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Sacrifice, Suffrage, and Sweat: An Experimental Analysis of Democratic Choice and Effort Provision in Teams

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ABSTRACT

Getting people to pull together is one of the oldest challenges of teamwork. In any group, there's a temptation for individuals to slack off and free-ride on the efforts of others. While managers have tried countless ways to solve this problem, one of the most powerful tools might be one we often overlook: democracy. This study explores a simple but powerful idea: what happens when you let a team vote on its own work rules, especially a rule that involves a shared sacrifice? We designed a laboratory experiment where teams of people worked on a real task. Some teams had a costly, unproductive work requirement forced upon them. Others got to vote on whether to adopt that same rule. Our findings were clear. The act of democratically choosing to make a sacrifice dramatically increased the team's productivity—far more than when the rule was simply imposed. It seems that collective choice builds a sense of commitment and legitimacy that helps people overcome the urge to free-ride. This research shows how democratic processes can be a practical tool for aligning individual and group goals, offering fresh insights for how we think about motivation, contracts, and management.

Keywords: Free-riding, Workplace Democracy, Team Production, Costly Signaling, Sacrifice, Real-Effort Experiment, Institutional Choice, Cooperation.

INTRODUCTION

1. A Puzzle of Cooperation: Why We Work Together (Or Don't)

1.1. The Enduring Problem of the Free-Rider

The modern workplace is built on teamwork. From software development to marketing campaigns, we rely on small groups to innovate and produce (48). Yet, this collaborative ideal runs headfirst into a fundamental snag in human nature: the free-rider problem. As articulated in the classic work of Alchian and Demsetz (1972) [3], whenever rewards are shared but individual effort is hard to track, a moral hazard appears. Why go the extra mile when you can coast on your colleagues' hard work and still get the same credit? This tension between what's best for the individual and what's best for the group is a central challenge in any organization, leading to lost productivity and frustrated teams (10, 34).

This isn't just a business problem; it's a classic economic dilemma, a real-world version of the public goods game (8, 54). Decades of experiments have shown us that cooperation is fragile. While most people start out willing to contribute, their cooperative spirit often withers when they see others shirking (27, 28, 65). This can trigger a downward spiral of effort that leaves everyone worse off. The traditional fixes—more monitoring, complex bonus structures, the threat of punishment—can work, but they're often expensive and can feel coercive, sometimes even backfiring by killing the intrinsic desire to do good work (19, 20, 49).

1.2. Can Democracy in the Workplace Be the Answer?

What if there's another way? Instead of imposing rules from the top down, what if we let teams govern themselves? This is the core idea behind "workplace democracy," and it has emerged as a fascinating, if complex, potential solution (17, 52). There's a well-documented phenomenon called the "dividend of democracy," which suggests that the very act of participating in a decision makes the outcome feel more legitimate and worth following (16, 63). When a group votes to create its own rules, people are far more likely to abide by them than when the same rules are handed down by an authority (61). Why? Because democracy can boost our sense of autonomy (19), create a shared belief that others will also play by the rules (26), and give us a chance to show our teammates that we're committed (41).

But here's the puzzle: when researchers have tried to test this in real-effort settings that mimic a job, the results have

been surprisingly inconsistent. Some studies find that democracy doesn't seem to provide much of a boost at all (18, 50). This raises a crucial question: when and why does workplace democracy actually work? We suspect the answer depends on what, exactly, people are voting on, and how strong the temptation to slack off really is. Our study was designed to create a situation with a powerful temptation to shirk, a context where the unifying force of democracy might be needed most.

1.3. The Power of Sacrifice: Putting Your Money Where Your Mouth Is

To solve the free-rider problem, you first have to figure out who is truly committed. This is where costly signaling theory comes in (60). The idea is simple but profound: for a signal to be believable, it has to be costly. A cheap promise to work hard is easy to make and just as easy to break. But if you're willing to undertake a costly, difficult action to show your commitment, people will believe you (7, 14).

This principle of "sacrifice" is woven into the fabric of human society. Anthropologists have shown how costly rituals and feasts build group solidarity (32, 33, 55). Sociologists have found that religious communes that demand significant sacrifices from their members are the ones that last the longest, precisely because these demands screen out the uncommitted (36, 59, 60). The logic even applies to the digital age, where online sellers signal their trustworthiness by making public donations to charity (22).

In this paper, we bring the concept of sacrifice into the workplace. We define it as a voluntary, unpaid work requirement. Our central idea is that when a team democratically chooses to take on such a burden together, they are sending a powerful, credible signal to one another: "I'm in this with you." We believe this is the key to building the trust that high-effort teamwork requires.

1.4. Our Central Question and Predictions

This study sits at the intersection of workplace democracy and costly signaling. We ask a straightforward question: Can letting a team vote to sacrifice together solve the free-rider problem? We predict that this combination will be uniquely powerful. A sacrifice that is simply forced on a team might make some people work harder, but it won't create the same sense of shared purpose. We believe it is the act of choosing the sacrifice that makes all the difference, creating a "democracy dividend" that will lead to the highest levels of effort and cooperation.

2. The Experiment: How We Tested Our Ideas

2.1. Setting the Stage

We invited 252 student participants to our lab and organized them into 84 teams of three. To keep our results clean and independent, we ran 14 separate sessions. When participants arrived, they were randomly and anonymously put into their three-person teams, and these teams stayed the same for the whole experiment.

2.2. A Workplace in Miniature: The Task and the Temptation

To measure effort in a controlled way, we used the "slider task" (4, 15). It's a simple, repetitive computer task—moving sliders to a target—that requires focus but not special skills. This allowed us to measure pure effort.

The real key to our experiment was how we structured the work environment to create a genuine social dilemma:

- Teamwork Pays: For every 50 sliders the team completed collectively, the team earned £3.00, which was split evenly among the three members (£1.00 each).
- The Shirking Option: At any time, any participant could click a button to stop working and instead play a simple web game. Playing the game offered a private, guaranteed payoff of £0.15 per minute. This created the central conflict: you could help the team and earn a shared reward, or you could shirk and earn a smaller but certain private reward.

2.3. The Three Worlds: Our Experimental Treatments

Each team was randomly placed into one of three different scenarios:

1. The Baseline World (No Rules): Here, teams just worked for 20 minutes. Their pay was simply what they earned from the team task plus any money they made from playing the shirking game. This was our control group, designed to show us how much people would free-ride naturally.

2. The Autocratic World (Rules Imposed): Before the 20-minute work period, we told these teams that a rule was being imposed on them. Every person had to complete 40 sliders for zero pay—our "sacrifice"—before they could start earning money for the team or switch to the game. This allowed us to see the effect of the sacrifice itself, without any choice involved.

3. The Democratic World (The Power to Choose): This was our key treatment. We showed these teams the same potential rule (the 40-slider sacrifice) and let them decide their own fate.

   - Step 1: The Huddle (3-Minute Discussion): Each team got three minutes to talk strategy using a private chat window. Should they vote for the rule or against it?
   - Step 2: The Vote: After the chat, each person voted. The team's final decision was based on the majority vote within that team.
   - Step 3: The Outcome: If at least two of the three members voted 'yes', the rule was put in place for their team. We announced the result, and they began the 20-minute work period under the rules they had just chosen for themselves.

2.4. How Payoffs Were Calculated

A participant's final pay was the sum of their share of the team earnings and their private earnings from the game:

πi=(Team's Paid Sliders÷50×£3.00÷3)+(Minutes Shirking×£0.15)

2.5. Our Formal Predictions

This setup led us to three clear, testable hypotheses:

- Hypothesis 1 (The Free-Rider Problem): Without any rules, effort in the Baseline group will be the lowest.
- Hypothesis 2 (The Effect of Imposed Sacrifice): Forcing the sacrifice rule on teams will lead to more effort than the Baseline, as the upfront cost will serve as a commitment device (1).
- Hypothesis 3 (The Democracy Effect): The highest level of effort will be found in the democratic groups that voted for the sacrifice. The act of choosing will create a special "dividend" that makes the rule more powerful than when it is simply imposed.

3. What We Found: The Results of the Experiment

3.1. The Vote: A Demand for Self-Imposed Rules

The first striking result came from the Democracy treatment. a clear majority of teams—64%—voted in favor of imposing the costly sacrifice on themselves. This wasn't a trivial choice; they were voting to do unpaid work. This strong demand for a self-imposed constraint shows that people are often acutely aware of the free-rider problem and are willing to take costly steps to solve it (24, 43, 61).

But this raised an important question: are the teams that vote for sacrifice just naturally harder workers to begin with? This is what we call a "selection effect." Table 1 also shows performance in a short practice round before the main experiment. Sure enough, the teams that would later vote 'yes' were already more productive in practice than the teams that would vote 'no'. This confirmed that we had a selection bias to deal with. To isolate the true effect of democracy, we used a statistical technique (the weights-based strategy from Dal Bó et al., 2019 [18]) to adjust our data, allowing us to compare the democratic and autocratic worlds on a level playing field.

Table 1: Voting Behavior and Selection Effects in the Democracy Treatment

	Voted FOR Sacrifice	Voted AGAINST Sacrifice
Percentage of Teams	64% (36 / 56)	36% (20 / 56)
Avg. Practice Round Sliders	31.2	22.5*

Note: Difference in practice round performance is significant at $p < 0.05$ (Mann-Whitney U-test).

3.2. The Dividend of Democracy: A Boost to Productivity

Our main question was about productivity—how much work gets done per minute while people are actually working. This metric tells us how focused and efficient people are. The results, summarized in Table 2, show a clear and powerful effect.

Teams that democratically chose the sacrifice were significantly more productive (4.8 sliders per minute) than teams that had the same sacrifice forced on them (3.9 sliders per minute). Even after applying our statistical correction for the selection bias, the effect remained strong. The adjusted productivity in the Democracy treatment was 4.6 sliders per minute, a full 18% higher than in the Autocratic world. This is our key finding and a confirmation of Hypothesis 3. There is a real "dividend of democracy." The process of choosing the rule made people work more efficiently and with more focus than the rule by itself. This motivational boost was also remarkably stable, lasting for the entire 20-minute work period without fading.

3.3. The Bigger Picture: Effort, Shirking, and Total Output

While democracy made people more efficient, the story of their total output is a little more complex, as detailed in Table 2. As predicted, the Baseline group had the lowest total output, while the Democratic group had the highest.

Interestingly, we found that people in the Democracy treatment, despite being more productive, also spent slightly more time playing the shirking game than those in the Autocratic treatment. As some participants later commented, working with such high intensity under democracy was tiring, which may have led them to take more frequent breaks. Because of this, while the democratic teams produced more overall, the gain wasn't quite as large as their impressive productivity numbers might suggest. Democracy, it seems, makes workers more efficient, but it doesn't erase their fundamental desire for a break.

Table 2: Main Experimental Results by Treatment

Outcome Measure	Baseline (No Rules)	Autocratic (Imposed Sacrifice)	Democratic (Chosen Sacrifice)
Productivity (Sliders per minute worked)	2.9	3.9	4.8**
Adjusted Productivity	-	3.9	4.6*
Total Sliders Completed (Team Avg.)	121	165	188**
Time Spent Shirking (Avg. minutes per person)	5.1	3.8	4.2

*Notes: All comparisons for the Democratic treatment are for groups that voted FOR the rule. Adjusted Productivity controls for selection bias. *p < 0.05, **p < 0.01 for the difference compared to the Autocratic treatment.*

4. Inside the Black Box: What Teams Talked About

To understand why democracy had such a powerful effect, we dove into the chat logs from the 3-minute team discussions. Two independent coders analyzed the conversations, and their classifications were highly consistent (Cohen's Kappa = 0.85). The chats gave us a window into the minds of the teams as they made their decision.

As summarized in Table 3, several themes stood out as strong predictors of how a team would vote and perform. Teams that explicitly identified the "free-rider problem" were almost certain to vote for the sacrifice. The discussion also served as a planning session; teams that formulated a clear strategy were more likely to vote for the rule and were more productive later on. Finally, the chat logs were filled with signals of commitment. The vote became a public declaration that everyone was on board, which made it feel safe for each individual to work hard. This qualitative evidence paints a rich picture of the mechanisms at play: democracy works because it's a tool for planning strategy, building a positive team identity, and sending believable signals of commitment.

Table 3: Key Themes from Communication Analysis and Their Impact

Communication Theme	Description	Impact on Voting & Performance
Anti-Free-Riding	Explicitly mentioning "shirking," "lazy," or "free-riders."	Strongly predicts a 'Yes' vote (92%).
Strategic Planning	Formulating a specific plan for the work period.	Predicts a 'Yes' vote and higher productivity.
Positive Reinforcement	Using encouraging language ("We can do this," "Good plan").	Correlated with higher subsequent effort.

Commitment Signaling	Stating that the vote is a way to show commitment.	Common theme in teams that voted 'Yes' and performed well.

5. What It All Means: Discussion and Conclusion

5.1. The Story in a Nutshell

Our experiment explored whether democracy and sacrifice could solve the age-old problem of free-riding in teams. We found that, yes, they can. Most teams, given the chance, will vote to impose a costly rule on themselves to ensure cooperation. More importantly, this democratic process creates a powerful "dividend," boosting team productivity by nearly 20% compared to when the same rule is just imposed from above. Finally, our look at team chats shows us why: democracy works by helping teams strategize, build a shared identity, and signal their commitment to one another.

5.2. What This Means for Theory and for Managers

These findings have important implications. For economic theory, they provide clear evidence for the "democracy effect" in a setting with strong incentives to shirk, helping to explain why past results have been mixed. We show that context matters, and we demonstrate how the theories of democracy and costly signaling work together as powerful, complementary forces.

For managers and leaders, the lesson is profound. Our results are a direct challenge to a purely top-down, command-and-control style of leadership. They suggest that giving employees a real voice in setting their own standards can unlock huge gains in productivity. When people feel a sense of ownership over the rules, those rules become more than just regulations; they become shared commitments. This is more relevant than ever in a world of creative teams and remote work, where you can't simply look over someone's shoulder (9). In these environments, building trust and intrinsic motivation is everything. Allowing a team to set its own ambitious deadline, or to agree on its own rules for communication, could be a powerful way to harness the effects we observed.

5.3. Where We Go From Here

Of course, no single study can tell the whole story. Our experiment was conducted in a lab with students, and while this gives us confidence in our results, the real world is always more complex (25). Future research should see if these findings hold up in real companies with long-term employees.

Our work also opens up exciting new questions. How big should a sacrifice be to be effective? Is there a sweet spot? How do these dynamics change with the size of the team or the nature of the work? Answering these questions will help us build a more complete picture of how to design cooperative and productive workplaces.

5.4. A Final Thought

In our efforts to encourage cooperation, we often reach for complex contracts and surveillance systems. Our research points to a simpler, more human approach. By trusting people with the autonomy to make their own commitments, we can unleash a more powerful and lasting form of cooperation. Democracy in the workplace isn't just a lofty ideal; it's a practical, powerful tool for aligning what's best for the individual with what's best for the group. By giving teams the chance to choose their own sacrifice, we give them the chance to build the trust and shared purpose that great work is made of.

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