". In the above literatures, a leader worried about backstabbing or internal rivalry will avoid any risks to her internal position unless external competition is strong. In contrast, a leader worried about quitting, as in this paper, will avoid hiring talented followers in highly competitive settings to reduce quitting risks. Less competition, in contrast, lowers the risk that talented individuals quit, making them more attractive (see e.g. Proposition 3). While we agree backstabbing is relevant, we believe the aspect of loyalty we discuss is crucial in uncertain political environments.

Our paper is further related to the contract-theory literature on type-dependent participation constraints. Lewis and Sappington (1989) and Jullien (2000) study adverse-selection environments in which an agent's outside option depends on her type, giving rise to countervailing incentives and nonstandard participation patterns. Our mechanism is different in that types are known, so that rather than studying how to screen agents, we study how type-dependent outside options change team composition in a winner-take-all contest.

Finally, our work also falls within the economic literature on tournaments. The most closely related are a number of papers that study the (often negative) effect of interim performance evaluation on the incentives of agents (see, for example, Ederer (2010) and Lizzeri, Meyer, and Persico (2002)). None of those, however, study how interim feedback affects the optimal selection of agents and the value of loyalty. Our paper also differs from much of the tournament literature in studying agency problems within competing teams in a tournament (see, however, Sutter and Strassmair (2009)). Again, we are the first to study the value of loyalty within such teams.

[6] See also Prendergast (1993), who shows how an incentive to conform makes it hard to preserve honesty in the organization. Such 'loyalty', however, is a consequence of subjective performance evaluations and not a desirable trait.

2. Quitters and Loyalists: Some Cases

To motivate our analysis, we discuss a series of examples below of the role that merit, quitting and loyalty play in the politics of multiple countries—the US, UK, France, Italy, and India. Unusually, we start from fiction: the movie "Ides of March," a political drama loosely based on Howard Dean's insurgent presidential campaign, which beautifully illustrates the trade-offs our model aims to capture. The aspect of (dis)loyalty we analyze is not about running against the leader or aiming to replace her, but is instead about leaving her behind for better pastures when her prospects deteriorate.[7] In a crucial scene, the political veteran played by Philip Seymour Hoffman scolds the political novice (Ryan Gosling) for his disloyalty:

> "The first campaign I ran was a tiny race for a Kentucky State Senate seat, working for an unknown candidate named Sam McGuffrey. (...). I told Sam about the offer, and he responded that if I believed the other candidate had a better chance and could pay me more, he wouldn't stand in my way. I refused to abandon Sam, saying he had taken a chance on me when I was a nobody, so I wouldn't jump ship just because things got tough. We lost that race, but three years later, when Sam ran for governor, he called me again, and we won. Twenty years later, I'm where I am now, valuing loyalty above all. In politics, loyalty is the only currency you can count on. That's why I'm letting you go now, not because you're not good enough or because I don't like you, but because I value trust over skill, and I no longer trust you."

2.1. Quitters

In a ritual repeated every primary season in the US, as the possibilities of victory of some candidates start to decrease, some of their supporters quit. This often forces the hand of the candidate, who soon afterwards quits as well. Consider the 2011-2012 primary season. On June 9, 2011, Reuters reported, "Key members of Republican Newt Gingrich's presidential campaign team resigned on Thursday in a devastating blow to his 2012 election hopes." Later that year, Michele Bachmann's campaign manager Ed Rollins and his deputy stepped down

[7] The script is based on a theatre play called "Farragut North" by Beau Willimon, a US writer who had served on the staff of Senators Chuck Schumer, Hillary Clinton and Bill Bradley and in the presidential campaign of Howard Dean and went on to be the showrunner for the hit Netflix series "House of Cards." The title, of course, evokes the betrayal of Julius Caesar by his supporters on March 15, 44 B.C.

for "health reasons" arguing that she lacked "the finances, campaign structure and ideas to win it."

The loyalty-merit trade-off also plays a significant role in the French primaries, full of quits, betrayals, and changes of sides. One example: Bruno Le Maire, a prominent senior Conservative French politician and former Minister of Agriculture, was the foreign affairs advisor for the presidential campaign of Francois Fillon. As Fillon's campaign struggled due to his controversial past and legal issues, Le Maire distanced himself from it, and on February 28, 2017, announced on Twitter his resignation, right after Fillon confirmed that he would continue campaigning despite the news that he was under investigation. Le Maire was later appointed Finance Minister by the winner, Emmanuel Macron.

UK politics also present these patterns. On the Labour side, Tom Watson, the Deputy Leader of the Labour Party, resigned from his position and as an MP shortly before the 2019 general election—on the first day of campaigning.[8] The expectations for the upcoming election were low, but the press saw the departure as a blow to the party's unity and electoral prospects. Similarly, facing the prospect of losing the general election, some of the brightest lights of the Conservative Party announced they would not run for their seats. By May 2024,[9] 65 MPs had announced they would not run for office, triggering a comparison with the historical record in 1997, in the run-up to Tony Blair's "landslide" election win, when 75 Tory MPs decided not to run for their seats.[10] The list included top figures such as the Northern Ireland Secretary (Chris Heaton-Harris), Nadhim Zahawi, ex-Tory Chairman and Chancellor, Dominic Raab, ex-deputy prime minister and justice secretary, and Theresa May, ex-PM.

2.2. Loyalists

After his 2024 election, Donald Trump appointed a Cabinet and White House staff composed of loyalists who had stood by him through legal battles and the primaries.[11] On the other side of the aisle, the core team of President Biden was with him for decades.[12]

[8] See Tom Watson stands down as Labour deputy leader and MP, FT, November 6, 2019.

[9] See Huffington Post, May 20, 2024: Every Tory MP Quitting at the Next Election

[10] Press counts vary slightly with timing and with the treatment of defections and by-election vacancies. In our data (Appendix OA.B), 72 of the 322 Conservative MPs sitting at dissolution in 1997 did not stand again.

[11] See Here Are the New Members of Donald Trump's Administration So Far.

[12] Ron Klain, his first Chief of Staff at the White House, advised Biden during his 1988 and 2008 presidential campaigns; Mike Donilon, his senior advisor and (according to Klain) "chief strategist" to Biden as

Emmanuel Macron's core team was formed by four aides: his chief of staff when he was Minister of Economics, long-serving secretary-general of the Elysée (Alexis Kohler) and three fiercely loyal young (all born in the 1980s) aides including Clément Beaune (on Macron's staff since 2014-2016, later presidential campaign, special advisor, G20 sherpa, Europe Minister, Transport Minister); Stéphane Séjourné (on Macron's staff 2014-2016, then in his campaign, as political advisor, Member of the European Parliament and head of parliamentary group, Minister of Foreign Affairs and European Commissioner); and Gabriel Attal (ex-Spokesman, ex-Prime Minister, also a loyalist since 2016).

Italian mogul Silvio Berlusconi drafted business associates and friends for his political adventure and then rewarded them with powerful jobs. For instance, Berlusconi's personal lawyer, Cesare Previti, co-founded Forza Italia and was later appointed Minister of Defense in 1994. Another co-founder, Marcello Dell'Utri, held various political positions and was a top executive in Berlusconi's enterprises.

Indian Prime Minister Narendra Modi's cabinet has several loyalists who have been with him since his days as Chief Minister of Gujarat. Amit Shah, the Home Minister, is the most prominent example. "The key architect in remaking India", at Modi's side for 40 years, Shah's unwavering support has been crucial in consolidating Modi's power within the Bharatiya Janata Party (BJP) and across India.[13]

2.3. Evidence from UK stand-downs

We complement these cases with a small descriptive exercise using UK parliamentary data. The model's notion of quitting maps imperfectly to observed politics, but a natural analogue is an incumbent MP choosing not to stand again before a general election. Such stand-downs occur after parties and candidates observe substantial interim information about electoral prospects, including polls, local party conditions, and national political shocks.

We construct party-election cells for Conservative and Labour MPs at dissolution for UK general elections from 1997 to 2024. For each party-election, the stand-down rate is the share of MPs at dissolution who do not stand again. We proxy interim electoral prospects by the party's average Conservative-Labour poll lead over the six months before the election, signed from the party's perspective. Figure 1 shows the resulting pattern. Stand-down rates are higher when a party is behind in the polls. In this small party-election panel, a one

President and Vice President, was an advisor to President Biden since 1981.

[13] See a great Long Read on him in The Guardian, May 16, 2024.

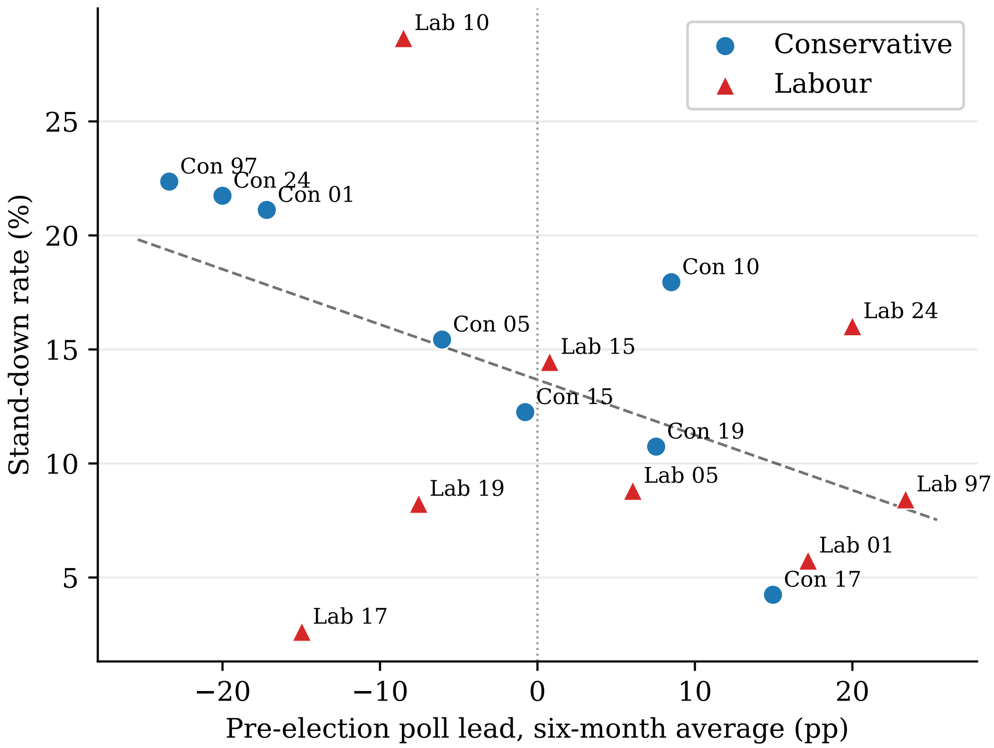

Figure 1 – Party prospects and MP stand-down rates. Each point is a party-election cell for Labour or the Conservatives in UK general elections, 1997–2024. The vertical axis reports the share of MPs at dissolution who did not stand again. The horizontal axis reports the party's average Conservative-Labour poll lead, signed from the party's perspective, over the six months before the election. The fitted line is descriptive.

percentage point lower poll lead is associated with about a 0.24 percentage point higher stand-down rate; the correlation is -0.49. The pattern is visible in the high Conservative stand-down rates before the 1997 and 2024 defeats, and in the high Labour stand-down rate before the 2010 defeat. Appendix OA.B describes the data sources and construction.

We then ask whether stand-down MPs are disproportionately drawn from MPs with stronger observable career profiles. For elections where named stand-down lists are available, stand-down MPs have substantially longer parliamentary tenure than MPs who stand again: the difference is positive in all eight party-election cells with named stand-down lists (2010, 2015, 2019, and 2024), averaging 8.3 years (Table 1). They are also more likely to have ministerial experience and senior frontbench experience in seven of the eight cells. Other proxies, such as university attendance, Oxbridge attendance, and professional occupation, are more mixed. Hence, MPs who leave before difficult elections are especially senior and politically experienced, rather than simply higher quality on every observable dimension.

Proxy	Average difference	Positive cells
Tenure in Parliament	+8.3 years	8/8
Ministerial experience	+18.3 pp	7/8
Senior frontbench experience	+5.5 pp	7/8
Professional occupation	+1.2 pp	4/8
University degree	+1.2 pp	3/8
Oxbridge	+4.0 pp	5/8

Notes: The table reports the average difference between MPs who stood down and MPs who stood again, across Conservative and Labour party-election cells in 2010, 2015, 2019, and 2024. "Positive cells" reports the number of party-election cells in which the difference is positive. Tenure is measured in years; all other differences are percentage points.

Table 1 – Observable characteristics of MPs who stand down

Note that the exercise is descriptive, and it does not identify the causal effect of bad polls on individual retirement decisions, nor does it distinguish voluntary exits from exits induced by party management, boundary changes, health, or age.

Campaign-length reforms could be used to study whether shorter campaigns retain more high-opportunity-cost candidates. Electoral-system variation, including mixed-member systems such as the Italian setting studied by Gagliarducci, Nannicini, and Naticchioni (2011), could be used to compare recruitment and retention under majoritarian and proportional rules. Finally, variation in electoral advantage, for example through changes in district partisanship, provides a natural way to study whether safer political environments are associated with more meritocratic recruitment. We leave such causal tests to future work.

3. Tournaments between political teams

To model an electoral contest, we consider a tournament between two teams, each consisting of one leader (the principal) and one follower (the agent). In Section 4.3, we extend the analysis to multiple followers.

Elections are winner-take-all contests: the leaders only care about their chance of winning. We discuss the incentives of the followers below.

3.1. Model setup

Output, Skills and Outside Options. The output of team $i \in \{1, 2\}$ depends on the follower's skill (q_i), her interim participation decision (p_i), an interim shock revealed during the campaign (S_i), and an ex-post shock (ε_i) realized when the tournament itself takes place:

$$Y_i = y(p_i, q_i) + S_i + \varepsilon_i$$

Agents may be high-skill, $q_i = H$, or low-skill, $q_i = L < H$. During the campaign, followers make a non-contractible interim participation decision $p_i \in \{0, 1\}$, where $p_i = 1$ denotes staying on the team and $p_i = 0$ denotes quitting to take an outside option. The deterministic component of the team's output, $y(p_i, q_i)$, depends on whether the follower stays or quits. If the follower stays ($p_i = 1$), the team's output benefits from her skill:

$$y(1, H) = H > y(1, L) = L$$

If the follower quits at the interim stage ($p_i = 0$), she accesses an outside option and the team obtains a diminished baseline payoff:

$$y(0, H) = y(0, L) = Z < L$$

An agent who quits cannot be replaced, either because quitting is quiet (a form of perfunctory performance, as in Hart and Moore (2008)) or because there is no time to onboard a replacement. Hence the assumption that output in this case is $Z < L$.[14]

An agent's outside option when quitting depends on her skill. We make the stark assumption that the outside option of a low-skill agent L is 0. Therefore, low-skill agents are also "loyal" agents who do not quit the team when there is a set-back. In contrast, high-skill agents are also more productive in other environments – they are "mercenaries" who can always ensure a minimum payoff $\omega > 0$ by quitting the team. Section 3.3 discusses this key assumption, and others, after we prove our main proposition below.

[14] This assumption is in the spirit of the fundamental transformation of Williamson (1988). As Hart and Moore (2008) argue, the two parties may have relation-specific investments, or it may be hard to find alternative partners on short notice. For instance, in the case of an electoral contest, the election is too close to successfully rejig the campaign team.

Tournament and contracts. The tournament starts with the leader hiring a follower, who can reject or accept the job offer. There are no monetary payments: the reward for the follower is the job and perks that she can obtain when her team wins. Followers also have limited liability: they cannot be asked to post a bond (or pay to be hired). If the team wins the tournament, the agent receives a prize W, if she loses she gets 0.

We assume throughout that, ex-ante, the prize W is sufficiently attractive so that a high-skill agent participates in a symmetric contest (where she wins with probability 1/2).

Assumption 1. (Ex ante participation constraint satisfied) $W \geq 2\omega$

Assumption 1 implies that if the interim participation decision p_i were to be contractible, an H agent would accept a binding contract specifying $p_i = 1$ (thereby giving up her outside option ω), and the leader would optimally hire an H agent: the cost to the leader is the same and $y(1, H) > y(1, L)$. Instead, we assume agents cannot commit not to quit at the interim stage: p_i is non-contractible.

Timing, Information and Shocks. After accepting to be part of the team, the follower receives an interim signal S_i. For instance, in the context of political tournaments, this could be primaries, public opinion polls, economic news (such as an unemployment report), a court decision, etc. This signal is informative about the relative position of the two teams. Since only relative positions matter, we simplify notation by only keeping track of the difference between the signals of the two teams, $S = S_1 - S_2$, with $S \in \{-\delta, \delta\}$, with equal probability: news can simply be good or bad.

After observing the interim signal, each follower i simultaneously decides whether to stay ($p_i = 1$) or quit ($p_i = 0$).

Note that low-skill agents never quit, regardless of interim news, as their outside option equals 0.

Finally, the tournament itself takes place, with the realization of the ex post shocks ε_i, random i.i.d. variables with support on a finite interval in the real line, $\mathcal{I}$. Since only relative ex-post luck matters, we denote $\varepsilon = \varepsilon_2 - \varepsilon_1$, a random variable with mean 0 and a symmetric, single-peaked distribution with cumulative distribution function G.

It follows that Team 1 wins the tournament if and only if

$$\underbrace{y(p_1, q_1) - y(p_2, q_2)}_{\textit{Production}} + \underbrace{S}_{\textit{Interim signal}} > \underbrace{\varepsilon}_{\textit{Luck}} \tag{1}$$

We further posit that the ex-post shock, in the best case scenario, is sufficiently large so that an agent who does not quit, always has a positive probability of winning, but is never large enough to overcome the impact of quitting.

Assumption 2. (Not quitting preserves the chance of winning) *An L agent who stays after bad interim news, has a positive probability of winning:*

$$H + \delta < L + \sup\{\varepsilon\}$$

Assumption 3. (Quitting leads to failure) *A team whose agent quits at the interim stage after receiving bad news, loses the tournament:*

$$Z - \delta + \sup\{\varepsilon\} < L$$

3.2. The value of loyalty

Since a leader loses the tournament if the agent quits at the interim stage, the value of hiring a low-skill agent depends on whether a high-skill agent will stick around in the face of adverse interim news. If a high-skill agent always stays, she is clearly preferred over a low-skill agent!

Consider therefore the incentives of a high-skill agent. Without loss of generality, let the agent belong to team 1. A Team 1 H agent stays at the interim stage and foregoes her outside option if and only if:

$$\mathbb{P}\left[y(1, H) - y(p_2, q_2) + S > \varepsilon\right] \cdot W \geq \omega \tag{2}$$

or still

$$G\left(H - y(p_2, q_2) + S\right) \cdot W \geq \omega,$$

where $G(.)$ is the cumulative distribution of ε, W the value of winning, and ω an H agent's outside option.

When the interim news is good, $S = \delta > 0$, we have that $G\left(H - y(p_2, q_2) + \delta\right) \geq G\left(\delta\right) >$

1/2. Hence, with good news, an H agent who stays wins with a probability larger than 1/2. Since $W \geq 2\omega$ (Assumption 1), the interim incentive constraint (2) is then satisfied: an H agent always stays with good news.

In contrast, when the interim news is bad, $S = -\delta$, an H agent stays if and only if

$$G\left(H - y(p_2, q_2) - \delta\right) \cdot W \geq \omega \tag{3}$$

Hence, following bad interim news, an H agent facing an L agent on the opposing team stays if and only if

$$(H - L) - \delta \geq G^{-1}\left(\frac{\omega}{W}\right). \tag{4}$$

or still, if and only if $-\delta \geq S^*$, where

$$\underbrace{S^*}_{\textit{Threshold interim signal}} = \underbrace{G^{-1}\left(\frac{\omega}{W}\right)}_{\textit{H's relative opportunity cost}} - \underbrace{(H - L)}_{\textit{Skill differential}}$$

If the above constraint is not satisfied, that is, $-\delta < S^*$, high-skill agents effectively acquire a real option when they join a political campaign: they will stay around until the interim signal is realized (say, a primary election), see if their prospects are good, and if not, quit. They behave like "mercenaries", always on the winning team.

We are now ready to state our main proposition:

Proposition 1. *There is a unique equilibrium:*

1. *If $-\delta < S^*$, both leaders choose an L agent.*
2. *If $-\delta > S^*$, both leaders choose an H agent.*

Proof. Recall first that an L agent never quits. In contrast, an H agent facing an L opponent stays after bad news if and only if

$$-\delta \geq S^* \equiv G^{-1}\left(\frac{\omega}{W}\right) - (H - L).$$

We characterize leaders' best responses.

Suppose first that $-\delta < S^*$. If the rival leader hires an H agent, hiring an L agent is the unique best response. Indeed, when the rival H agent receives bad news, she quits given $-\delta < S^*$, and the leader with the L agent wins (Assumption 3). When the rival H agent receives good news, the leader with the L agent may still win because of the ex-post shock (Assumption 2). Hence hiring L yields a winning probability strictly above 1/2. By contrast, hiring H against H yields a symmetric contest and therefore a winning probability of 1/2.

If the rival leader hires an L agent, hiring an L agent yields a symmetric contest and therefore a winning probability of 1/2. Hiring an H agent instead yields zero probability of winning after bad news, because the H agent quits, and a probability strictly below one after good news. Hence the leader's winning probability from hiring H is strictly below 1/2. Thus L is again the unique best response to L, and the unique equilibrium is (L, L).

Now suppose that $-\delta > S^*$. If the rival leader hires an L agent, a leader who hires an H agent has a follower who stays even after bad news. Since $H > L$, hiring H then gives the leader a strictly higher probability of winning than hiring L. Hence H is the unique best response to L. If the rival leader hires an H agent instead, then also hiring an H gives the leader the symmetric winning probability of 1/2. In contrast, hiring an L agent results in a winning probability strictly below 1/2 as the rival H agent stays after bad news. It follows that H is again the unique best response to H, and the unique equilibrium is (H, H). $\square$

Interestingly, even when (H, H) is the unique equilibrium, both agents may quit after bad news. Indeed, define

$$S^{**} \equiv G^{-1}\left(\frac{\omega}{W}\right).$$

If $-\delta \in (S^*, S^{**})$, an H agent quits after bad news when facing another H agent, but stays after bad news when facing an L agent. Hiring an H agent is then the unique best response to an H opponent. Intuitively, strategic considerations matter for the choice of talent: In this parameter range, a talented follower H quits with bad interim news, but also induces the rival team to give up when they face setbacks. In contrast, deviating and hiring a loyal but low-skill follower would not have had this strategic effect, yielding a winning probability of less than 1/2. Because of this 'discouragement effect' on the rival team, high-skill followers are then optimally chosen even though they are expected to quit 'on path'. Finally, note that for $-\delta > S^{**}$, an H agent always sticks around, regardless of her opponent, and is thus (trivially) preferred over an L agent.

From Proposition 1, the key for the leader's hiring decision is the threshold $S^* = G^{-1}\big(\frac{\omega}{W}\big) - \big(H - L\big)$. Hiring "for merit" is preferred when this threshold is sufficiently low relative to $-\delta$. This depends, first, on skill: loyalists are preferred when the relative opportunity cost of mercenaries ω/W is high, or when skill is less relevant so that the skill difference between

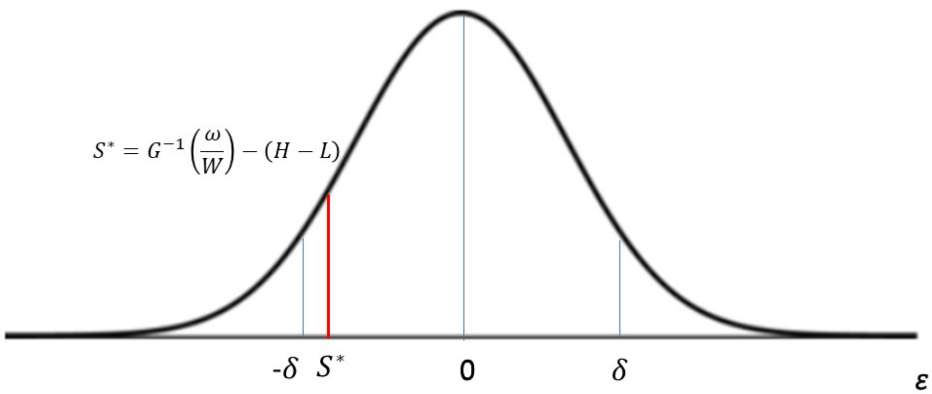

Figure 2 – Highly informative signal – H agent never stays in case of bad interim news.

mercenaries and loyalists $H-L$ is small. Second, interim information plays a key role. When the interim signal is more informative, i.e. when δ is larger, loyalists are preferred.

Figure 2 illustrates the threshold S^* for the case where the interim signal is highly informative: $-\delta < S^*$. Even taking into account the skill advantage $H-L$ that it will obtain by running against a team with an L agent, a leader who employs an H agent does not have a high enough winning chance to ensure the H agent stays around.

Finally, loyalists will be preferred for a smaller parameter range if ex post luck plays a larger role. A mean-preserving spread of $G(\varepsilon)$ lowers $G^{-1}(\omega/W)$ for $\omega/W < 1/2$, and therefore lowers S^*. Hence ex-post luck makes loyalty less valuable: when final uncertainty is large, a talented agent remains willing to stay after bad interim news for a wider set of parameter values.

Proposition 2 (Comparative Statics)**.** *Loyalists are preferred for a larger set of parameter values when:*

1. *The relative outside option of talent, ω/W, is higher;*
2. *The skill advantage of talent, $H-L$, is smaller;*
3. *The interim signal is more relevant: δ is larger;*

4. *Ex post luck is less relevant: if distribution $G_B(\varepsilon)$ is a mean preserving spread of distribution $G_A(\varepsilon)$ then hiring a loyalist is preferred for a larger set of parameter values under G_A than under G_B.*

3.3. Remarks about modeling choices

The objective of our model is to study the leader's hiring decisions in a context where more skilled agents have outside options that make them less likely to persevere through bad news. We review here the key assumptions that we have made.

Our model investigates contexts where success is binary. But tournaments do not need to be winner-take-all for our findings to hold true. All that is needed is a significant disparity between the rewards of winning and the penalties of losing. The assumption that such a large gap exists holds true not just in politics but also in various areas like research and development (R&D) races, innovation competitions, and startup contests. Corporate promotions often function as winner-takes-all competitions as well, with losers typically exiting the organization. [15]

A second crucial aspect of our model involves the significance of interim information regarding the likelihood of success, which enables followers to reassess their decision to participate. In reality, news and updates typically emerge continuously, except perhaps in the context of primaries. However, by consolidating this information into a single moment, our analysis becomes sharper and easier. A continuous version of the model would also include a threshold below which agents would choose to exit.

Third, the prize W is an "in kind" prize, consistent with the political application: we assume no additional monetary rewards apart from those associated with success. Although agents in reality receive payments such as salaries, what matters in politics is the substantial discrepancy between the non-monetary rewards tied to attaining power and the consequences of losing. Winners benefit from the "spoils system,"[16] wherein the leader distributes available positions among their followers. The monetary rewards are, by comparison, puny.

[15] Two famous instances are the race for Jack Welch's succession in GE and the more recent 2018 succession at Goldman Sachs between co-Presidents Harvey Schwartz and David Solomon. In both cases, the losers quit their jobs after being passed over for the succession. In the case of GE, Welch announced on November 3, 1999 that he would retire on April 2001, announcing that the CEO would be chosen out of three competing candidates (Jeff Immelt, Jim McNerney and Robert Nardelli). Nardelli quit after losing, and on his new job as CEO of Home Depot relied on several GE managers he brought with him. They in turn quit Home Depot with Nardelli when he departed .

[16] The term "spoils system" derives from the phrase "to the victor belong the spoils" with which senator William L. Marcy referred to Andrew Jackson's practice, upon winning the Presidential election in 1828,

In other 'winner-take-all'-like settings, such as start-ups, monetary rewards may be important. As we show in Section 4.2, optimal contracts then still specify a prize W if and only if the tournament is won, but this prize is now endogenously designed and dependent on the skill level. As long as followers have limited liability, our results carry through qualitatively. Indeed, for an H agent to remain loyal, the expected bonus must compensate for her outside option under both good and bad news. Therefore, in order to ensure loyalty, an H agent needs to be paid rents, whereas an L agent does not. This often leads to the inefficient hiring of low-skill agents (that is, if participation were to be contractible, a high-skill agent would have been hired). We refer to Section 4.2 for a more detailed discussion.

Lastly, we posit that politicians require the assistance of other agents to achieve success. In the main analysis, we simplify this by assuming each leader needs one follower. However, in the next section, we extend the analysis to encompass the more realistic scenario of multiple followers who must collaborate. Both cases give rise to an agency problem, given the risk of inefficient exit at the interim stage. This results from the correlation between agent skill and their outside options. If agents' skills are general, high-skill individuals are also more productive outside the team. Another way to interpret this assumption is that the politician seeking loyalty relies on friends and family who are more loyal, but because they are extracted from a narrower pool, are on average less skilled.[17]

4. Extensions

Having established the value of loyalty in our basic model, we now extend our analysis to study more or less competitive elections, monetary incentives, multi-agent teams, and ideology as a commitment device.

4.1. More or less competitive elections.

Elections can be more or less competitive for at least two reasons. First, there may be a clear favorite to win the election, such as an incumbent politician. Second, multiple candidates ($n > 2$) may compete against each other, as is often the case in primaries or

of firing one in ten government employees and replacing them with his followers (Howe (2007)). Although this practice has been moderated in the US with civil service reform, political appointees in the US are still appointed to all top-level jobs in government and to ambassador positions in the foreign service.

[17] To the extent that the skill is more specific to the individual politician followed, the problem we study would be attenuated or (if the skill is completely specific) disappear.

municipal elections. In both cases, we establish a sense in which more competition increases the value of loyalty.

4.1.1. Asymmetries: Incumbency advantage

Elections are less competitive when there is a clear favorite to win the election. If one team is ahead, and the other is behind (for instance, one leader is the political incumbent), will the leader of the disadvantaged team choose to hire high-skill followers in order to break in? Or will he prefer to play it safe? How will the incumbent react?

To answer this question, we consider a simple variant of our model with asymmetric competition. We restrict our attention to uniform distributions of ex-post luck: $G(\varepsilon)$ is uniform on $[-\overline{\varepsilon}, \overline{\varepsilon}]$, so that $\overline{\varepsilon}$ is a measure of the importance of ex-post luck. We assume that one of the teams, the *incumbent team* I, has a larger chance of winning the tournament. We express this advantage in the form of a skill "handicap" K in favor of the incumbent. Thus,

$$y_I = y(p_I, q_I) + K,$$

whereas $y_E = y(p_E, q_E)$ for the *entrant* team E.

We assume that K is not too large, so that with good news, an H follower of the entrant always stays around: $K \leq K^{max}$ where

$$G(\delta - K^{max}) \cdot W = \omega.$$

Note that since $W/2 > \omega$, we have $K^{max} > \delta$. Indeed, given that G is uniform, $K^{max} = \delta + \overline{\varepsilon}\left(1 - \frac{2\omega}{W}\right)$.

Consider now first the incentives of the *incumbent* to recruit a high-skill agent. Intuitively, as the asymmetry increases, the incumbent team is clearly ahead. Thus, for K sufficiently large, an H agent feels sufficiently safe to stay until the end of the tournament, regardless of whether the interim news is good or bad. There is then no downside for the incumbent to hiring an H agent. In particular, whenever $K \geq \delta$, the incumbent team has at least a chance of $G(K - \delta) \geq 1/2$ of winning the tournament, even when facing bad news and also the entrant hires an H agent. Since $W/2 > \omega$, an H agent then never quits the incumbent team.

Next, consider the incentives of the entrant. For the team that is behind, the reason to recruit a high-skill agent is different. As the asymmetry increases, the value of having loyal agents, those who stay on with bad news, is reduced as the entrant rarely wins in the latter case. It may then be optimal for the entrant to gamble it all on the chance of good news. This is trivially the case when the entrant team always loses with bad news (and a low-skill agent). Hiring a high-skill agent, again, then has no downside.

Formally, if the incumbent hires an H agent, hiring a high-skill agent is also optimal for the entrant whenever

$$G(\delta - K) - G\left(\delta - K - (H - L)\right) \geq G\left(-\delta - K - (H - L)\right), \tag{5}$$

where the LHS is the higher chance of winning when interim news is good, and the RHS is the opportunity cost of never winning when interim news is bad. Constraint (5) is always satisfied when $(H-L)+\delta+K \geq \overline{\varepsilon}$ and an entrant with a low-skill agent never wins with bad news. More generally, 'betting on good interim news' is optimal for the entrant whenever

$$K \geq \overline{\varepsilon} - \delta - 2(H - L), \tag{6}$$

Thus, the entrant will hire a high-skill agent when asymmetries (K) are large and/or interim luck (δ) and skill differences ($H-L$) are important relative to ex-post luck ($\overline{\varepsilon}$). The following proposition holds:

Proposition 3. *Suppose we are in the (interesting) case $-\delta < S^*$, where both leaders choose L agents when they are at a level playing field ($K = 0$), and assume $W/3 \geq \omega$. Then there exists a minimum handicap K^A such that for $K > K^A$, both the incumbent and the entrant choose H agents.*

In summary, Proposition 3 shows that increasing the asymmetry between teams leads them *both* to prefer to hire meritocratic agents (where they would have hired loyal low-skill agents before). Note that this result is in contrast with what would be expected in a model where loyal supporters are those that do not backstab the leader, prevalent in the rest of the literature (Galasso and Nannicini, 2011; Zakharov, 2016). In those papers, more equal (external) competition would lead the leader to take higher risks (of backstabbing) by appointing more talented followers. In contrast, when loyalty is about staying in the face of adversity, as Proposition 3 shows, it is the lack of symmetry that makes the leader comfortable appointing talented supporters.

The technical condition $W/3 \geq \omega$ is a sufficient (but not necessary) condition to ensure that $K^A < K^{max}$. If the outside option ω is larger than $W/3$, then the entrant's H agent may quit with both good and bad interim news for $K = K^A$.

4.1.2. Increasing the number of players

So far, we have considered two competing teams (consisting of a leader and one or multiple followers). How do our results hold up when multiple ($n > 2$) teams compete and how does an increase in political competition (more teams) affect the incentives to recruit mediocre vs high-skill followers?

Assume therefore that there are n competing teams and let there be exactly one team that receives good interim information.[18] For instance, a public event identifies a single frontrunner, such as a primary victory, a debate judged to have a clear winner, or a major endorsement that shifts attention to one candidate.[19]

We first generalize the following result, which also held for $n = 2$:

Lemma 1. *If an H agent quits following bad interim news, assuming all other leaders recruit L agents, then the leader optimally recruits an L agent as well. The unique pure-strategy equilibrium is then one in which all leaders recruit L agents. In contrast, if an H agent does not quit in this case, no equilibrium exists with only L agents.*

The intuition is similar to that for $n = 2$. Assume all other leaders recruit an L agent. When hiring an L agent, the leader wins in $1/n$ of all cases. When hiring an H agent, in contrast, the leader loses whenever there is bad news, which occurs in $(n-1)/n$ cases. In the other $1/n$ cases, he does not always win. Hence, with an H agent, the leader wins in less than $1/n$ cases.

A direct consequence is that an equilibrium with only L agents exists if and only if an H agent facing $(n-1)$ L agents quits with bad news. Indeed, if an H agent does not quit, she is clearly preferred over an L agent.

We are now ready for our main result.

[18] We also studied a scenario where half of all teams receive good interim information, $S = \delta$, and the other half receive bad interim information, $S = -\delta$. As long as $H - L$ is not too large, we obtain equivalent results.

[19] For example, Newt Gingrich's victory in the 2012 South Carolina Republican primary, following widely noted debate performances, was described as an upset that scrambled the Republican nomination contest. See the Washington Post of January 2012: Gingrich comes from behind to win South Carolina primary. More generally, early primary victories, televised debates, and major endorsements often generate a single public "winner" and hence a natural analogue to the one-positive-signal case.

Proposition 4. *Consider two settings with respectively n_1 and $n_2 > n_1$ competitors and let $W/n_2 > \omega$, so that the ex ante participation constraint for H agents is satisfied. A (unique) pure-strategy equilibrium with only L agents exists for a larger parameter range when there is more competition ($n = n_2$).*

Intuitively, more competition reduces the chances of winning the tournament, making H agents more likely to quit when facing bad news. As a result, more competition makes it weakly more desirable to recruit low-skill loyalists rather than high-skill mercenaries.

4.2. Monetary Incentives

Political labor markets are special because non-monetary rewards dominate. Still, similar loyalty problems arise in settings where monetary incentives are available, such as start-ups, promotion tournaments, R&D races, and innovation contests. We now show that monetary incentives reduce, but do not eliminate, the value of loyalty.

Consider the same tournament as in the baseline model, except that the winning team now earns a monetary prize P, while the losing team earns zero. A leader can offer a contract consisting of a fixed wage and a bonus B paid only if the team wins. Since interim participation is non-contractible, a fixed wage cannot be conditioned on staying after bad news. With limited liability, it is therefore without loss to set the fixed wage equal to zero and use only the success-contingent bonus B. If the team wins, the leader obtains $P - B$; if the team loses, the leader obtains zero.

Low-skill agents have outside option zero, so they can be hired with $B = 0$. High-skill agents have outside option $\omega > 0$. After observing interim information, a high-skill agent stays only if her expected bonus from continuing exceeds ω. Hence a leader who hires a high-skill agent has two possible choices. She may induce *partial loyalty*, meaning that the high-skill agent stays only after good interim news, or *full loyalty*, meaning that the high-skill agent stays after both good and bad interim news. Hiring a high-skill agent who never stays is strictly dominated by hiring a low-skill agent.

As a benchmark, suppose first that interim participation were contractible. Define

$$G^{H-L} \equiv \frac{1}{2}G(H - L + \delta) + \frac{1}{2}G(H - L - \delta),$$

the probability that a high-skill team beats a low-skill team when neither follower quits. Note that hiring a high-skill agent rather than a low-skill agent raises the probability of winning by $G^{H-L} - 1/2$, regardless of the rival team's type. Since the high-skill agent must be compensated for her outside option ω, both leaders hire high-skill agents in the contractible-participation benchmark if and only if

$$\left(G^{H-L} - \frac{1}{2}\right) P > \omega.$$

In what follows, we focus on the interesting case in which high-skill agents are efficient.

Assumption 4. ***H* agents are efficient absent quitting***: $(G^{H-L} - 1/2)P > \omega$.*

When interim participation is not contractible, this efficiency benchmark may not be implemented. The reason is simple: to make a high-skill agent stay after bad news, the leader must promise a large bonus. But that bonus is also paid after good news. Full loyalty therefore gives the high-skill agent rents. A low-skill agent is less productive, but requires no such rents and never quits.

The next proposition states the main result. Monetary incentives do not eliminate the value of loyalty. Even when leaders can pay bonuses, talented agents may be either too expensive to retain after bad news or endogenously disloyal.

Proposition 5. *Define*

$$T_L \equiv \frac{G(H-L+\delta)}{G(H-L-\delta)^2} \qquad \text{and} \qquad T_H \equiv \frac{G(\delta)}{G(-\delta)^2} > T_L.$$

1. *If*
$$\frac{P}{\omega} < T_L,$$
the unique equilibrium has both leaders hiring low-skill agents.

2. *If*
$$T_L < \frac{P}{\omega} < T_H,$$
there is no pure-strategy equilibrium in which both leaders hire high-skill agents. Any pure-strategy equilibrium involves at least one leader hiring a low-skill agent.

Proof. The proof is in Appendix A.2. □

The first part of Proposition 5 identifies a low-prize region in which both leaders hire low-skill loyalists as inducing loyalty from a high-skill agent is not worth it.

The second part identifies an intermediate-prize region in which a high-skill agent is retained against a low-skill opponent, but not in a fully meritocratic contest. In that region, a leader who faces an L opponent is willing to pay enough to make an H agent fully loyal, but a leader who faces an H opponent is not. An all-H equilibrium is therefore impossible, as both followers would be (endogenously) disloyal.

Finally, when the prize is high enough, that is when $P/\omega > T_H$, leaders always induce full loyalty from high-skill agents, but may still prefer L agents as they are cheaper.[20] We refer to the Appendix for the formal analysis of this case. The following numerical example illustrates hiring equilibria as a function of P/ω.

Uniform example. Let G be uniform on $[-1, 1]$, let $H - L = 1/6$, and let $\delta = 2/3$. Then $G(H - L - \delta) = 1/4$ and $G^{H-L} = 7/12$. The contractible-participation benchmark selects H agents whenever $P/\omega > 12$. However, when quitting is possible, the equilibrium is different (see Appendix for details). First, when facing an L opponent, making an H agent loyal after bad news requires a bonus $B = \omega/G(H - L - \delta) = 4\omega$. Hiring such an agent rather than an L agent is profitable if and only if $P/\omega > 28$. Second, when facing a loyal H opponent, making an H agent loyal requires a bonus $B = \omega/G(-\delta) = 6\omega$. Hiring such an agent rather than an L agent is profitable if and only if $P/\omega > 36$. Finally, in this example, hiring a partially loyal H agent (who only stays with good news) is always dominated by hiring an L agent. It follows that the equilibrium regions are:

Range of P/ω	Equilibrium hiring	Interpretation
$P/\omega \leq 12$	L, L	H is not efficient even absent quitting
$12 < P/\omega < 28$	L, L	H is efficient, but loyalty rents are too costly
$28 < P/\omega < 36$	L, H or H, L	one leader pays for full loyalty
$P/\omega > 36$	H, H	both leaders pay for full loyalty

In the parameter range $12 < P/\omega < 28$, H agents would be hired if quitting was not possible, but both leaders instead hire low-skill loyal agents. Monetary incentives therefore do not remove the loyalty-merit trade-off; they transform it into a trade-off between talent and the rents needed to retain talent after bad news.

[20] To be precise, this assumes the opponent hires a low-skill agent or a fully loyal high-skill agent. No (pure strategy) equilibrium exists, however, where leaders hire a partially loyal high-skill agent.

4.3. Political Teams with Multiple Followers

We now extend our framework to a political team with many members. In line with our main analysis, we assume that participation by agents is strongly complementary: full participation by all agents is necessary for the political team to succeed, any one agent quitting sinks the entire team.

4.3.1. Homogeneous tasks: O-Ring

Following Kremer (1993), consider n complementary tasks where output is multiplicative in skills: $y = \prod_{k=1}^{n} q_k$. Without moral hazard, this implies positive assortative matching: high-skill agents should work together, since the cross derivative of output with respect to the skills of two different followers is positive. As Kremer argues, in O-ring sectors, production requires a homogeneous high-skill labor force—introducing a low-skill agent wastes the talent of the rest of the team.

We add now a non-contractible loyalty (participation) decision $p_{i,k} \in \{0, 1\}$. Thus agent k in team i produces $p_{i,k} \times q_{i,k}$, and the modified team production function yields output:[21]

$$Y_i = \prod_{k=1}^{n} (p_{i,k} \times q_{i,k}) + S_i + \varepsilon_i. \tag{7}$$

As before, agents can be high-skill or low-skill. The timing and contracting assumptions remain the same. Thus the probability that team 1 wins is given by:

$$\mathbb{P}\left[\prod_{k=1}^{n} (p_{1,k} \times q_{1,k}) - \prod_{k=1}^{n} (p_{2,k} \times q_{2,k}) + S > \varepsilon\right] \tag{8}$$

which is analogous to equation 1. The winning team takes all: each agent in the winning team receives their share W of the spoils.

If followers quit, they obtain their outside value ω. For simplicity, we assume that the support of ε is such that $\sup\{\varepsilon\} < \delta + L^n$, so that a team in which followers quit after receiving bad interim news automatically loses (this is the equivalent to Assumption 3).

Finally, we assume leaders coordinate team participation to avoid equilibria where agents quit only because they expect teammates to quit.[22] Note that if a leader could not coordinate

[21] Note that this is equivalent to setting $Z = 0$ in our main model.

[22] This is in contrast with Winter (2004), who also builds on Kremer (1993), but assumes that agents must

team participation, and he anticipated a perverse equilibrium, he would always hire low-skill agents. When different team compositions yield the same winning probability, the leader breaks ties in favor of the composition which maximizes Y_i.

Proposition 6 generalizes Proposition 1 to this setting. Define first the threshold signal with multiple agents S^m:

$$\underbrace{S^m}_{\text{Threshold interim signal}} = \underbrace{G^{-1}\big(\frac{\omega}{W}\big)}_{H\text{'s relative opportunity cost}} - \underbrace{\big(H^n - L^n\big)}_{\text{Skill differential}}$$

Proposition 6. *In the unique equilibrium of the game:*

Teams are homogeneous: all team members are either high-skill or low-skill.

1. *If $-\delta < S^m$, the leaders choose "loyalty": both competing teams will be composed entirely of low-skill agents.*
2. *If $-\delta > S^m$, the leaders choose "merit": both competing teams will be composed entirely of high-skill agents.*

A low-skill team is optimal for a larger parameter range when high-skill agents have more valuable outside options (ω/W high), skills are less important ($H^n - L^n$ is smaller), and interim signals are more informative. The effect of increasing n operates through the skill differential $H^n - L^n$. When adding tasks reduces this differential, the value of talent falls and loyalty becomes optimal for a larger parameter range.

Discussion. Extending the analysis to teams with multiple followers generates some new results. First, teams are homogeneous: there is no gain in mixing loyalists and high-skill agents. The leader will choose one of the extreme configurations. Second, consider the conclusions of Kremer (1993) in the same model but without moral hazard. There, production in O-ring sectors requires a homogeneous high-skill labor force. Here, a low-skill but loyal labor force may be optimal to ensure the team is able to withstand bad news. This will be more likely when interim news is more informative and skills are less important to win.

be induced to exert effort in every equilibrium of the game. As he shows, asymmetric (monetary) incentives are then always optimal.

4.3.2. Heterogeneous tasks

In sequential production processes, failure in later tasks can be more costly because earlier tasks can often be repeated. Kremer (1993) shows that, absent incentive conflicts, higher-quality agents should therefore be assigned to later stages where mistakes are more costly. We show that loyalty concerns can reverse this assignment.

Each team has one high-skill agent and one low-skill agent, with task-success probabilities $0 < L < H < 1$. The leader assigns one agent to each of two sequential tasks. Task 1 can be attempted costlessly up to $n \geq 2$ times. After Task 1 has been completed, the interim signal $S \in \{-\delta, \delta\}$ is observed. Because Task 1 is already complete, only the agent assigned to Task 2 has a consequential interim participation decision $p_{i2} \in \{0, 1\}$. If she stays, Task 2 can be attempted once. Production requires success on both tasks. The deterministic component of team i's output is therefore

$$y_i = [1 - (1 - q_{i1})^n]\, p_{i2} q_{i2}, \tag{9}$$

and team i defeats team j if and only if

$$y_i - y_j + S > \varepsilon.$$

As in the baseline model, an L agent has outside option zero, an H agent has outside option $\omega > 0$, and an agent on the winning team receives W.

There are two possible assignments. Under the first-best or *merit* assignment, the L agent performs Task 1 and the H agent performs the bottleneck Task 2, yielding active-team productivity

$$A_n \equiv [1 - (1 - L)^n]\, H.$$

Under the reversed or *loyalty* assignment, the H agent performs Task 1 and the L agent performs Task 2, yielding

$$B_n \equiv [1 - (1 - H)^n]\, L.$$

Let

$$D_n \equiv A_n - B_n. \tag{10}$$

For $n \geq 2$, $D_n > 0$, so absent quitting the merit assignment is efficient. We maintain the analogues of Assumptions 2 and 3:

$$A_n + \delta < B_n + \sup\{\varepsilon\} \qquad \text{and} \qquad -\delta + \sup\{\varepsilon\} < B_n. \tag{11}$$

The first inequality ensures that an active team using the loyalty assignment can still win after bad interim news; the second ensures that a team whose Task-2 agent quits after bad news loses.

An H agent assigned to Task 2 and facing a rival using the loyalty assignment stays after bad news if and only if

$$G(D_n - \delta)W \geq \omega.$$

Define the corresponding threshold

$$S_n^s \equiv G^{-1}\left(\frac{\omega}{W}\right) - D_n. \tag{12}$$

Proposition 7. *For generic parameter values, the game has a unique equilibrium:*

1. *If $-\delta < S_n^s$, both leaders use the loyalty assignment: the H agent performs Task 1 and the L agent performs the bottleneck Task 2.*
2. *If $-\delta > S_n^s$, both leaders use the merit assignment: the L agent performs Task 1 and the H agent performs the bottleneck Task 2.*

The low-skill agent is assigned to the bottleneck task for a larger set of parameter values when ω/W is higher, the productivity differential D_n is smaller, or the interim signal is more informative. Moreover,

$$D_{n+1} - D_n = HL\left[(1-L)^n - (1-H)^n\right] > 0,$$

so $S_{n+1}^s < S_n^s$. Hence, as Task 1 becomes more repeatable, assigning the high-skill agent to the bottleneck task is optimal for a larger set of parameter values.

Proof. See Appendix A.4. □

Thus, loyalty concerns can reverse Kremer (1993)'s efficient assignment: a loyal but less-skilled agent may optimally occupy the critical bottleneck task, while high-skill talent is used in the replaceable early task.

4.4. Ideology as a commitment device

Ideology can generate loyalty within a team. Ideologically committed followers are less likely to quit during setbacks because their beliefs align with the ideological platform they support. They are also less tempted by outside offers or competing platforms. This reduced opportunism ensures that they remain loyal to their chosen platform. The cost is that a more ideological platform may also reduce the chance of winning.

A simple reinterpretation of the model allows us to study the trade-off between ideology and moderation:

1. Agents may choose to stay or quit: $p_i \in \{0, 1\}$.
2. All agents have the same skill level, but there are two types: *partisan followers* (activists, ideologues,...) who never quit; and *opportunistic followers* who stay if the expected value of winning is higher than their opportunity cost ω.
3. Leaders choose between two platforms:
   - A centrist platform M that increases the probability of winning, since it appeals to broader swathes of the public, but only attracts "opportunistic" followers;
   - An ideological platform I, with a lower chance of winning but "partisan" followers.
4. Output depends on platform quality $Q_i \in \{M, I\}$, participation p_i by the agent on team i, and luck (as before, we have an interim signal S_i and ex-post luck ε_i). Thus, Agent 1 on platform 1 wins against agent 2 on platform 2 with probability:

   $$\mathbb{P}_i = Pr\left[y(p_1, Q_1) - y(p_2, Q_2) + S > \varepsilon\right]$$

   where $y(1, M) = M > y(1, I) = I > 0$, and $y(0, Q_i) = Z$, with Z sufficiently low that a team whose agent quits after bad interim news loses the tournament (cf. Assumption 3).

Following our earlier analysis in Proposition 1, an ideological platform is preferred when:

$$-\delta \leq G^{-1}\big(\frac{\omega}{W}\big) - \big(M - I\big)$$

Whenever the latter condition holds, ideology is required to ensure loyalty.

The above framework can further be amended to have both high-skill and low-skill (partisan or opportunistic) followers, where only H followers have access to an outside option.

Abusing notation, let $y(1,Q,H) = y(1,Q)$ and $y(1,Q,L) = \ell y(1,Q)$, with $\ell < 1$. Skill does not affect output when $p_i = 0$. A leader now has two options to ensure loyalty: choosing an ideological platform or hiring low-skill agents. The following result follows from the same logic as Proposition 1.

Proposition 8. *(i) An ideological platform only hires high-skill followers. (ii) A moderate platform hires low-skill followers if and only if:*

$$-\delta < G^{-1}\left(\frac{\omega}{W}\right) - (1-\ell)M \tag{13}$$

(iii) An ideological platform is preferred over a moderate one if and only if (13) holds and $I > \ell \cdot M$*.*

Note that when (13) holds, either low-skill agents or an ideological platform are needed to ensure loyalty. Whenever $I > \ell \cdot M$, an ideological platform with high-skill agents maximizes the chances of winning. The reverse is true when $I < \ell M$.

5. Institutional Responses

We finally turn our attention to potential solutions to the challenge of low-skill political teams. We explore three possible ideas, each of which has its own trade-offs.

5.1. Electoral Reforms: length of campaign and electoral system

Electoral campaign design influences talent retention. Lengthy campaigns create more opportunities for interim information–primaries, polls, scandals, economic reports–, which our analysis shows can trigger departures of talented followers. A society that wants to increase talent in politics may consider electoral reforms such as shorter campaigns or more concentrated primaries.

However, this is not without cost. Putting candidates through the grueling marathon that are, for instance, American primaries may reveal useful information about the skills of leader and followers. Such information would be lost in a shorter and, ostensibly, more "talent-friendly" campaign. The optimal length of the campaign, then, would trade off the information revelation advantages of longer campaigns, versus the reduction in talent they may cause.

Electoral systems also affect the winner-take-all nature of political contests. Majoritarian (or, in the UK, first-past-the-post) systems create stark binary outcomes. In contrast, in a proportional system, coalitions may allow for intermediate outcomes, where parties that do not do well in the election can nevertheless participate in government. In the logic of our model, proportional systems may find it easier to attract and retain political talent.

5.2. Career Politicians

Another potential institutional response to the kind of tension we study is the development of career politicians, who paradoxically may play a role in mitigating opportunistic behavior in politics. Their limited outside career options, stemming from specialized political skill sets and networks, reduce their incentive to quit during setbacks. This reduces the risk of opportunistic behavior and softens the loyalty-merit trade-off we have studied.

Again, such a choice would not come for free. A system where "only career politicians need apply" is one where talent may be lost from the outset: the solution may simply advance the moment at which the merit versus talent trade-off takes place. Moreover, career politicians may become entrenched, less responsive to evolving public needs and more prone to cronyism.

5.3. Leader Loyalty

We next consider the possibility that a long-term relationship can be formed between the leader and the follower. Such a relationship may incentivize high-skill followers to stick around when facing bad interim information, in the expectation that in the event of a loss, the leader will "run" again and offer her another chance at the big prize. The formal analysis is in Online Appendix OA.A, but we sketch here fully the argument.

We consider an (infinitely) repeated game in which, in each period, there is a contest between two leaders. Just as the follower, the leader is motivated by the value of the prize, W, but may also have something better to do than wait around for another chance to win. In particular, after any loss, the leader has the opportunity to run again. However, with probability $(1 - \varphi)$, he has an outside option $\omega_L > W/2$ and will 'quit'; with probability φ, he remains available to run again. A leader exits when either (1) his team wins, (2) his agent quits when bad news is revealed, or (3) he quits after a loss. A leader who exits is replaced by a new leader in the next period.

Consistently with the political application, we assume betrayal is hugely damaging: when a leader decides not to run again, agents who were loyal are left in the cold – they have lost the chance to access their outside opportunity ω; symmetrically, if agents abandon the leader half-way, the leader loses and cannot run again. This captures in a stylized way the idea that quitting before the leader collapses preserves outside options, while being betrayed is extremely costly.

Our first result (Online Appendix Proposition OA1) shows that if the leader's probability of running again is high enough and both parties are patient enough, there is a unique equilibrium in which the leader chooses a high-ability follower and that follower always remains loyal. This is true, even when short-run considerations would push the leader to appoint loyal but mediocre followers. Thus, the repeated setting allows the leader to commit to rehire a follower after losses, inducing the follower to stay: loyalty emerges endogenously.

Yet commitment can also force the leader to keep unsuitable subordinates. Suppose ability or suitability declines in a Markov manner. The second result (Online Appendix Proposition OA2) shows that leader loyalty can be costly when the follower's type can change. If the leader promises always to stick with the same follower, then that follower is incentivized to stay. But if the follower's ability becomes low, the leader is stuck if the agreement is to rehire the same agent no matter what. If the leader ever deviates by firing the follower when her skill drops, high-skill agents anticipate that they will be dropped in the event of a bad state, and so they will not remain loyal in the first place. This would destroy the high-ability equilibrium and push the leader to choose a guaranteed loyal but less skilled team from the start. In other words, the agent's incentive to stay despite bad news comes from anticipating that any setback does not end the relationship; but then the leader must honor this unwritten agreement by refusing to drop the follower even after her skill decays or circumstances shift.

6. Conclusion

As Besley (2005) argues "no society can run effective public institutions while ignoring the quality of who is recruited to public office." And yet, as we argue here, the choices of "who is best for the job" are likely to be contaminated by the search for loyalty in the preceding political contest. Such contests are winner-take-all: the winner reaps large rewards while the loser gains nothing. Leaders are likely to surround themselves with loyal followers, at the expense of merit, especially when talented individuals have attractive opportunities outside of politics and interim information may substantially sway the odds of victory.

We extend our analysis to scenarios with varying degrees of election competitiveness. Where there is a clear favorite (e.g. due to incumbency advantage), both competing teams are likely to place merit ahead of loyalty. In contrast, heightened competition, such as when many similar teams compete, increases the value of loyalty due to the higher likelihood of followers quitting. These results stand in contrast with the previous literature on loyalty, which emphasizes the "backstabbing" mechanism and where more external competition leads to a larger focus on talent. Finally, in contrast to Kremer (1993)'s analysis of O-ring teams, we show that when a team of followers works together with strong complementarities, task allocation may diverge from efficiency, with loyalists assigned to critical bottleneck tasks.

We study several potential responses to the challenges posed by loyalty-driven political organizations. These include modifying campaign length and informativeness, increasing the role of career politicians, and developing leader loyalty in long-term relationships. Leaders themselves may also adopt ideological platforms as a commitment device that secures loyalty without sacrificing talent.

While this paper primarily focuses on politics, where non-monetary goals are paramount, the ability to use monetary incentives to motivate agents does not negate the value of loyalty, as we show. This suggests that our analysis also applies to start-up contests, research and development races, and innovation competitions. Corporate promotions often function as winner-takes-all competitions as well, with losers typically exiting the organization. More generally, there is anecdotal evidence that loyalty plays a key role in the upper echelons of large firms, although cash payments can compensate for changes in promotion probabilities. How both aspects are traded off in firms is left for future research.

Appendix

A. Proofs

A.1. Proofs for Subsection 4.1

Proof of Proposition 3. Let $K^A = max\{\delta, \overline{K}\}$ where $\overline{K} = \overline{\varepsilon} - \delta - 2(H - L)$. We have shown above that for $K > K^A$, it is optimal for both the incumbent and the entrant to hire a high-skill agent. We conclude by providing conditions so that $K^A < K^{max}$ and, hence, $K > K^A$ does not violate $K < K^{max}$. We already know that $K^{max} > \delta$. Given that G is uniform, $K^{max} > \overline{K}$ whenever

$$\overline{\varepsilon}\left(\frac{2\omega}{W}\right) \leq 2\delta + 2(H - L), \tag{14}$$

We further must have that $-\delta < S^* = G^{-1}\left(\frac{\omega}{W}\right) - (H - L)$. Given that G is uniform, $S^* = -\overline{\varepsilon}\left(1 - \frac{2\omega}{W}\right) - (H - L)$. Hence, $-\delta < S^*$ is equivalent to

$$\delta > \overline{\varepsilon}\left(1 - \frac{2\omega}{W}\right) + (H - L). \tag{15}$$

It follows that a sufficient condition for constraint (14) to hold is that

$$\overline{\varepsilon}\left(3 \cdot \frac{2\omega}{W} - 2\right) \leq 4(H - L), \tag{16}$$

This will be satisfied whenever either $3\omega \leq W$ or $\overline{\varepsilon} \leq 4(H - L)$.

Proof of Lemma 1. We prove only the first part (the second part is direct). Assume all other leaders recruit an L agent. When hiring an L agent, the leader wins in $1/n$ of all cases. When hiring an H agent, in contrast, the leader loses whenever there is bad news, which occurs in $(n-1)/n$ cases. In the other $1/n$ cases, he does not always win. Hence, with an H agent, the leader wins in less than $1/n$ cases. A direct consequence is that a Nash equilibrium with only L agents exists if and only if an H agent facing $(n-1)$ L agents quits with bad news. Indeed, if an H agent does not quit, she is clearly preferred over an L agent. Finally, an all-L equilibrium is the unique pure-strategy equilibrium. In any other pure-strategy equilibrium (where some or all of the other leaders recruit H agents), some H agents must quit following bad news (if no one quits, then each H agent is even more inclined to quit than with all L opponents). The leader(s) of those H agents then again win in less than $1/n$ cases, and are better off hiring an L agent.

Proof of Proposition 4. Given Lemma 1, we only need to show that an H agent is weakly more likely to quit following bad news when facing more teams (n is larger), assuming all other teams have recruited an L agent. This is trivially the case.

A.2. Proofs for Subsection 4.2

Proof of Proposition 5. The proof proceeds in three steps.

Step 1: Full loyalty against a low-skill opponent. Suppose a leader has hired an H agent and the rival team has hired an L agent. If the H agent stays after good news, her probability of winning is $G(H-L+\delta)$. If she stays after bad news, her probability of winning is $G(H-L-\delta)$. Therefore, the smallest bonus that induces partial loyalty is

$$B_L^P = \frac{\omega}{G(H-L+\delta)},$$

whereas the smallest bonus that induces full loyalty is

$$B_L^F = \frac{\omega}{G(H-L-\delta)}.$$

Full loyalty is preferred to partial loyalty if and only if the expected gain from retaining the H agent after bad news exceeds the additional expected bonus cost paid after good news. This condition is

$$\frac{1}{2}G(H-L-\delta)\left(P - B_L^F\right) > \frac{1}{2}G(H-L+\delta)\left(B_L^F - B_L^P\right).$$

Substituting for B_L^F and B_L^P, this becomes

$$\frac{P}{\omega} > \frac{G(H-L+\delta)}{G(H-L-\delta)^2} = T_L.$$

Thus, if $P/\omega < T_L$, a leader who hires an H agent does not induce full loyalty even against an L opponent.

Step 2: Full loyalty against a high-skill opponent. Now suppose the rival team has hired an

H agent and induced full loyalty. In a symmetric high-skill contest, the H agent's probability of winning after good news is $G(\delta)$ whereas her probability of winning after bad news is $G(-\delta)$. The smallest bonus that induces partial loyalty is therefore $B_H^P = \omega/G(\delta)$, and the smallest bonus that induces full loyalty is $B_H^F = \omega/G(-\delta)$. By the same calculation as in Step 1, full loyalty is preferred to partial loyalty if and only if

$$\frac{1}{2}G(-\delta)\left(P - B_H^F\right) > \frac{1}{2}G(\delta)\left(B_H^F - B_H^P\right),$$

or equivalently

$$\frac{P}{\omega} > \frac{G(\delta)}{G(-\delta)^2} = T_H.$$

If the rival H agent is only partially loyal, full loyalty is even less attractive. In that case, an H agent who stays after good news wins for sure because the rival H agent quits after bad news. Partial loyalty therefore requires only the bonus $B = \omega$, while full loyalty still requires $B = \omega/G(-\delta)$. The threshold for inducing full loyalty against a partially loyal H opponent is $1/G(-\delta)^2$, which is larger than T_H. Hence, whenever $P/\omega < T_H$, a leader hiring an H agent against any H opponent induces only partial loyalty.

It remains to show that $T_L < T_H$. Let $d \equiv H - L > 0$, and write

$$A = G(-\delta), \quad B = G(\delta), \quad C = G(d - \delta), \quad D = G(d + \delta).$$

Then

$$T_H = \frac{B}{A^2}, \qquad T_L = \frac{D}{C^2}.$$

Since $d > 0$, we have $C > A$. Since G is symmetric around zero and single-peaked, the probability mass in the centered interval $[-\delta, \delta]$ is at least as large as the probability mass in the shifted interval $[d - \delta, d + \delta]$: $B - A \geq D - C$. This implies $B/A \geq D/C$. Combining this with $C > A$, we obtain

$$T_H = \frac{B}{A^2} = \frac{B}{A} \cdot \frac{1}{A} > \frac{D}{C} \cdot \frac{1}{C} = \frac{D}{C^2} = T_L.$$

Step 3: Equilibrium implications. First suppose $P/\omega < T_L$. By Step 1, a leader does not induce full loyalty from an H agent against an L opponent. By Step 2 and $T_L < T_H$, a leader also does not induce full loyalty from an H agent against an H opponent. Hence any H agent hired in this parameter region is only partially loyal.

A partially loyal H agent is dominated by an L agent. Against a L rival, a partially loyal H agent quits after bad news and wins with probability strictly less than one after good news. The leader's winning probability is therefore below $1/2$, and the leader must also pay a positive bonus when the team wins. Instead, hiring an L agent results in a symmetric contest, with a winning probability of $1/2$, and no bonus cost.

Hiring an L agent is also strictly better against a partly loyal H rival, since the L agent never quits, wins whenever the rival H agent receives bad news and quits, may still win when the rival receives good news, and requires no bonus. Therefore the unique equilibrium has both leaders hiring L agents.

Now suppose

$$T_L < \frac{P}{\omega} < T_H.$$

By Step 1, a leader who hires an H agent against an L opponent induces full loyalty. By Step 2, a leader who hires an H agent against an H opponent induces only partial loyalty.

Consider a candidate pure-strategy equilibrium in which both leaders hire H agents. Since $P/\omega < T_H$, neither leader induces full loyalty against an H opponent. Both H agents are therefore only partially loyal and are offered a bonus $B = \omega$. But then either leader can profitably deviate to an L agent: the L agent never quits, wins whenever the rival H agent receives bad news and quits, may still win when the rival receives good news, and requires no bonus. Hence there is no pure-strategy equilibrium in which both leaders hire H agents. Any pure-strategy equilibrium in this region must involve at least one leader hiring an L agent.

A.3. Additional analysis for monetary incentives

Subsection 4.2 in the main text analyzes monetary incentives when $P/\omega < \frac{G(\delta)}{G(-\delta)G(-\delta)}$. In this parameter range, it is never optimal to induce full loyalty from a high-skill agent (where she stays after both good and bad interim news). When P/ω exceeds this threshold, however, inducing full loyalty becomes optimal. As we show next, even in the latter case, leaders may hire low-skill agents in order to save on rents. The following result holds:

Proposition 9. *Whenever*

$$\frac{P}{\omega} > \frac{G(\delta)}{G(-\delta)G(-\delta)} \tag{17}$$

a leader optimally induces full loyalty from a high-skill agent. If and only if

$$\frac{P}{\omega} < \frac{1}{(G^{H-L} - 1/2)} \frac{G^{H-L}}{G(H-L-\delta)}, \tag{18}$$

there is then nevertheless a unique equilibrium in which both leaders hire a low-skill agent.

Proof. Assume

$$P/\omega > \frac{G(\delta)}{G(-\delta)G(-\delta)},$$

so that a leader optimally induces full loyalty from a high-skill agent, provided that his competitor hires an L agent or a fully loyal H agent. Note first that no (pure strategy) equilibrium can exist where a partially loyal H agent is hired. Indeed, given the condition P/ω above, hiring a partially loyal H agent can only be optimal if the other leader also hires a partially loyal H agent. But both leaders hiring a partially loyal H agent cannot be an equilibrium, as each leader then strictly prefers to hire an L agent in response. So the only (pure strategy) equilibria that can exist are those with L agents and fully loyal H agents.

An equilibrium in which each leader hires an L agent exists if and only if

$$(G^{H-L} - 1/2) \cdot P < G^{H-L} \cdot \frac{\omega}{G(H-L-\delta)} \tag{19}$$

where the LHS is the expected increase in gross payoffs from hiring a fully loyal H agent when the rival team has an L agent, and the RHS are the required bonus payments that induce full loyalty. Since $\frac{G^{H-L}}{G(H-L-\delta)} > 1$, the above condition is not in contradiction with Assumption 4.

An equilibrium in which each leader hires a fully loyal H agent, in contrast, exists if and only if

$$(G^{H-L} - 1/2) \cdot P > \frac{1}{2} \cdot \frac{\omega}{G(-\delta)} \tag{20}$$

Note that since

$$\frac{G^{H-L}}{G(H-L-\delta)} = \frac{1}{2}\left(1 + \frac{G(H-L+\delta)}{G(H-L-\delta)}\right) < \frac{1}{2}\left(1 + \frac{G(\delta)}{G(-\delta)}\right) = \frac{1}{2G(-\delta)},$$

conditions (19) and (20) cannot be satisfied at the same time. It follows that given conditions (19) and (20), the above identified equilibria are unique.

Finally, when

$$\frac{G^{H-L}}{G(H-L-\delta)} < (G^{H-L} - 1/2) \cdot \frac{P}{\omega} < \frac{1}{2G(-\delta)},$$

there exist two asymmetric equilibria, as it is optimal to hire a fully loyal H agent when facing an L agent and, conversely, it is optimal to hire an L agent when facing a fully loyal H agent. □

Numerical Example. Let $g(.)$ be uniform on $[-1, 1]$, $H - L = 1/6$ and $\delta = 2/3$. Then $G(-\delta + H - L) = 1/4$, $G(\delta + H - L) = 11/12$, $G^{H-L} = 7/12$, $G(\delta) = 5/6$ and $G(-\delta) = 1/6$. Note that Assumption 4 is equivalent to

$$P/\omega > 1/(G^{H-L} - 1/2) = 12$$

1) Assume first that hiring a partially loyal H agent is never a best-response. Teams then hire either an L agent or a fully loyal H agent in equilibrium. (i) When facing an L opponent, hiring a (loyal) H is preferred over an L agent if and only if inequality (19) is violated, that is if and only if

$$P/\omega > \frac{G^{H-L}}{(G^{H-L} - 1/2) \cdot G(H-L-\delta)} = \frac{7/12}{(1/12)(1/4)} = 28$$

(ii) When facing an H opponent, hiring a (loyal) H agent is preferred over an L agent if and only if inequality (20) is satisfied, that is if and only if

$$P/\omega > \frac{1/2}{(G^{H-L} - 1/2) \cdot G(-\delta)} = \frac{6/12}{(1/12)(1/6)} = 36$$

It follows that there is a unique equilibrium where both teams hire an L agent when $P/\omega < 28$; there exist two asymmetric equilibria where one team hires an L agent and the other team hires an H agent whenever $28 < P/\omega < 36$, there exists a unique equilibrium where both teams hire an H agent when $P/\omega > 36$.

2) It remains to be shown that hiring a partially loyal H agent is never a best response. Indeed, we show that this is always dominated by hiring an L agent. (i) First, as argued above, when facing an L agent, a partially loyal H agent is always dominated by hiring an L agent as well (lower probability of winning at higher cost). (ii) Second, when facing a fully loyal H agent, hiring an L agent is preferred over a partially loyal H agent (who is paid

$W = \omega/G(\delta)$), if and only if

$$(1 - G^{H-L})P > \frac{1}{2}G(\delta)\left(P - \frac{\omega}{G(\delta)}\right).$$

where the LHS is the probability of winning by the L agent (times P) and the RHS is the probability of winning by a partially loyal H agent (times $P - W$). This inequality is equivalent to

$$\big(G(\delta) - 2(1 - G^{H-L})\big)\,(P/\omega) < 1$$

where $G(\delta) - 2(1 - G^{H-L}) = 5/6 - 2(5/12) = 0$. Hence, this inequality is always satisfied: an L agent is always strictly preferred. (iii) Finally, note that hiring an L agent is also preferred over a partially loyal H agent when facing a partially loyal H agent.

A.4. Proofs for Subsection 4.3

Proof of Proposition 6. The proof is as before, but now we must consider the possibility of teams with followers with heterogeneous skills. Consider first the case $-\delta < S^m$. The postulated equilibrium is that both teams select only L agents (both teams choose loyal agents). Suppose instead that one of the leaders decides to go for "merit" and hires an all-H team. The reasoning now is exactly like in Proposition 1. The H agents who observe signal S only stay on with good news; but they do not always win in that case. This means the probability of winning is smaller than 1/2. This is a lower probability than what could be attained with an "all-L" team. Now consider a new deviation—one where the leader replaces just one "loyal" agent with a merit-based hire.

The H agent stays after bad news iff:

$$G\left(\left(L^{n-1}(H - L)\right) + S\right)W > \omega$$

That is if:

$$S > G^{-1}\left(\frac{\omega}{W}\right) - L^{n-1}(H - L)$$

but, by assumption,

$$-\delta < S^m = G^{-1}\left(\frac{\omega}{W}\right) - \left(H^n - L^n\right) < G^{-1}\left(\frac{\omega}{W}\right) - \left(L^{n-1}(H - L)\right)$$

Intuitively, it is even less likely the good agent stays with bad news, since the output of the team is smaller than in the previous–full deviation– case.

Consider now the equilibrium where both teams select only H agents: $-\delta > S^m$. Consider first a global deviation: one of the leaders decides to go for "loyalty" and hire L agents. This case is analogous to the one in Proposition 1, and the proof is the same. The H agents in the other team stay on iff:

$$G\left(H^n - L^n + S\right)W > \omega$$

That is if

$$S > G^{-1}\big(\frac{\omega}{W}\big) - \big(H^n - L^n\big)$$

Since, by assumption

$$-\delta > S^m = G^{-1}\big(\frac{\omega}{W}\big) - \big(H^n - L^n\big)$$

The inequality above always holds, and H agents stay with good and bad news. Since both H and L agents always stay on, and $H^n > L^n$, deviating does not pay. Would a partial deviation now work? For the same reason, a partial deviation to L (hiring one L agent in an all-H team) is even less likely to work.

Note that for

$$G^{-1}\big(\frac{\omega}{W}\big) > -\delta > S^m$$

the H agents in a symmetric contest will quit when bad news arrives since $G^{-1}\big(\frac{\omega}{W}\big) > -\delta$. However, it is still optimal to hire H agents, as this guarantees a probability of winning of $1/2$. In contrast, hiring L agents would induce the H agents in the other team to stay with bad news since $-\delta > S^m$ (as shown above) – resulting in a probability of winning smaller than $1/2$.

Proof of Proposition 7. Let M denote the merit assignment, with the L agent on Task 1 and the H agent on Task 2, and let R denote the loyalty assignment, with the H agent on Task 1 and the L agent on Task 2. When the Task-2 agent stays, the corresponding productivities are A_n and B_n, as defined in the main text.

We first establish the first-best ranking and the comparative static in n. Since

$$D_1 = A_1 - B_1 = LH - HL = 0,$$

and

$$
\begin{aligned}
D_{n+1} - D_n &= H\left[(1-L)^n - (1-L)^{n+1}\right] - L\left[(1-H)^n - (1-H)^{n+1}\right] \\
&= HL\left[(1-L)^n - (1-H)^n\right] > 0,
\end{aligned}
$$

because $0 < L < H < 1$, it follows that $D_n > 0$ for every $n \geq 2$. Thus, absent quitting, M is the efficient assignment.

Consider next an H agent assigned to Task 2 when the opposing leader uses R. If she stays after signal S, her team's probability of winning is

$$G(A_n - B_n + S) = G(D_n + S).$$

With good news, $S = \delta$, this probability exceeds 1/2, so Assumption 1 implies that she stays. With bad news, she stays if and only if

$$G(D_n - \delta)W \geq \omega,$$

or equivalently if and only if

$$-\delta \geq G^{-1}\left(\frac{\omega}{W}\right) - D_n = S_n^s.$$

We now characterize leaders' best responses.

Suppose first that $-\delta < S_n^s$. If the rival leader chooses M, choosing R is the unique best response. When the rival's H agent receives bad news, she faces an R team and quits. The R team then wins by the second inequality in (11). When the rival's H agent receives good news, the R team receives bad news but still has a positive probability of winning by the first inequality in (11). Hence, choosing R against M yields a winning probability strictly above 1/2. By contrast, choosing M against M yields a symmetric contest and therefore a winning probability of 1/2.

If the rival leader chooses R, choosing R yields a symmetric contest and a winning probability of 1/2. If the leader instead chooses M, her H agent quits after bad news. After good news, the team's winning probability is strictly below one by the first inequality in (11). The ex ante winning probability from choosing M is therefore strictly below 1/2. Thus, R is the unique best response to both assignments, and the unique equilibrium is (R, R).

Now suppose that $-\delta > S_n^s$. If the rival leader chooses R, an H agent assigned to Task 2 under M stays after both good and bad news. Since $A_n > B_n$, choosing M then yields a strictly higher probability of winning than choosing R, so M is the unique best response to R.

If the rival leader chooses M, choosing M yields the symmetric winning probability of 1/2. If the leader instead chooses R, the rival's H agent, now facing an R team, stays even after bad news because $-\delta > S_n^s$. The rival therefore remains active with productivity $A_n > B_n$ in both signal states, so the leader choosing R wins with probability strictly below 1/2. Hence M is also the unique best response to M, and the unique equilibrium is (M, M).

Finally,

$$S_{n+1}^s - S_n^s = -(D_{n+1} - D_n) < 0.$$

Because the loyalty assignment is chosen if and only if $-\delta < S_n^s$, increasing n makes this condition harder to satisfy and therefore expands the parameter region in which the merit assignment is optimal. The remaining comparative statics follow directly from (12): a higher ω/W raises S_n^s, a larger productivity differential D_n lowers it, and a larger δ lowers the left-hand side $-\delta$. Assumption 1 also guarantees ex ante participation in the symmetric equilibria, by the same argument as in the baseline model. $\square$

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Online Appendix

OA.A. Formal Analysis of Leader Loyalty (Section 5.3)

OA.A.1. Preliminaries

We consider an (infinitely) repeated game in which, in each period, there is a contest between two leaders. At the end of the period, a leader exits (and is replaced by a new leader) when either (1) his team wins, (2) his agent quits when bad news is revealed, or (3) the leader gives up after a loss.

As in our baseline model, in each period, both leaders choose the skill of their follower optimally, and have the choice between an H agent and an L agent (the extension to multiple followers per leader is direct).

We assume throughout that we are in the (interesting) case where the unique static equilibrium is the one where both leaders hire a low-skill agent L. The question we explore is whether and how loyal leaders allow for this equilibrium to be improved.

Assumption OA1. (Low-skill agents in static equilibrium) $-\delta < S^*$

Just as the follower, the leader is motivated by the value of the prize, W, but may also have something better to do than wait around for another chance to win. In particular, after any loss, the leader has the opportunity to run again. However, with probability $(1-\varphi)$, he has an outside option $\omega_L > W/2$ and will 'quit'.

OA.A.2. The value of a loyal leader

Let ρ be the discount factor, that is how much followers value the future. If a leader who runs again always rehires a loyal follower (but not a disloyal one), then the expected utility of an H follower who remains loyal and does not quit after bad news is:

$$U_F^{stay} = \frac{1}{2}\left[P(win|\delta)W + P(lose|\delta)\varphi\rho U_F^{stay}\right] + \frac{1}{2}\left[P(win|-\delta)W + P(lose|-\delta)\varphi\rho U_F^{stay}\right]$$

As in the static equilibrium, it will be sufficient to show that given an opponent team with an L agent, it is optimal to hire an H agent. When facing an L agent, we have that

$$U_F^{stay} = \frac{W}{2}\frac{G(H-L-\delta)+G(H-L+\delta)}{\left(1-\frac{\varphi\rho}{2}\left[1-G(H-L-\delta)+1-G(H-L+\delta)\right]\right)} \tag{21}$$

Following bad interim news, an H agent facing an L agent then stays if and only if

$$G(H-L-\delta)W + (1-G(H-L-\delta))\,\varphi\rho U_F^{stay} \geq \omega \tag{22}$$

Note that U_F^{stay} is increasing in $\varphi\rho$ and $U_F^{stay} = W$ if $\varphi\rho = 1$. Hence, (22) is always satisfied if $\varphi\rho = 1$ and the leader always runs again/there is no discounting. In contrast, since $-\delta < S^*$, (22) is violated if $\varphi\rho = 0$ and the leader never runs again. Since the LHS of (22) is increasing in $\varphi\rho$, it follows that there exists a $\rho^r \in (0,1)$ such that the incentive constraint (22) is satisfied if and only if

$$\varphi\rho \geq \rho^r.$$

We obtain the following characterization of the equilibrium, operating analogously to Proposition 1 :

Proposition OA1. *For any $-\delta < S^*$, there exists a $\rho^r \in (0,1)$ such that:*

(i) If $\varphi\rho \geq \rho^r$, the only equilibrium team composition is "meritocratic": both leaders choose an H follower;

(ii) If $\varphi\rho < \rho^r$, the only equilibrium has both leaders choosing an L follower (as in the static case).

Proof of Proposition OA1. If $\varphi\rho \geq \rho^r$, a leader facing an opponent with an L agent, will choose an H agent, and will win with a probability larger than $1/2$ as the H agent stays with bad news. A leader facing an opponent with an H agent then also prefers to hire an H agent, giving him a probability of winning equal to $1/2$. If, instead, he were to hire an L agent, his opponent would win with a probability larger than $1/2$. Conversely, if $\varphi\rho < \rho^r$, a leader facing an opponent with an L agent, will also choose an L agent, giving him a probability of winning equal to $1/2$. If, instead, he were to hire an H agent, the latter would quit with bad news, resulting in a probability of winning less than $1/2$. For the same reason, hiring an L agent is then also optimal when the opponent hires an H agent, as this would give the latter a probability of winning greater than $1/2$. □

From Proposition OA1, leader loyalty may solve the problem of disloyal subordinates: if leaders are sufficiently loyal (likely to run again) and followers are sufficiently patient, high-skill followers will be loyal and stay even in the presence of bad news.

Note finally that as in our static model, strategic considerations matter in talent choice. Condition (22) only guarantees that a meritocratic H agent stays loyal when facing a team with a low-skill opponent. It is therefore possible that, when both teams choose H followers, the H follower receiving bad interim news gives up. Nevertheless, choosing a meritocratic H follower is still optimal in the latter case because of the 'discouragement effect': an H follower induces the rival team to give up when they face setbacks, whereas a loyal but low-skill follower would not have this strategic effect.

OA.A.3. The cost of engendering follower loyalty

In the analysis above, we have posited that there is an exogenous probability that leaders will run again after a loss and rehire an agent. We now explore the determinants of such a decision. In particular, "loyal leaders" are not simply leaders that "run again" after a loss. Loyal leaders, by sticking with their followers even when they are not suitable to the particular situation or task, engender in turn loyalty from their followers.

Model amendments. To explore this type of loyalty, we amend our model as follows:

Agent types. There are no intrinsic types; instead agents can be suitable for one project and unsuitable for the next. In particular, each period, a given agent can be H or L. The suitability of the agent evolves period by period according to a Markov process. An H agent becomes L with probability $\lambda > 0$, and an L agent always remains L.

Outside options. If an agent does not quit, she stays, and depending on the result she obtains (as previously) either W (when the tournament is won) or 0. The agent, in each period, also has access to an outside option ω if and only if she is H in that period. For simplicity, once an agent quits or is not rehired by her current leader, she never gets rehired anymore.

Timing. We study the incentives of the leader at time t to stick with the agent from time $t-1$, even when the agent's type for period t equals L. (i) At the start of each period, the new type of the follower is publicly observed. (ii) Then, a leader who lost in the previous period decides whether to keep the same follower or choose a new one. Each period, there is a continuum of agents to choose from, so there is always an H agent available. (iii) Finally, the tournament takes place. A leader (and his follower) who wins, exits the game, and is replaced by a new leader in the next period.

Equilibria with leader loyalty We now explore the existence of equilibria where new leaders select an H follower in the first period, and subsequently stay loyal to this follower, even when she turns mediocre (becomes L). While a long-term relationship then improves the ability of a leader to motivate high-skill agents to stick around, ultimately, he is also unwilling to get rid of that agent when unavoidably, the latter becomes less suited for the job.

As in the previous section, whenever recruiting a high-skill agent is optimal when the opponent leader recruits a low-skill agent, recruiting a low-skill agent is necessarily a dominated strategy when facing a high-skill agent as opponent.

Assume therefore that the competing leader has recruited an L agent and denote by U_F^H (respectively U_F^L) the continuation utility, at the start of a new period, of an H agent (respectively an L agent) who never quits following bad interim news. We formally derive U_F^H and U_F^L in the proof of Proposition OA2.

Following bad interim news, an H agent facing an L agent then stays if and only if

$$G(H - L - \delta)W + (1 - G(H - L - \delta))\, \varphi\rho \times [(1 - \lambda)U_F^H + \lambda U_F^L] \geq \omega \tag{23}$$

Analogous to the previous section (see Proof below), one can show that there exists a $\rho^R \in (0, 1)$ such that the incentive constraint (23) is satisfied if and only if

$$\varphi\rho \geq \rho^R.$$

This yields the following proposition:

Proposition OA2. *1. For any $-\delta < S^*$, there exists a $\rho^R \in (0, 1)$ such that an H agent facing an L agent stays loyal after bad news if and only if*

$$\varphi\rho \geq \rho^R$$

2. If $\varphi\rho > \rho^R$, the leader initially starts off with an H follower (a "meritocratic" team) but he stays loyal to this follower when she turns mediocre.

Proof of Proposition OA2. The utility of a follower who does not quit when observing bad news is given recursively by (depending on his type in a given period):

$$U_F^H = \frac{W}{2}\left[P^H(win|\delta) + P^H(win| - \delta)\right] + \frac{\rho\varphi}{2}\left[P^H(lose|\delta) + P^H(lose| - \delta)\right]$$
$$\times \left[(1 - \lambda)U_F^H + \lambda U_F^L\right]$$

$$U_F^L = \frac{W}{2}\left[P^L(win|\delta) + P^L(win|-\delta)\right] + \frac{\rho\varphi}{2}\left[P^L(lose|\delta) + P^L(lose|-\delta)\right] U_F^L$$

where $P^H(win|\delta)$ and $P^L(win|\delta)$ are the probabilities of winning given good interim news when the followers are, respectively, of type H and type L (and the opposing team consists of L agents). It follows that

$$U_F^L = \frac{W}{2} \frac{\left(P^L(win|\delta) + P^L(win|-\delta)\right)}{\left(1 - \frac{\varphi\rho}{2}\left(P^L(lose|\delta) + P^L(lose|-\delta)\right)\right)},$$

from which

$$U_F^H = \frac{W}{2} \frac{\left(P^H(win|\delta) + P^H(win|-\delta)\right)}{\left(1 - \frac{(1-\lambda)\varphi\rho}{2}\left(P^H(lose|\delta) + P^H(lose|-\delta)\right)\right)}$$

$$+\frac{\lambda\rho\varphi}{2} \frac{\left(P^H(lose|\delta) + P^H(lose|-\delta)\right)}{\left(1 - \frac{(1-\lambda)\varphi\rho}{2}\left(P^H(lose|\delta) + P^H(lose|-\delta)\right)\right)} \left(U_F^L\right)$$

which is increasing $\varphi\rho$. Moreover, for $\varphi\rho = 1$, both $U_F^L = W$ and $U_F^H = W$.

Consider now incentive constraint (23). Since $U_F^H = U_F^L = W$ for $\varphi\rho = 1$, (23) is always satisfied if $\varphi\rho = 1$. In contrast, since $-\delta < S^*$, (23) is violated if $\varphi\rho = 0$ and the leader never runs again. Since the LHS of (23) is increasing in $\varphi\rho$, it follows that there exists a $\rho^R \in (0, 1)$ such that the incentive constraint (23) is satisfied if and only if

$$\varphi\rho \geq \rho^R.$$

The remainder of the proof is analogous to that of Proposition OA1.

OA.B. Data Construction and Methodology for the UK Stand-Down Evidence (Section 2.3)

This appendix describes the construction of the descriptive evidence on UK parliamentary stand-downs. The exercise is intended to be illustrative. It is not designed as a causal test of the model, but rather as a transparent check that the model's interim participation mechanism has an observable analogue in parliamentary politics.

OA.B.1. Data Sources

The unit of observation in the main descriptive exercise is a party-election cell for the Conservative and Labour parties in UK general elections from 1997 to 2024. We combine four sources.

First, the denominator of sitting MPs comes from the UK Parliament Members' Names Information Service (MNIS). We use the Members Data Platform to retrieve all members with House membership histories, party histories, government posts, and opposition posts.[23] For each general election, we identify MPs who were active in the House of Commons on the dissolution date and assign party using the party recorded at dissolution. Labour and Labour (Co-op) are combined as Labour.

Second, we collect MP stand-downs. For 2010, 2015, 2019, and 2024, we use named lists of MPs who did not stand again. For 1997, 2001, 2005, and 2017, where we do not use named lists in the individual-level exercise, we use published aggregate party counts. The aggregate counts are used only for the party-election stand-down rate figure, not for individual-level quality comparisons.

Third, we measure party electoral prospects using the UK Election Data Vault polling average series.[24] For each election, we compute the Conservative minus Labour polling lead over the 180 days before election day. For Labour cells, we multiply this lead by minus one, so that the variable is always measured from the party's perspective. A positive value means the party is ahead of its main opponent; a negative value means it is behind.

Fourth, we construct observable MP characteristics from MNIS, Wikidata, and the education data assembled for the empirical exercise. Wikidata is used for date of birth and occupation strings; education indicators are taken from the local MP education file generated in the earlier data work.

OA.B.2. Sample and Stand-Down Definition

The sample contains Conservative and Labour MPs sitting in the House of Commons at dissolution for each general election from 1997 to 2024. Dissolution dates are: April 8, 1997;

[23] The MNIS Members Data Platform is available at `http://data.parliament.uk/membersdataplatform/`. The relevant queries retrieve all members with `HouseMemberships`, `Parties`, `GovernmentPosts`, and `OppositionPosts`.

[24] The polling-average page is `https://electiondatavault.co.uk/uk-polling-average/`.

May 14, 2001; April 11, 2005; April 12, 2010; March 30, 2015; May 3, 2017; November 6, 2019; and May 30, 2024.

For the party-election figure, the stand-down rate is

$$\text{Stand-down rate}_{pt} = \frac{\text{Number of sitting MPs from party } p \text{ who did not stand again at election } t}{\text{Number of sitting MPs from party } p \text{ at dissolution before election } t}.$$

This definition treats the relevant decision as whether an incumbent MP stood again, not whether she was reelected. Thus MPs who stood again and lost are included in the comparison group of MPs who stood again. This is the appropriate comparison for the model's participation margin.

For the individual-level comparisons, we use only the four elections with named stand-down lists: 2010, 2015, 2019, and 2024. These comparisons therefore ask whether named MPs who stood down differed from sitting MPs from the same party and election who stood again.

OA.B.3. Matching Named Stand-Downs to Sitting MPs

Named stand-down lists are matched to MNIS member records using normalized names. The normalization removes titles and honorifics, punctuation, bracketed text, and constituency suffixes. We first attempt exact matching across MNIS display names, list names, full titles, Commons-name aliases, and Wikidata names. Remaining cases are matched by fuzzy string similarity, using a conservative threshold of 0.86.

The matching is used only for individual-level characteristic comparisons. It is not used to determine party-election stand-down totals in the main stand-down-rate figure, where we use the list totals directly. Overall, 365 of 369 named stand-down entries are matched to MNIS member records. The four unmatched entries are all from 2010: John Maples for the Conservatives; Claire Curtis-Thomas, John McFall, and Bob Marshall-Andrews for Labour. Because the unmatched cases are excluded from individual-level characteristic comparisons, the 2010 individual comparisons slightly undercount stand-down MPs.

OA.B.4. Variable Construction

Party prospects. The main proxy for interim electoral prospects is the party-specific six-month polling lead. For Conservatives, this is the average Conservative minus Labour polling margin over the 180 days before the election. For Labour, it is the same object multiplied by minus one. We also compute the final pre-election polling lead and the election-to-election change in party vote share as auxiliary descriptive variables.

Tenure. Tenure is the number of years between the MP's first Commons start date in MNIS and the relevant general election date.

Ministerial experience. This is an indicator equal to one if the MP had held any government post starting on or before the dissolution date.

Senior frontbench experience. This is an indicator equal to one if government or opposition post titles before dissolution include senior positions such as prime minister, chancellor of the exchequer, secretary of state, home secretary, foreign secretary, leader of the opposition, leader of the House, chief whip, shadow secretary, shadow chancellor, shadow home secretary, or shadow foreign secretary.

Education. University, Oxbridge, and Russell Group indicators come from the education file constructed in the earlier empirical work. The main paper reports university and Oxbridge indicators; Russell Group is retained in the underlying output but not emphasized.

Professional occupation. Occupation strings are taken from Wikidata. The professional-occupation indicator equals one if any occupation string contains terms such as academic, accountant, architect, banker, barrister, businessperson, business executive, chartered accountant, consultant, director, economist, engineer, entrepreneur, journalist, jurist, lawyer, lecturer, medical doctor, physician, professor, publisher, solicitor, surgeon, or university teacher. This is a rough outside-options proxy and should be interpreted cautiously.

OA.B.5. Party-Election Summary

Table 2 reports the party-election cells used in the stand-down-rate figure. Poll leads are signed from the party's perspective. The fitted relationship in the main figure has slope -0.24 and correlation -0.49: party-election cells with worse polling positions have higher stand-down rates.

Election	Party	MPs	Stood down	Rate (%)	Poll lead	Final lead	Vote swing
1997	Conservative	322	72	22.4	-23.4	-19.3	-11.2
1997	Labour	273	23	8.4	+23.4	+19.3	+8.8
2001	Conservative	161	34	21.1	-17.2	-18.5	+1.0
2001	Labour	418	24	5.7	+17.2	+18.5	-2.5
2005	Conservative	162	25	15.4	-6.1	-8.3	+0.7
2005	Labour	409	36	8.8	+6.1	+8.3	-5.5
2010	Conservative	195	35	17.9	+8.5	+6.9	+3.7
2010	Labour	349	100	28.7	-8.5	-6.9	-6.2
2015	Conservative	302	37	12.3	-0.8	+0.3	+0.7
2015	Labour	256	37	14.5	+0.8	-0.3	+1.4
2017	Conservative	330	14	4.2	+15.0	+8.3	+5.5
2017	Labour	229	6	2.6	-15.0	-8.3	+9.6
2019	Conservative	298	32	10.7	+7.5	+9.8	+1.3
2019	Labour	243	20	8.2	-7.5	-9.8	-7.9
2024	Conservative	345	75	21.7	-20.0	-19.0	-19.9
2024	Labour	206	33	16.0	+20.0	+19.0	+1.6

Notes: MPs are sitting MPs at dissolution. The stand-down count is the number who did not stand again at the election. Poll lead is the average Conservative-Labour polling margin over the 180 days before election day, signed from the party's perspective. Final lead is the last available polling average before election day, similarly signed. Vote swing is the change in the party's national vote share relative to the previous general election.

Table 2 – Party-election stand-down rates and electoral prospects

OA.B.6. Individual-Level Characteristic Comparisons

Table 3 reports differences in observable characteristics between MPs who stood down and MPs who stood again, separately by party and election for elections with named stand-down lists. The table reports stand-down minus stood-again differences. Positive values mean the characteristic is more prevalent, or higher, among stand-down MPs.

The most robust pattern is tenure: stand-down MPs have longer parliamentary tenure in all eight party-election cells, with an average difference of 8.3 years. Ministerial experience and senior frontbench experience are also higher among stand-down MPs in seven of the eight cells. Education and professional-occupation proxies are more mixed. We therefore interpret these results as evidence that stand-down MPs are disproportionately senior and politically experienced, not as evidence that they dominate standing MPs on every observable measure

Party	Election	N_{again}	N_{down}	Tenure	Prof.	Oxbridge	Univ.	Minister	Senior
Conservative	2010	161	34	+12.5	+3.2	+11.8	-2.1	+37.7	+3.9
Conservative	2015	265	37	+10.1	-4.0	+11.2	+8.8	+21.1	+15.1
Conservative	2019	266	32	+6.0	+3.7	+21.8	+5.3	+19.1	+6.8
Conservative	2024	270	75	+5.2	+7.8	-1.2	+14.8	+3.8	+8.3
Labour	2010	252	97	+3.3	-10.9	+3.4	-1.2	-10.2	+0.1
Labour	2015	219	37	+7.5	-2.9	-9.7	-8.8	+20.7	+10.5
Labour	2019	223	20	+12.3	+14.3	+9.8	-3.9	+19.4	+7.2
Labour	2024	173	33	+9.5	-1.6	-15.3	-3.6	+34.6	-8.0

Notes: The sample is restricted to party-election cells with named stand-down lists: 2010, 2015, 2019, and 2024. Tenure is measured in years. Professional occupation, Oxbridge, university, ministerial experience, and senior frontbench experience are percentage-point differences. N_{down} counts matched named stand-down MPs; four 2010 stand-downs could not be matched to MNIS records and are excluded from this table.

Table 3 – Stand-down minus stood-again differences in observable characteristics

of quality.