

Loyalty in Tournaments*

Wouter Dessein

Luis Garicano

Columbia Business School

ChicagoBooth and CEPR

January 26, 2023

Abstract

Elections are brutal, winner-take-all contests that require a cohesive team. To ensure this cohesion, merit often takes a back seat to loyalty. We propose a model of the allocation of talent in winner-take-all tournaments and derive some empirical implications. The winner-take-all nature of the contest induces a threshold effect such that if things are looking down, talented followers may quit. A political leader must choose between competent individuals who may increase the chances of winning the contest, but may bolt at the first hint of bad news, and loyalists who have fewer outside options. We study when loyal followers are more necessary; when loyal leaders solve the problem of low quality teams and when they make it worse; and when, fearing backstabbing, leaders prioritize internal competition over external competition. The value of loyalty increases when pre-election information (polls etc.) is more precise; less competitive

*We thank Andrés Velasco and Pieter Garicano for conversations and suggestions leading up to this paper and seminar participants in Columbia GSB and the LSE for their comments. Andrea Ciccarone provided excellent research assistance.

outside tournaments induce the leader to seek loyal followers who cannot challenge her; leader loyalty allows for better talent retention in the short run, while worsening the problem over the long run.

1 Introduction

Why do policymakers choose bad policies? Misaligned incentives certainly play a role. But, too often, those making the key decisions do not have the skills or training required to make those decisions. This is partly by design—leaders may seek to surround themselves with loyal followers rather than incur the potential risk of disloyalty from more talented followers. In this paper, we study the trade-off between merit and loyalty in political tournaments.

‘La tira’ in Mexican Spanish, ‘La cordata’ in Italian or ‘Die Seilschaft’ in German, describe a group of alpine mountaineers who tie themselves together with a single rope to secure one another while climbing. In all of these languages, these words also describe a political team metaphorically ‘roped’ together to their leader to help them win the next election. They ‘climb’ together - when the leader wins, they win. Upon victory, young aids with limited world experience or policy knowledge suddenly find themselves in top government positions. For aspiring politicians, the art of picking ‘the right campaign’ and the right leader to follow can be a question of political life or death.

Crucially, in politics, unlike in the business world, an entire hierarchy must be built from scratch for the campaign. In many cases, this hierarchy disappears after the loss of an election. After victory, those who have chosen the right campaign get rewarded by filling up the jobs that suddenly become available.

This process could be innocuous for efficiency - jobs could be filled in the exact same way as in a private labor market, on the basis of talent. Often,

it is not. Elections are brutal, winner-take-all contests that develop over a compact time span. The campaign team must be solid and cohesive - no leaks, no betrayals, no back-stabbings. Those in the campaign must be loyal, and merit often must take a backseat to loyalty.

Loyalty has costs and benefits. A follower who sees that a campaign is going nowhere has the option to quit, or, worse, to actively betray the leader. This options are more valuable precisely for the most talented followers. Hence, those with fewer outside opportunities, those who have nothing to lose, are more likely to stick around.

This induces a choice for the political leader: should they hire more competent individuals, who increase the chances of winning the contest, at the risk of relying on followers who will bolt at the first hint of bad news? Or hire friends and family, individuals with lower outside options who are more likely to stay for the duration?

Note that this calculus is unlike what we usually think of as the 'private sector' labor market: workers who are hired for ability and suitability for the job they must perform, who produce and must get compensated for it, and whose incentives can be aligned with those of the team through the presence of monetary rewards. The problem in politics, as we shall discuss, is that monetary rewards, which in business can serve to allign goals, play only a secondary role, and non-monetary goals associated with the attainment of power are paramount.¹

Consider, for instance, the case of the UK conservative party. According to a recent newspaper account of the brief government of Lizz Truss,² 'prime ministers have a natural tendency to lean towards those they already know and trust...the new chancellor, Kwasi Kwarteng, is a longtime ally from the

¹In fact, as we discuss in the conclusions, these considerations of cronyism and loyalty also play a (more reduced) role in promotions in business organizations.

²<https://www.theguardian.com/politics/2022/sep/06/why-liz-trusss-cabinet-of-loyalists-may-not-bode-well-for-the-future>

“Singapore-on-Thames” low-regulation wing of the party, while James Cleverly, the foreign secretary, was a Foreign Office colleague as well as being a fellow east of England MP. The final big job, home secretary, has gone to Suella Braverman, an even more fervent small-state Tory than Truss. Perhaps most leaned on of all will be Thérèse Coffey, the new health secretary and deputy prime minister, a particularly close friend of Truss, and another near-constituency neighbour.”

This preference for loyalty over merit is a feature, notoriously, of the Chinese Communist party.³ “As all lower-level cadres know, to climb the CCP ladder, one must find a higher-level boss. In Xi’s case, this proved easy enough, since many party leaders held his father in high esteem. His first and most important mentor was Geng Biao, a top diplomatic and military official who had once worked for Xi’s father. In 1979, he took on the younger Xi as a secretary. The need for such patrons early on has knock-on effects decades down the line. High-level officials each have their own “lineages,” as insiders call these groups of protégés, which amount to de facto factions within the CCP. Indeed, disputes that are framed as ideological and policy debates within the CCP are often something much less sophisticated: power struggles among various lineages. Such a system can also lead to tangled webs of personal loyalty. If one’s mentor falls out of favor, the effect is the professional equivalent of being orphaned.” Most recently, in the past CCP congress, Xi Jinping promoted Li Qiang even after he oversaw the chaotic Shanghai Covid lockdown- sending a clear signal to his followers that loyalty, rather than competence, would be rewarded. As the news in Bloomberg put it “Li Qiang’s rise to become China’s No. 2 official, months after overseeing Shanghai’s chaotic Covid lockdown, made clear the top criteria for Communist Party promotion: loyalty to Xi Jinping.”⁴

³<https://www.foreignaffairs.com/china/xi-jinping-china-weakness-hubris-paranoia-threaten-future>

⁴“[Xi Positions Shanghai Chief as Next Premier After Messy Lockdown](#)”, Bloomberg News October 23, 2022.

To study this type of organizations, and understand the incentives of both leaders and followers to participate, we set up a simple analytical model of a team that produces together through an “O-Ring” production function. 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 “tira” or “cordata” where if one of the climbers (real or metaphorical) fails, she puts at risk the entire team.⁵ Production is winner-take-all: two teams, two “tiras”, compete against each other. All followers in the winning team take prizes, the losers get nothing. All the effort done is valuable only if the election is won.⁶

This is not just a question of skill – luck plays a key role too. During an electoral process a lot of information is revealed prior to the election, for instance through press coverage and polls. Followers may quit at any time before the election, if they see that the chances of victory are not high enough. Interim news indicate the likelihood of victory and the payoff of continuing working towards victory.

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

Our analysis shows that loyalty prevails over merit when political talent has a high value outside of politics, when talent is less valuable, so that the skill difference between talented agents (or “mercenaries”, depending on the perspective) and loyalists is small; and when teams are not large. Interim information plays a key role: when the polls are very informative about final

⁵This 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.

⁶Technically, this is a “tournament” as proposed by [Lazear and Rosen \(1981\)](#) and [Green and Stokey \(1983\)](#). See [Lazear and Shaw \(2007\)](#) for a survey.

results, loyalists are preferred.

We then consider two extensions of the model. First, we study sequential tasks— a process where some tasks can be repeated if failed, but others are critical “bottleneck” tasks. Efficiency prescribes that the most talented agents be assigned to the bottleneck tasks, as [Kremer \(1993\)](#) argues. However, in political tournaments the task allocation may be the opposite of the efficient one: low skill ‘loyalists’ will be more likely to be allocated to the bottleneck tasks when interim information is important, since these are the tasks where an agent quitting can ruin the entire team’s prospects. Second, we consider the possibility that, there is some contractibility of the rewards so that the prizes can be reallocated towards the more skilled agents so that they don’t quit in the face of bad news. We show that even in this case, whenever interim information is sufficiently important, loyalty will be preferred.

We then turn our attention from loyal followers to loyal leaders. Loyal leaders, have a reputation of sticking with their followers. Such reputation helps them ensure in turn the loyalty of the subordinates. Even when confronted with good outside options, subordinates will stay loyal. We study analytically the benefit and costs of such loyal leaders. On the one hand, they make it more likely that talented followers will not abandon in the middle of the tournament when faced with bad news, as there are more possible chances. Hence we uncover a rational while loyal leaders may be efficiency-enhancing. On the other hand, loyalty requires, in particular, that leaders remain loyal to followers even when they are no longer the right ones for the job.

Finally, in Section 4 we introduce the risk of explicit “backstabbing” as a new trade-off between loyalty and merit— the possibility of being challenged by a follower. Choosing skilled followers raises the risk of an internal challenge. To study this problem we consider a leader who faces an internal and

an external tournament. To win, she must win both. How does she trade-off skill between the internal and external tournament? We show that when the leader has a clear incumbent advantage, so that the outside election is clear, or whenever the outside election is too “noisy” and unpredictable from her perspective, she prioritizes winning the internal tournament and hence hires lower skill loyalists, even at the risk of reducing the probability of winning the external tournament.

In sum, we formally analyze three settings where loyalty could be preferred to talent and derive the conditions for this to be the case in each setting:

1. Lower talent agents are less likely to bolt in the sight of bad news as they have lower opportunity costs.
2. Leaders want to build a reputation for sticking to their followers even when followers fail- and hence reward merit insufficiently.
3. Leaders choose followers who are less likely to challenge them.

We conclude the paper with a discussion of under what situations we are likely to see this low talent equilibria in politics and the consequences of such situation for growth and development.

Probably the earliest antecedent to our work is [Hirschman \(1970\)](#) path-breaking analysis of Exit, Voice and Loyalty.” Party members can express opinions and concerns (Voice), e.g. by participating in internal elections or meetings or by giving input on party platforms or policies; leave the party if dissatisfied (Exit) by switching to another party, becoming independent; and finally demonstrate emotional or ideological commitment (Loyalty). Our analysis develops a formal way to consider all three choices within a repeated game theoretical tournament.

The economics of loyalty and rent seeking have been approached in several interesting ways in the past by the economics and political economy

literature, starting with [Milgrom and Roberts \(1988\)](#), who study influence activities –activities involving effort by informed agents to manipulate their information so that the resulting decisions favor them. Similarly, [Rajan and Zingales \(2001\)](#) examine how to design hierarchies so that managers invest in the organization, rather than taking the information they obtain with themselves. [Prendergast \(1993\)](#) shows how an incentive to conform, to show loyalty in the presence of subjective performance evaluation, makes it hard to preserve honesty in the organization. None of these papers discusses the allocation of talent.

A more recent literature has studied the trade-off between loyalty and merit in a dictatorship. The focus on dictatorship means this literature abstracts from electoral competition and tournaments- and hence from strategic interdependence’s between the choices of the different political teams in the competition which are the focus of our analysis. [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. In [Egorov and Sonin \(2011\)](#), an outside enemy may threaten a leader. High competence followers can recognize when a leader is weak and sustain a lower cost of betrayal. [Bai and Zhou \(2019\)](#) provide evidence that leaders may have an incentive to pursue an anti-competence strategy. 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.⁷

⁷Indeed, a large recent literature has focused on the role of social ties and connections in the Chinese party hierarchy. In this setting, rookie politicians need some form of connection to move up the ladder. Somewhat implicitly, they are studying a loyalty/competence tradeoff. Connections are based on loyalty, giving senior politicians an incentive to appoint junior affiliated politicians in a form of “cordata”. [Francois et al. \(2023\)](#) 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 et al. \(2020\)](#), on the other hand, find evidence of a

The idea of competent leaders being preferred when the outside competition is stiff is also related to the literature on politician selection by their parties. Galasso and Nannicini (2011) and Galasso and Nannicini (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 (preferred by the party) to safe district, where the result is less sensitive to a politician's valence. Mattozzi and Merlo (2015) provide a slightly different explanation of this phenomenon, arguing that low ability members may get discouraged by the presence of high valence individuals in the internal competition within the party. Our model also predicts that a higher value of successful elections will produce more competent followers. This is consistent with the literature investigating the relationship between pay and competence in politics (Gagliarducci and Nannicini (2013)).

Finally, our work also falls within the economic literature on tournaments. The closest related are a number of papers that study the (often negative) effect of interim performance evaluation on the incentives of workers (see, for example, Ederer (2010) and Lizzeri et al. (2002)). None of those, however, study how interim feedback affects the optimal selection of workers 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.

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 et al. (2015) argue that in the Chinese context, the loyalty competence payoff is mitigated by a system of connections between junior and senior officials that fosters loyalty and thus increase the survival of top politicians.

2 Loyal Followers, Loyal Leaders

We consider a tournament game between two competing teams or “tiras”. The leader of each team only cares about the chance of winning, and the winner takes it all. Skills are imperfectly substitutable, two bad followers cannot substitute for a good one. Also, there are strong complementarities between the skills of followers: if a follower betrays the leader, all output is lost.

We assume there are no monetary payments: the reward for all individuals is the job that follows winning- hence this reward is non-transferable. We study later the robustness of our analysis to weakening this assumption.

2.1 Model: Competing Political Teams

Production. To capture the idea of a “tira” or “cordata”, where each worker’s effort, if failed or insufficient, can sink the entire team, we follow Kremer (1993). Production requires the combination of n tasks carried about by a team of n agents (or followers). Let agent skill q_k be measured by the probability that the agent succeeds at her task, $k \in \{1, \dots, n\}$. The team succeeds only if all agents succeed- hence the production function is multiplicative in agent skills. Output, given by the the probability of success, can be simply written as: $y_i = \prod_{k=1}^n (q_k)$.

Note that skills are indeed complementary (the cross derivative of output with respect to two follower skills is positive). That means (as Kremer (1993) shows in detail) that the equilibrium is characterized by positive assortative matching: higher skilled agents must be matched with higher skilled co-workers. Thus, in O-ring sectors, production requires an homogeneously (highly) skilled labor force-introducing a low skill agent wastes every-one else’s talent.

We modify this framework to introduce incentives and moral hazard, absent in Kremer 1993. Specifically, agents can choose to perform effort or not, and such effort is not contractible, that is: $e_k \in \{0, 1\}$. If followers decide to withhold their effort (even, possibly, by “quitting quietly”), they obtain their outside value and the team automatically loses the tournament (a consequence of the strong complementarities– betrayal is deadly).

Thus agent k produces $e_k q_k$, and the modified team production function yields expected output:

$$y_i = \prod_{k=1}^n (e_k q_k). \quad (1)$$

Skills. Agents can be high skilled or low skilled. The leader can choose the “the best person for the job,” an agent with skill $q_k = H$; or she can rely on friends and family etc, who have skill $L < H$. H agents (“mercenaries”) have outside value ω ; and L agents have outside value 0 (“loyalists”).

Information and timing. The tournament starts with a hiring n followers, who can reject or accept the offer. A leader may form a team with all H followers, all L or any mix of the two types.

Then, before effort is realized, followers receive an interim signal Δ_i informing them of who is ahead in the tournament. This is key in all of our analysis. For instance, in the context of political tournaments, this could be the public opinion polls.

Since only relative positions matter, we simplify notation by only keeping track of the difference between the signals of the two teams, which is $\Delta = \Delta_i - \Delta_j$, with $\Delta \in \{\delta, -\delta\}$, with equal probability- news can simply be good or bad.

Finally, the tournament itself takes place, with the realization of random luck. Hence there are two random components: interim luck (Δ) and the final realization of luck ε , an independent and identically distributed across teams normal random variable $\varepsilon \sim N(0, \sigma^2)$.

Commitment and Contracts. We assume that agents cannot commit ex ante to work hard. They decide ex post to do so, if it is in their interest. For instance, once they see things are not looking good (the probability of winning is too low) they could start looking for other jobs while being officially employed. Moreover, no monetary incentives, beyond the tournament and the associated payoff, can be used, corresponding in a stylized way to the political nature of the application.

Finally, the prizes W of the tournament are exogenously determined, “in kind” and not transferable or contractible. We aim to capture the “perks” of the job, consistently with the (political) application we have in mind, where winning the tournament is the main incentive. We study the effect of introducing transferable prizes in an extension.

Thus P_i , the probability that team i wins is given by:

$$Pr \left[\underbrace{\prod_{i=1}^n (e_i q_i)}_{\text{Production Team } i} + \underbrace{\Delta}_{\text{Interim signal}} + \underbrace{\varepsilon_i}_{\text{Luck}} > \prod_{j=1}^n (e_j q_j) + \varepsilon_j \right] \quad (2)$$

The winning hierarchy takes all: each agent in the winning team receives their share W of the spoils. Hence a high-skilled agent chooses to work, $e_i = 1$, only if the expected value of winning is higher than her outside option ω :

$$Pr \left[\prod_{i=1}^n (e_i q_i) + \Delta + \varepsilon_i > \prod_{j=1}^n (e_j q_j) + \varepsilon_j \right] W > \omega \quad (3)$$

A low-skilled agent always works, since $P_i W \geq 0$.

We assume throughout that, ex-ante, the prize is such that a high skill agent H will want to participate in a symmetric context, where the ex-ante

probability of winning for each team is $P_i = 1/2$. Hence it must be the case that $\frac{1}{2}W > \omega$.

Assumption 1 *High skill agent's ex ante participation constraint in a symmetric tournament is satisfied: $W \geq 2\omega$*

2.2 Loyal Followers

2.2.1 Basic Analysis

Consider first the decision to work once the interim signal has been realized. If the contest is symmetric, and H provides effort, a team i formed by n high skill agents $q_i = H$ will win with probability:

$$P_i = \text{Prob}[H^n + \Delta - H^n] > \varepsilon_i - \varepsilon_j]$$

Hence the H agents will work hard after the interim news if and only if:

$$\text{Pr}[\Delta > \hat{\varepsilon}]W > \omega$$

. where $\hat{\varepsilon} = \varepsilon_i - \varepsilon_j$, is a mean 0, variance $2\sigma^2$ normal random variable. Or equivalently, letting $G(\cdot)$ be the cumulative distribution of such normal random variable, high skill agents choose to continue working if:

$$G(\Delta)W > \omega$$

When a team consisting of high skill agents faces a team consisting of only low skill agents, favorable skill differences may make it possible to sustain participation even with pretty bad interim luck. The probability of winning in this case is $\text{Pr}[\Delta + (H^n - L^n) > \hat{\varepsilon}]$, and hence a high skill follower facing

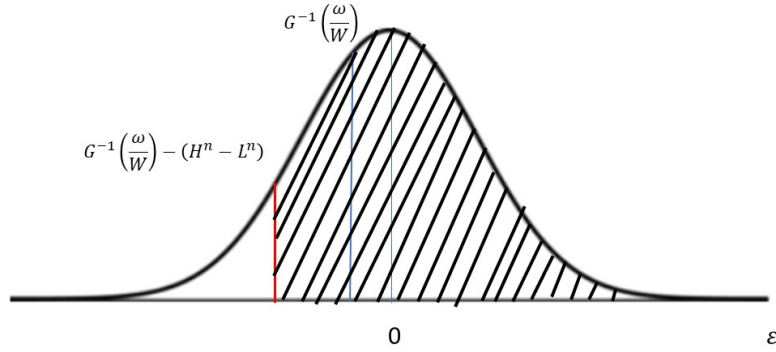


Figure 1: Theshold for H to stay with bad news in an asymmetric contest

a rival low skill team will continue working as long as:

$$G(\Delta + H^n - L^n)W \geq \omega \quad (4)$$

. The level of “bad news” such that inequality (4) just holds defines a threshold on the interim news such that the expected value of continuing to work is exactly equal to the opportunity cost:

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

This threshold level plays a crucial role in the analysis as Proposition 1 shows.

Proposition 1 characterizes the unique equilibrium of the game.

Proposition 1 *In the unique equilibrium of the game:*

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

1. *If $-\delta < \Delta^*$, the leaders choose “loyalty”: both competing teams will be entirely low skilled.*
2. *If $-\delta > \Delta^*$, the leaders choose “mercenaries”: both competing teams will be entirely high skilled.*

That is, teams are homogeneous. Moreover, hiring loyalists may be the unique equilibrium of the game. The reason is that, when the information revealed in the interim is significant (Δ is potentially large), the high skilled followers are basically buying a real option when they join the team: they will stick around until the interim signal (say, a primary election), see if the prospects are good, and if they are not, quit.

Figure 2 illustrates the point. Even taking into account the skill advantage $H^n - L^n$ that it will obtain by running against a L skill team, a team that deviates from an L-equilibrium and employs high skill H followers, does not have a high enough winning chance to ensure H workers provide efforts if $-\delta < \Delta^* = G^{-1}\left(\frac{\omega}{W}\right) - (H^n - L^n)$.

In this case, the leader will prefer to build a team of loyalists. Such a team will win every time that H team receives bad news (1/2 of the time) and at least some of the times that the rival H team receives good news (by having extreme good luck).

Proof 1 *Consider first the case $-\delta < \Delta^*$. 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 H agents. The H workers who observe signal Δ only work with good news; but they do not always win in that case. This means probability of winning $< 1/2$. This is smaller than with an “All- L ” team! Suppose the deviation consists of replacing just one “loyal” worker with a merit-based hire.*

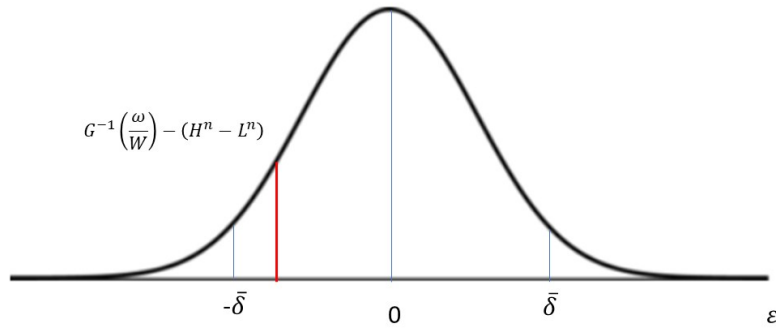


Figure 2: Highly informative signal

The H worker works iff:

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

That is if:

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

but, by assumption,

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

Intuitively, it is even less likely the good worker works 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: $-\delta > \Delta^$. Consider first a global deviation: one of the leaders decides to go for*

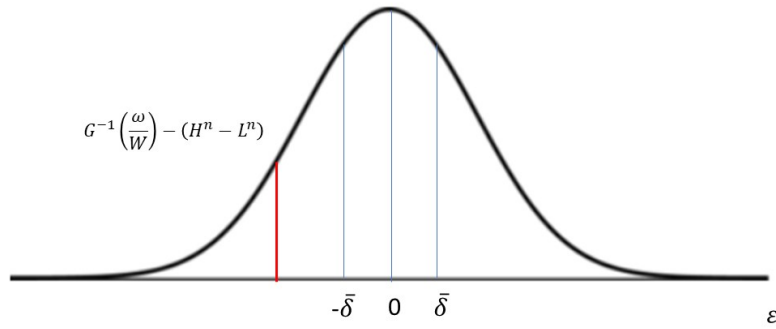


Figure 3: Uninformative signal

“loyalty” and hire L agents. The H workers in the other team work iff:

$$G(H^n - L^n + \Delta)W > \omega$$

That is if

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

Since, by assumption

$$-\delta > \Delta^* = G^{-1}\left(\frac{\omega}{W}\right) - (H^n - L^n)$$

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

Note that for

$$G^{-1}\left(\frac{\omega}{W}\right) > -\delta > \Delta^*$$

the H agents in a symmetric contest will quit when bad news arrives since $G^{-1}\left(\frac{\omega}{W}\right) > -\delta$. 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 $-\delta > \Delta^*$ (as shown above) – resulting in a probability of winning of less than $1/2$.

Thus the key is the threshold $\Delta^* = G^{-1}\left(\frac{\omega}{W}\right) - (H^n - L^n)$. Hiring “for merit”, hiring “mercenaries” 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; when skill is less relevant so that the skill difference between mercenaries and loyalists $H - L$ is small; or when production is not too complex, so that the number n of crucial players/team size is small. Second, interim information plays a key role. When there is a good interim signal, so that the informativeness of the interim signal δ is relatively large, loyalists are preferred.

Note that this is significantly different from the conclusions in Kremer (1993) in the same model but without moral hazard. There, production in O-ring sectors requires homogeneously (highly) skilled labor force. Here, a homogeneously low skilled but loyal labor force may be optimal. In fact, the risk of moral hazard also reverses his analysis of sequential production with bottleneck tasks.

2.2.2 Extension: Sequential production

Efficiently, higher quality workers must be employed at later stages of production, since inputs have higher value and mistakes are then more costly. Kremer (1993) argues that this can help explain why poor countries tend to specialize in primary production; why workers in certain industries, such as

automobile manufacturing or diamond cutting, are highly paid; why lack of domestic capacity in certain sectors can create bottlenecks; and how enterprises may become vertically integrated to avoid using unreliable inputs.

We can extend the model here straightforwardly to discuss sequential production. Consider a team with two agents, a high skill agent H and a low skill agent L . We modify the production function in (1) above so that there are two tasks– the second one being a bottleneck task. In between, agents receive the interim information discussed above, and hence they make an interim participation decision.

1. Task 1 is undertaken. This task may be repeated n times until successful– production takes place as long as workers succeed once. Skill on task 1 is q_1 .
2. After task 1 takes place, interim information as above, $\Delta \in \{\delta, -\delta\}$ arrives.
3. Agents decide to quit or stay.
4. If the agent in charge of task 2 has stayed, he can perform task 2, but can do so only once, on the successful output of task 1. Production requires success on both task 1 and 2.

Given these assumptions, expected output of team i can be written:

$$y_i = (1 - (1 - e_{1i}q_{1i})^n) e_{2i}q_{2i}. \quad (5)$$

Hence the probability that team i wins is given by:

$$Pr[(1 - (1 - e_{1i}q_{1i})^n) e_{2i}q_{2i} + \Delta - \varepsilon_i > (1 - (1 - e_{1j}q_{1j})^n) e_{1j}q_{2j} + \varepsilon_j]. \quad (6)$$

Which is the analogous, with a different production function of (4). As above, low skill agents participate regardless of expected earnings in both the first stage or in the second.

Analysis.

We first show, following Kremer’s intuition, that, absent incentive conflicts, being “bad” at the first task is indeed less consequential and hence the first best allocation is: assign low skill agents L to the first task L and high skill agents H to the second task.

Lemma 1 *Absent information frictions and moral hazard, higher skill agent must be assigned to the “bottleneck” task (task 2).*

Proof. By induction. For $n = 1$ the assignment is indifferent. For $n = 2$, $H(1 - (1 - L)^2) \geq L(1 - (1 - H)^2) \Leftrightarrow LH(H - L) > 0$. Call the difference between the presumed correct allocation and the presumed incorrect one d : $d(H, L, n) = H(1 - (1 - L)^n) - L(1 - (1 - H)^n)$. Suppose now this difference is positive for n . A sufficient condition for the claim to be true for $n+1$ is: $d(H, L, n + 1) - d(H, L, n) > 0$. But indeed $d(H, L, n + 1) - d(H, L, n) = HL((1 - L)^n - (1 - H)^n)$, which is indeed positive.

Now introduce information revelation, as above, and consider the interim stage participation. A low skill agent always participates, since opportunity cost is 0. A high skill agent assigned to the second task must decide on participation. We can define, exactly as before, a threshold Δ_s

$$\Delta^{s*} = G^{-1}\left(\frac{\omega}{W}\right) - ((1 - (1 - L)^n)H - (1 - (1 - H)^n)L) \quad (7)$$

By Lemma (1), the second part of the expression is positive, and hence we can operate analogously as in the previous section to characterize the equilibrium as follows:

Proposition 2 *In the unique equilibrium of the game:*

If $-\delta < \Delta^$, the leaders choose to place loyal agents in the “bottleneck” task.*

If $-\delta > \Delta^$, both leaders choose to place (as in the first best) the high skill agents in the bottleneck task.*

Note that, given the equilibrium is symmetric, first stage participation is ensured if

$$Pr[(1 - (1 - L)^n)H + \Delta - \varepsilon_i > (1 - (1 - L)^n)H + \varepsilon_j]W \geq \omega, \quad (8)$$

that is, as before, $W \geq 2\omega$.

The logic is as above, but simpler (since there are only two workers in each team and, hence, two cases to check) and we omit the proof.

Intuitively, when there is moral hazard, loyalty may be prioritized in those tasks that are more essential– it is precisely where moral hazard may be more costly that loyalty may be preferred over talent.

In sum, when interim informatoin is important, we obtain the opposite result to the one in Kremer (1993), loyal agents may be preferred in the “bottleneck” tasks, while high skill agent talent is “wasted” in the easy to substitute tasks. In particular, loyalists will be appointed to the bottleneck tasks whenever the opportunity cost of H , ω/W is high, when the skill gap is small, and when the informativeness of the interim signal δ is relatively large.

2.2.3 Robustness: Transferable rewards

We have assumed that the rewards are non contractible- each worker earns W if the team wins the tournament, and those earnings could not be reallo-

cated. We explore here to what extent, when the prizes can be redistributed towards high skill agents, it may be possible to break the low skill (only-L) equilibrium.

Consider in particular that all of the earnings W in case of victory can be reallocated,⁸ and suppose the leader were to hire $m \leq n$ high skill (H) agents. As previously, each H gets 0 if team loses, but now she can get $\frac{nW}{m} > W$ if the team wins. This may allow a fraction of H players to always work, regardless of the interim information.

Recall the necessary and sufficient condition for an L-only equilibrium: that an H team would quit if interim news are bad:

$$\Delta^* = G^{-1}\left(\frac{\omega}{W}\right) - (H^n - L^n) > -\delta,$$

To break this homogeneous equilibrium, it must be the case that transferring rewards allows for some heterogeneity. Define the new threshold thus implied, as a function of the number of high skill agents H hired m as $\Delta_t^*(m)$. This threshold must be such that the m agents prefer to work:

$$\Delta_t^*(m) = G^{-1}\left(\frac{\omega m}{Wn}\right) - (H^m L^{n-m} - L^n) < -\delta,$$

so that, indeed, the expected value of participating for the m agents of type H is positive.

Hence, a necessary condition for this heterogeneous-team equilibrium to exist is:

$$G^{-1}\left(\frac{\omega m}{Wn}\right) - (H^m L^{n-m} - L^n) < G^{-1}\left(\frac{\omega}{W}\right) - (H^n - L^n) \quad (9)$$

that is

$$H^n \left(1 - \left(\frac{L}{H}\right)^{n-m}\right) < G^{-1}\left(\frac{\omega}{W}\right) - G^{-1}\left(\frac{\omega m}{Wn}\right) \quad (10)$$

⁸The analysis would be similar with partial transferability.

Note that both the left hand side and the right hand side of this inequality are decreasing in m . However, the left hand side is concave in m and the right hand side is convex. Also, for $m=n$, the two sides are equal. Hence if the curves cross for $m \geq 1$, they only do it once.

Proposition 3 *Suppose $-\delta < \Delta^*$, so that loyalty-based teams would be chosen without transferable rewards. Then, whenever rewards are transferable, there always exists an interval $(-\infty, \min\{\Delta_i^*(m), \Delta\}]$, such that if $-\delta \in (-\infty, \min\{\Delta_i^*(m), \Delta\}]$ the equilibrium only features L types.*

Proof 2 *Fix a team size n . Let $LHS(m) = H^n \left(1 - \left(\frac{L}{H}\right)^{n-m}\right)$ and $RHS(m) = G^{-1}\left(\frac{\omega}{W}\right) - G^{-1}\left(\frac{\omega m}{Wn}\right)$.*

First, note that $G^{-1}\left(\frac{\omega}{W}\right) < 0$ and $G^{-1}\left(\frac{\omega m}{Wn}\right) < 0$ and that, for $m = 0$, $G^{-1}(0) = -\infty$. Hence, inequality (10) holds for $m = 0$.

Second, note that for $m = n$, $LHS(n) = 0$ and $RHS(n) = 0$.

Third, both sides of the inequality are decreasing in m ,

$$LHS'(m) = H^m(\log(L) - \log(H))L^{n-m} < 0$$

,

$$RHS'(m) = \sqrt{2\pi}p\sigma \left(-e^{\text{erfc}^{-1}(2\alpha p)^2}\right) < 0 \text{ if } 0 \leq p \leq 1 \wedge 0 \leq \alpha p \leq 1$$

Finally,

$$LHS''(m) = -H^m(\log(H) - \log(L))^2 L^{n-m} < 0$$

, and

$$RHS''(m) = 2\sqrt{2\pi}p^2\sigma e^{2\text{erfc}^{-1}(2\alpha p)^2} \text{erfc}^{-1}(2\alpha p) > 0$$

There are then three types of equilibrium:

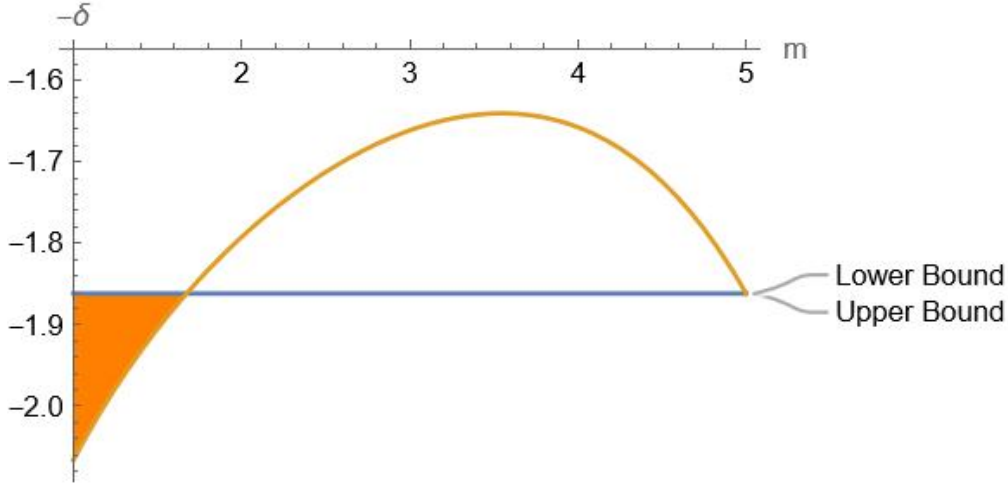


Figure 4: . This figure illustrates the result. “Upper Bound” is Δ^* , independent of m . “Lower Bound” is $G^{-1}\left(\frac{\omega m}{\bar{W}_n}\right) - (H^m L^{n-m} - L^n)$. For any $-\delta < -1.86$, the initial (non transferable W) equilibrium features only L agents. In the area colored in orange, allowing for transferability allows for the existence of in interval $-\delta \in [\Delta_t^*(m), \Delta^*]$ such that heterogeneous teams exist—with up to 1.67 H workers and 3.33 L workers (curves cross at $m = 1.67272$). The example is computed for a standard normal $N(0, 1)$, with $H = 0.9, L = 0.4, n = 5, \frac{\omega}{\bar{W}} = 0.1$).

1. If $\Delta^* < \Delta_t^*(m)$, transferability does not affect the equilibrium.
2. There exists an $m^* < n$ such that $\Delta^* = \Delta_t^*(m)$. Then there exists an interval of δ such that transfers support some heterogeneity, with up to m^* high skill agents in the team.
3. $\Delta^* \leq \Delta_t^*(m)$, with $\Delta^* = \Delta_t^*(n)$. In this case, there always exists an interval δ such that heterogeneity is supported.

We conclude from this analysis that the general implication of our model, the employment of “loyalists” rather than using only the “right agents for the job” whenever the interim news is important enough, persists regardless of the possibility of partial transferability. Specifically, for $-\delta$ bad enough,

the equilibrium always features no H types.

3 Can leader loyalty solve the problem?

3.1 Preliminaries

We now consider the possibility that a long-term relation can be formed between leader and followers. 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 them another chance at the big price.

In this relation, loyalty emerges endogenously. Consistently with the political application, betrayal is hugely damaging: when a leader decides not to run again, members 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: her career is over. This captures in a stylized way the idea that quitting before the leader collapses preserves outside options, while being betrayed is extremely costly.

In sum, the game ends when either (1) the team wins, (2) agents quit when bad news is revealed, or (3) the leader gives up after a loss.

As in our baseline model, both leaders chose the composition of their team optimally, and have the choice between H-agents and L-agents.

We assume throughout that we are in the (interesting) case where high quality, meritocratic teams do not exist in the static equilibrium, so that the economy is populated by low skilled teams. The question we explore is whether and how loyal leaders allow for this equilibrium to be improved.

Assumption 2 $-\delta < \Delta^*$

Like the followers, the leader is motivated by the value of the prize, W but may also have something better to do than wait around for the chance to win. In particular, after any loss, the leader has the opportunity to run again. However, with probability ϕ , she has an outside option $\omega_L > W/2$ and will ‘quit’.

3.2 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 loyal followers (but not disloyal ones), then the expected utility of an H follower who remains loyal and does not quit after bad news is:

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

from which

$$U_F^{stay} = \frac{W}{2} \frac{(P(win|\delta) + P(win|-\delta))}{(1 - \frac{\phi\rho}{2} (P(lose|\delta) + P(lose|-\delta)))}$$

It will be sufficient to show that hiring an H team is optimal, assuming the opponent team consists of L agents. When facing an L-team, we have that

$$U_F^{stay} = \frac{W}{2} \frac{(G((H^n - L^n) - \delta) + G((H^n - L^n) + \delta))}{(1 - \frac{\phi\rho}{2} (2 - G((H^n - L^n) - \delta) - G((H^n - L^n) + \delta)))}$$

Note that if $\phi\rho = 1$ (i.e. the leader always runs again, no discounting), then the $U_F^{stay} = W$ – the team will win for sure at some point. In contrast, if $\phi\rho = 0$, then $U_F^{stay} > W/2$ (the payoffs in the symmetric case).

Given this expected utility U_F^{stay} , an H follower with an outside option will stay when receiving bad news (when confronted by an L team) if and

only if:

$$G((H^n - L^n) - \delta) W + (1 - G((H^n - L^n) - \delta)) \phi \rho U_F^{stay} > \omega$$

or still

$$G(((H^n - L^n) - \delta)) > \frac{\omega - \phi \rho U_F^{stay}}{W - \phi \rho U_F^{stay}}$$

It follows that threshold bad news that still can sustain follower loyalty is given by:

$$\Delta^{**} = \Delta^{**}(\phi \rho) \equiv G^{-1} \left(\frac{\omega - \phi \rho U_F^{stay}}{W - \phi \rho U_F^{stay}} \right) - (H^n - L^n) \quad (11)$$

Note that for $\phi \rho = 0$, we have

$$\Delta^{**}(0) = \Delta^* = G^{-1} \left(\frac{\omega}{W} \right) - (H^n - L^n) \quad (12)$$

whereas (since $\omega < W$) for $\phi \rho = 1$ we have $\Delta^{**} = -\infty$. Since the derivative of Δ^{**} is monotonic,

$$\frac{d\Delta^{**}}{d(\phi \rho)} = \frac{1}{G'} \frac{\omega - W}{(W - \phi \rho U_F^{stay})^2} U_F'^{stay} < 0,$$

it follows that there exists a $\rho^* \in (0, 1)$ such that H followers facing an L team stay loyal after bad news if and only if $\phi \rho > \rho^*$. In that case, the H team will beat the L team with a probability larger than 1/2.

It follows that: (1) a leader facing an L team, will choose an H team, and (2) a leader facing an H-team also prefers to hire an H-team (giving her a probability of winning equal to 1/2).

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

Proposition 4 1. For any $-\delta < \Delta^*$, there exists a $\rho^* \in (0, 1)$ such that H

followers facing an L team stay loyal after bad news if and only if

$$\phi\rho > \rho^*,$$

with $\Delta^{**}(\phi\rho) < -\delta \Leftrightarrow \phi\rho > \rho^*$.

2. In this case, the only equilibrium team composition is “meritocratic”: all leaders choose high quality followers.

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

Note that, when

$$\Delta^{**} < -\delta < -\Delta^{**} + (H^n - L^n)$$

then H-teams are optimal, but the H-team that receives bad news will always quit. Deviating to an L-team, however, is not optimal as the same rival H-team would stay with bad news if it they were to face an L-team.

3.3 The cost of leader loyalty.

In the analysis above, we have predicated that there is an exogenous probability that leaders will rehire a high skill agent H. We now explore the determinants of such decision.

In particular, “loyal leaders” are not simply leaders that “run again” after a loss. More importantly, 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.

To explore this type of loyalty, we assume that 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 stays L . For simplicity, we assume that the transition is perfectly correlated among followers of the same leader (e.g. all followers remain high skilled, or circumstances change so that followers become low-skilled for the new task at hand).

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 . Agents, in each period, have access to an outside option ω if and only if they are an H in that period and quit halfway.

Each period, there is a continuum of agents to choose from, so there is always an H agent available. 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 .

For simplicity, once a worker quits or is not rehired by his current boss, she never gets rehired anymore.

At the start of each period, the new type of the followers is publicly observed. Then a leader who lost in the previous period decides whether to keep the same team or to change teams. Then the tournament takes place. A leader (and his team) who wins, exits the game, and is replaced by a new leader.

We maintain Assumption 2 that we are in the (interesting) case where high quality, meritocratic teams do not exist in the static equilibrium: $-\delta < \Delta^*$.

We now explore the existence of equilibria where new leaders choose H agents in the first period, and subsequently stick to their followers, even when they turn mediocre. While a long-term relationship then improves the ability

of a leader to hire high-skilled agents, ultimately, she is also unwilling to get rid of her team when unavoidably, the members become less suited for the job.

As in the previous section, let $1 - \rho$ be the discount factor and ϕ the probability that the leader will run again after a loss.

Assume also again that the competing team consists of L agents. As in the previous section, whenever choosing an H-team is optimal when competing against a team consisting of L agents, then choosing an L-team is necessarily a dominated strategy when facing a team of H agents.

The Utility of a follower who does not quit when observing bad news is now given recursively by (depending on his type in a given period):

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

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

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

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

from which

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

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

As in the previous section (where high skilled agents always remained high skilled), we now can use the expression of U_F^H to determine the threshold $\Delta^{***}(\delta\rho)$ for bad news that still can sustain follower loyalty:

$$\Delta^{***} = \Delta^{***}(\phi\rho) \equiv G^{-1} \left(\frac{\omega - \phi\rho U_F^H}{W - \phi\rho U_F^H} \right) - (H^n - L^n) \quad (13)$$

This then yields the following proposition:

Proposition 5 1. *For any $-\delta < \Delta^*$, there exists a $\rho' \in (0, 1)$ such that H followers facing an L team stay loyal after bad news if and only if*

$$\phi\rho > \rho'$$

with

$$\Delta^{***}(\delta\rho) < -\delta \Leftrightarrow \delta\rho > \rho'.$$

2. *If $\phi\rho > \rho'$, the leader initially starts of with a “meritocratic” team (all members are high quality) but he stays loyal to those team members as they turn mediocre over time.*

4 Backstabbing: Hiring to limit internal competition

The key mechanism we have studied limiting the competence of followers has been the risk that they quit– “mercenary” followers cannot be trusted

to ensure that they stay when the times get tough, since they have better outside options.

We study here a different mechanism. The leader may be afraid that, by choosing high quality people down the organization, she increases the chances of an internal challenge that will cost her the job. Under what circumstances will this kind of incentives lead her to choose more or less skilled agents.

We consider a version of our model with two consecutive tournaments, an internal one and an external one. Hence the overall winner is the winner of two consecutive engagements. She must win the internal competition to be the leader against the worker she hired, and then she must use the worker to win the overall tournament.

4.1 Difference in noise to signal ratio in tournament

Suppose that in order to win, the leader needs to win both an external and an internal tournament. Hiring a better follower will increase the chances of victory in the external tournament, but will also pose a risk internally.

To characterize this tradeoff in the simplest possible way, let “luck” ε_I in the internal tournament be distributed according to a distribution $F(\cdot)$ with standard deviation given by σ_I , while in the external tournament luck is given by a distribution of ε_E $G(\cdot)$ with standard deviation given by σ_E .

Suppose that we are starting from a symmetric tournament internally and externally (that is, the leader, the follower and the rival team have the same skill), does the leader want to increase the skill advantage internally by Δ_s at the cost of losing $-\Delta_s$ externally?

$$Pr[\Delta_s > \varepsilon_I]Pr[-\Delta_s > \varepsilon_E]$$

Or

$$G[\Delta_s]F[-\Delta_s]$$

The following proposition characterizes the answer, which is illustrated by Figure 5

Proposition 6 *Without a leader incumbency advantage, the equilibrium of the tournament is as follows:*

1. *If $\sigma_E > \sigma_I$ the leader prioritizes the internal competition and hires a low skill agent. The only equilibrium of the tournament is with loyal teams.*
2. *If $\sigma_I > \sigma_E$ the leader prioritizes the external competition and hires a high skill agent. The only equilibrium of the tournament is with merit based teams.*

Intuitively, the trade-off will depend on which tournament is more predictable. In a world where the external tournament is essentially random and unpredictable from the perspective of the leader, he will focus on the internal tournament and prefer to avoid competition. Suppose, for instance, like in the French parliamentary elections, that the local candidate is more or less irrelevant, and the results are the outcome of national trends. Then candidates need to focus on making sure there are no internal threats, and use low skill followers who are unlikely to successfully challenge the leader.

4.2 Asymmetric tournament: incumbency advantage

Now consider the common case where there are incumbency advantages for the leader, so that in the external tournament she is quite likely to win- in this case her main worry is the internal tournament.

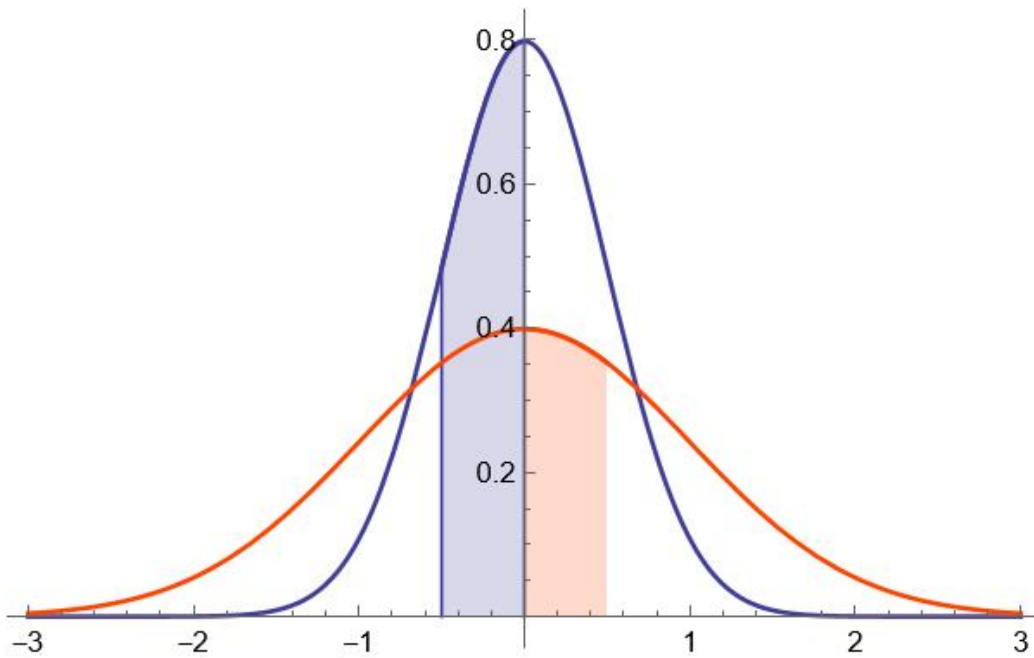


Figure 5: Example of External versus Internal Tournament without incumbency advantage. Since the external variance $\sigma_E = 1$ is twice as large as the internal one, $\sigma_I = 0.5$, the loss in the internal tournament of moving towards H (and having a stronger internal challenger) is much larger (area in violet) than the gain of facing the external H rival with a stronger team (area in orange). ($H - L = 0.5$)

To study the effect of incumbency advantage, suppose now that the internal and external tournaments are equally informative, $\sigma_E = \sigma_I$ so that the only factor at play is the incumbency advantage.

The incumbency advantage K operates as follows: A leader with a follower of skill q has an “effective skill” in the outside tournament of $K+q$. Now we consider the case where the rival is H or L .

Proposition 7 *If $\sigma_E = \sigma_I$ and the advantage of the team given by leader K is $K + q$ then there exists a K^* such that*

1. *If $K > K^*$, the leader only worries about internal competition, and chooses an L follower.*
2. *If $K < K^*$, the leader who confronts an L rival chooses an L follower while the one who confronts an H rival chooses an H follower.*

Hence we see that when the leader has sufficient incumbency advantage, she prioritizes loyalty, since the internal challenges are the ones which are most likely to cause trouble. and the leader who confronts an H rival prioritizes the external competition and chooses for talent.

5 Conclusion

Politicians and other leaders often surround themselves with loyalty rather than merit in order to minimize the risk of internal challenges. This preference for loyalty over merit varies between political systems, and when it is significant it may have negative consequences for the overall efficiency and effectiveness of the political system— in countries where political competition is reduced and leaders only need to worry about their internal rivals, they will promote low skill followers who do not present a threat. This will negatively

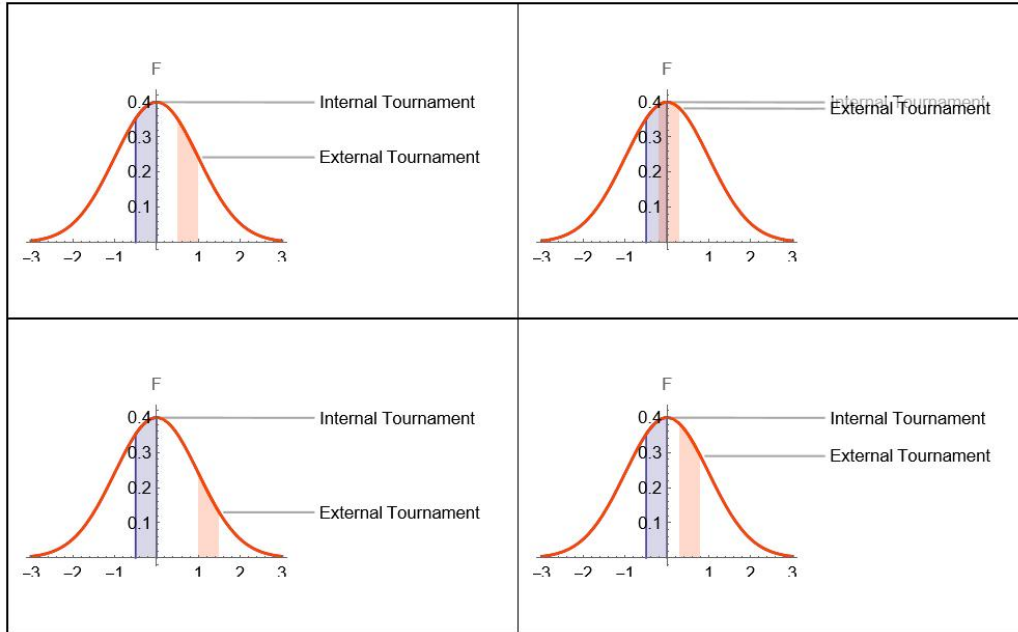


Figure 6: Illustration of the main results in the proposition. The top row illustrates competition against an H team. When the advantage K^* is large, the internal loss of hiring an H dominates the external gain, but when the advantage is small the opposite happens, as the difference H-L is centered around the center of the distribution. The bottom row illustrates competition against an L team, in which case it is always at least weakly better to hire an L against, as the external advantage will never compensate the risk of internal challenge. standard normal with $K=1$ (left col) or $K=0.3$ (right), $H=1$ (top) $L=0.5$ (bottom).

affect the ability of the political system to solve the problems it confronts, since the “spoils” system means many of these followers will occupy powerful policy jobs in case of success.

How do we solve this problem? First, separate maximally policy and politics- civil service reforms that ensure the top jobs are occupied by professional civil servants. Second, make elections as competitive as possible, so that candidates have to worry about external competition. Third, avoid long and drawn out processes that reward loyalty for the reasons analyzed in this paper.

We have left aside the role of ideology throughout, although in fact it is likely to interact with the mechanisms we have studied. More ideological movements and leaders will 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. Opportunity cost will also be correlated with ideology- left-wing politicians are less likely to have good outside opportunities (being, presumably, anti-business)- hence also more likely to be more loyal (by necessity). Empirical work will be needed to study these and the other implications of this paper.

References

- BAI, Y. AND T. ZHOU (2019): ““Mao’s last revolution”: a dictator’s loyalty–competence tradeoff,” *Public Choice*, 180, 469–500.
- BECKER, G. S. (1991): *A treatise on the family: Enlarged edition*, Harvard university press.
- EDERER, F. (2010): “Feedback and motivation in dynamic tournaments,” *Journal of Economics & Management Strategy*, 19, 733–769.
- EGOROV, G. AND K. SONIN (2011): “Dictators and their viziers: Endogenizing the loyalty–competence trade-off,” *Journal of the European Economic Association*, 9, 903–930.
- FISMAN, R., J. SHI, Y. WANG, AND W. WU (2020): “Social ties and the selection of China’s political elite,” *American Economic Review*, 110, 1752–81.
- FRANCOIS, P., F. TREBBI, AND K. XIAO (2023): “Factions in Nondemocracies: Theory and Evidence from the Chinese Communist Party,” *Econometrica*, Forthcoming.
- GAGLIARDUCCI, S. AND T. NANNICINI (2013): “Do better paid politicians perform better? Disentangling incentives from selection,” *Journal of the European Economic Association*, 11, 369–398.
- GALASSO, V. AND T. NANNICINI (2011): “Competing on good politicians,” *American political science review*, 105, 79–99.
- (2015): “So closed: Political selection in proportional systems,” *European Journal of Political Economy*, 40, 260–273.
- GREEN, J. R. AND N. L. STOKEY (1983): “A comparison of tournaments and contracts,” *Journal of Political Economy*, 91, 349–364.

- HIRSCHMAN, A. O. (1970): *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*, vol. 25, Harvard university press.
- JIA, R., M. KUDAMATSU, AND D. SEIM (2015): “Political selection in China: The complementary roles of connections and performance,” *Journal of the European Economic Association*, 13, 631–668.
- KREMER, M. (1993): “The O-ring theory of economic development,” *The quarterly journal of economics*, 108, 551–575.
- LAZEAR, E. P. AND S. ROSEN (1981): “Rank-order tournaments as optimum labor contracts,” *Journal of political Economy*, 89, 841–864.
- LAZEAR, E. P. AND K. L. SHAW (2007): “Personnel economics: The economist’s view of human resources,” *Journal of economic perspectives*, 21, 91–114.
- LIZZERI, A., M. A. MEYER, AND N. PERSICO (2002): “The incentive effects of interim performance evaluations,” .
- MATTOZZI, A. AND A. MERLO (2015): “Mediocracy,” *Journal of Public Economics*, 130, 32–44.
- MILGROM, P. AND J. ROBERTS (1988): “An economic approach to influence activities in organizations,” *American Journal of sociology*, 94, S154–S179.
- PRENDERGAST, C. (1993): “A theory of” yes men”,” *The American Economic Review*, 757–770.
- RAJAN, R. G. AND L. ZINGALES (2001): “The firm as a dedicated hierarchy: A theory of the origins and growth of firms,” *The Quarterly Journal of Economics*, 116, 805–851.
- SUTTER, M. AND C. STRASSMAIR (2009): “Communication, cooperation and collusion in team tournaments—an experimental study,” *Games and Economic Behavior*, 66, 506–525.

ZAKHAROV, A. V. (2016): “The loyalty-competence trade-off in dictatorships and outside options for subordinates,” *The Journal of Politics*, 78, 457–466.