

## ECONOMICS

# Procedural fairness and nepotism among local traditional and democratic leaders in rural Namibia

Björn Vollan<sup>1\*</sup>, Esther Blanco<sup>2,3</sup>, Ivo Steimanis<sup>1</sup>, Fabian Petutschnig<sup>4</sup>, Sebastian Prediger<sup>5</sup>

This study tests the common conception that democratically elected leaders behave in the interest of their constituents more than traditional chiefs do. Our sample includes 64 village leaders and 384 villagers in rural Namibia, where democratically elected leaders and traditional chiefs coexist. We analyze two main attributes of local political leaders: procedural fairness preferences and preferential treatment of relatives (nepotism). We also measure personality traits and social preferences, and conduct standardized surveys on local governance practices and villagers' perceptions of their leaders' performance. Our results indicate that traditional chiefs are as likely to implement fair, democratic decision-making procedures, and are as unlikely to be nepotistic. Moreover, elected leaders and chiefs express similar social preferences and personality traits. These findings align with villagers' perceptions of most leaders in our sample as being popular and fair, and villagers' responses reveal a discrepancy between planned and de facto implementation of democratic institutions.

## INTRODUCTION

Decisions by national political leaders can influence entire development trajectories of countries (1). Democratic principles have often been proposed to effectively constrain the power of political leaders and avoid the disastrous outcomes associated to the abuse of power. In this regard, traditional authorities in sub-Saharan Africa (SSA) have met with condemnation: They neither are elected in a transparent and fair way nor can be easily removed from office. Thus, traditional authorities have generally been viewed in the literature as “decentralized despots” who use their power to control and exploit civil society (2, 3). The earlier literature argues that traditional elites are ideally positioned to capture the benefits of decentralized development programs (4), especially in lineage-based societies (5). However, such traditional authorities originate from a deeply embedded cultural institution that grants them high levels of legitimacy, extensive local knowledge, and a long planning horizon (6). A growing number of empirical studies have shown no support for the “decentralized despots” claim (7, 8).

Concurrently, most of the theoretical literature on leadership focuses on the benefits of democratic principles. Scholars have asserted that free, universal, and competitive elections align the interests of leaders with those of citizens (9), facilitate the selection of more able and public-spirited leaders (10), help to cull bad leaders (11), and increase spending on public goods (12). Currently, the World Bank supports more than 190 community-driven development (CDD) projects aimed at fostering democratic principles at the local level in 88 countries, totaling more than \$19 billion (13). Whenever possible, these CDD projects avoid building on existing traditional or customary forms of governance, based on the bad reputation of traditional authorities and the theoretical benefits of democratic principles. The projects instead establish new formal

institutions that are granted substantial responsibilities and power. Giving local residents power over the implementation of such projects increases short-term social outcomes, such as public good provision and more inclusive decision-making (14, 15). However, such projects are often unable to deliver a long-term increase in social capital that goes beyond their immediate impact (16, 17).

One peculiarity of local-level democratic institutions in SSA is that they have been introduced into a long-standing system of traditional governance that survived both colonization and apartheid, resulting in widespread legal pluralism. This relates to the broader literature on decentralized governance and the interrelation of the traditional and democratic leadership structures in local management. The presence of strong traditional chiefs, along with the accompanying customs, traditions, and social norms and beliefs, can undermine the implementation of democratic institutions, as social and cultural resources influence the establishment of new institutional arrangements (18). However, alternatively, the two leader types can generate a positive polycentric governance structure (19), whereby the presence of both leader types has a disciplining behavior to one another. While democratically elected leaders (DELs) and chiefs have different and limited spheres of action, DELs could be seen as a threat to chiefs, who stand a lot to lose if they fail to prove their legitimacy through performance. Thereby, the presence of DELs can have a disciplining effect on chiefs' behavior. Similarly, the existence of chiefs could also discipline DELs. The process of renegotiating power between democratic and traditional institutions, a widespread phenomenon in SSA, is embedded within a set of social connections shaped by cultural constraints and institutional overlaps that have long been emphasized by social scientists (20). As a result of this institutional bricolage, de facto democratic institutions implemented at the local level may diverge from the ideal theoretical prescription. They are integrated into an ongoing system that might preclude democratic institutions from functioning at their best. At the same time, the deep-rooted institutions supporting traditional leaders do not necessarily generate despotic leadership figures, as might be suggested by the extreme cases exemplified by some dictatorial national leaders. Local traditional authorities enjoy a high degree of legitimacy among their constituents in SSA, suggesting a positive and nuanced view of traditional authorities.

Copyright © 2020  
The Authors, some  
rights reserved;  
exclusive licensee  
American Association  
for the Advancement  
of Science. No claim to  
original U.S. Government  
Works. Distributed  
under a Creative  
Commons Attribution  
NonCommercial  
License 4.0 (CC BY-NC).

<sup>1</sup>Philipps-University Marburg, School of Business and Economics, Am Plan 2, 35032 Marburg, Germany. <sup>2</sup>University of Innsbruck, Department of Public Finance, Universitätsstrasse 15, Innsbruck 6020, Austria. <sup>3</sup>The Ostrom Workshop, Indiana University, Bloomington, IN 47408, USA. <sup>4</sup>University of Innsbruck, Department of Economic Theory, Economic Policy and Economic History, Universitätsstrasse 15, Innsbruck 6020, Austria. <sup>5</sup>GIGA Institute of African Affairs, Neuer Jungfernstieg 21, 20354 Hamburg, Germany.

\*Corresponding author. Email: bjoern.vollan@wiwi.uni-marburg.de

Notably, such perceptions of legitimacy are especially pronounced among the younger population and thus are not related to a feeling of longing for the good old times (21).

One important novelty of our study is that we address the performance of de facto institutions, which evolved over the past 20 years on the basis of deliberative political processes and inherent power relations, voters' preferences, and outside organizations, as called for in previous research (16). Thus, in line with theories of institutional change (22), we assess in this study the relative performance of institutions as context- and path-dependent entities, capturing the richness that comes with it. This implies by design that we are not aiming to disentangle the causal effect from elections per se. Our results will focus on the differences in the behavior of real leaders holding either a local democratic office (DELs) or a traditional office (chiefs), capturing the richness of the field setting.

Our contribution complements previous theoretical and experimental laboratory work exploring the significance of different forms of leadership. In laboratory settings, allowing groups to elect their leaders yields more favorable outcomes for the group compared to randomly appointed leaders or groups with no leaders. This finding has often been attributed to the selection of prosocially inclined leaders (23). To address the external validity concerns of laboratory experiments carried out with groups of students, researchers have studied the role of elected leaders in field settings; they similarly find that elected leaders and committees can achieve greater levels of cooperation compared to appointed community elites (24, 25) or random villagers (7, 26). In these studies, the institutions under investigation are typically introduced for a specific CDD project. Because they are evaluated for the project at hand, they can only capture the short-term effects of a restricted version of democracy with well-defined and observable procedures for everyone involved. Such an ideal scenario seldom corresponds to the real-life functioning of democratic grassroots institutions in SSA after they have matured for longer time spans. Hence, the previous studies are well suited to reinforce our theoretical knowledge about the benefits of carefully implemented elections, but they fail to measure the effectiveness of de facto institutions. This study aims to embrace the institutional bricolage taking place at the local level.

We present the results of two main incentivized behavioral tasks, an additional incentivized task on social preferences, extensive surveys to leaders and villagers in our sample, and secondary data from the Afrobarometer. The main results refer to the procedural fairness and the nepotism tasks. Comparing the abilities of leaders in everyday life is challenging, as their behavior cannot be assessed under *ceteris paribus* conditions, while incentivized behavioral tasks establish a controlled environment. First, we investigate the differences between chiefs and DELs with regard to their willingness to permit group decision-making, even when the outcome of this procedure may come at a personal cost. Second, we explore their likelihood to engage in the preferential treatment of relatives or friends regardless of merit. Each of these tasks target behavior related to abuse of power, where the first task captures leaders' potential reputational concerns, while the second task measures purely intrinsic behavior of the leaders.

Next, we discuss the role of some potential mechanisms in the results from the two main tasks, particularly the de facto implementation of local democratic institutions, the role of traditional authorities in Namibian society, and the associated selection of

leaders in both institutions. We present self-reported data from democratic leaders on the operational rules of their office, providing information for a discussion on the de facto implementation of local democratic institutions. We also discuss the incentives of leaders in democratic offices to nourish supporting coalitions among their constituents, which would be consistent with the results from the nepotism task. To better understand the role of traditional authorities, we discuss the roots of their legitimacy resulting in villagers' perceived satisfaction with their local leaders. To explore the potential selection of more public-spirited individuals to democratic offices, we provide empirical evidence for chiefs, DELs, and villagers from a social preference task and self-reported results from surveys on personality traits. The congruence between leader behavior in the controlled, incentivized tasks and villager's perception of leader performance reinforces the validity of the findings. Also, we do not find differences in the social types of leaders in each of the offices while both are different to the constituent villagers. Selection process seems not to be operating differently for the two offices, and the two offices seem to select more public-spirited leaders than the average constituent. We cannot prove whether this is the result from elections underperforming in selecting public-spirited people or traditional authorities being selected better than one would imagine, but our discussion suggests that the combination of the two factors might be at work. Last, we provide additional reflections and empirical evidence on the external validity of our findings. Using data from the Afrobarometer, we compare our study site to the rest of Namibia (where DELs and chiefs coexist) and demonstrate that perceived trust in chiefs and the assessment of their performance are not artifacts of the study region.

Our combined results reject the hypotheses that democratic leaders choose more democratic decision-making processes and exhibit less nepotism in the enforcement of norms. We find that chiefs do weakly better in these domains, a finding that is in line with villagers' perceptions of local leadership. The combined findings present an overall picture supporting that traditional authorities display similar good qualities of governance than DELs do, when they coexist. In sum, we offer much-needed rigorous comparative research on the hotly debated topic of the benefits from democratization within a context of legal pluralism (27).

### Study site and sample characteristics

The study was conducted 25 years after the independence of Namibia and roughly 20 years after the introduction of democratic grassroots institutions (28). The participants were sampled from 32 randomly selected communities within three constituencies of the Ohangwena region in northern Namibia (see fig. S1). In each village, the chief, the DEL, and 12 villagers participated for a total of 64 local leaders and 384 villagers. Given the sample size of leaders, estimates comparing the two leader types have power to find medium-sized effects of around 25 percentage points (see "Statistical analysis" section for more details). The participation of both types of leaders in each village is critical, as previous evidence suggests that unobserved community characteristics (such as village characteristics including social cohesion or conflict, citizen characteristics, geography, or the institutional environment) explain substantial variation in prosocial outcomes across different communities (29). Including both leader types in each village allows us to control for such usually omitted variables. The villages in our sample are required to elect committees for several purposes, such as land boards, water point associations, and

conservancies. The elected officials have thereby taken over certain powers and responsibilities from the traditional leadership, in a polycentric structure of governance. The sample of DELs in our study consists of the water point chairperson from each of the 32 villages, an office that is elected by the water point users (essentially, all the villagers in a community).

In the study region, the system of traditional authorities involves a king or a queen, a traditional council, senior headmen, and headmen, who are the so-called “chiefs.” Usually, a male member of the founding family is appointed to this office. In Namibia, more than 30% of the country’s territory and about two-thirds of the population are governed by traditional authorities (30). Chiefs’ duties include conflict resolution and land allocation, for which they regularly receive gifts from their villagers, usually in the form of livestock (more information on the responsibilities and perceived importance of this position is available in the first section of the Supplementary Materials). Consequently, over generations, families of chiefs may accumulate more wealth than other villagers. It is thus expected that the chiefs in our sample have more assets than the DELs. The latter, in turn, are wealthier than the villagers. Moreover, there are significant differences between the two types of leaders in our sample in terms of age and gender (table S1). Chiefs are, on average, 12 years older than their democratically elected counterparts ( $Z = 3.04, P < 0.01$ ). Moreover, more than half of the DELs in our sample are female, whereas there is only one female chief. This partially owes to the Namibian government advocating for a higher representation of women to initiate a change in societal gender norms. Studies that impose leadership roles in the laboratory or in the field on otherwise identical people might overlook some of these relevant differences between institutions—not to mention any unobserved differences in intention, experience, or motivation that might exist. In the following tasks, we shed light on the reputational and intrinsic motivations of the behavior of real-life leaders that are otherwise not observable. Local research assistants from the University of Namibia, after training and pretests, conducted the field workshops in the local language Oshivambo. All materials were translated back into English to ensure that the meaning of questions did not change and that the language in the explanation of the behavioral tasks did not include loaded words that could bias behavior (e.g., dictator rule or punishment). For detailed steps on how the data collection proceeded in the field, see section S1.1.

## RESULTS

### Procedural fairness task

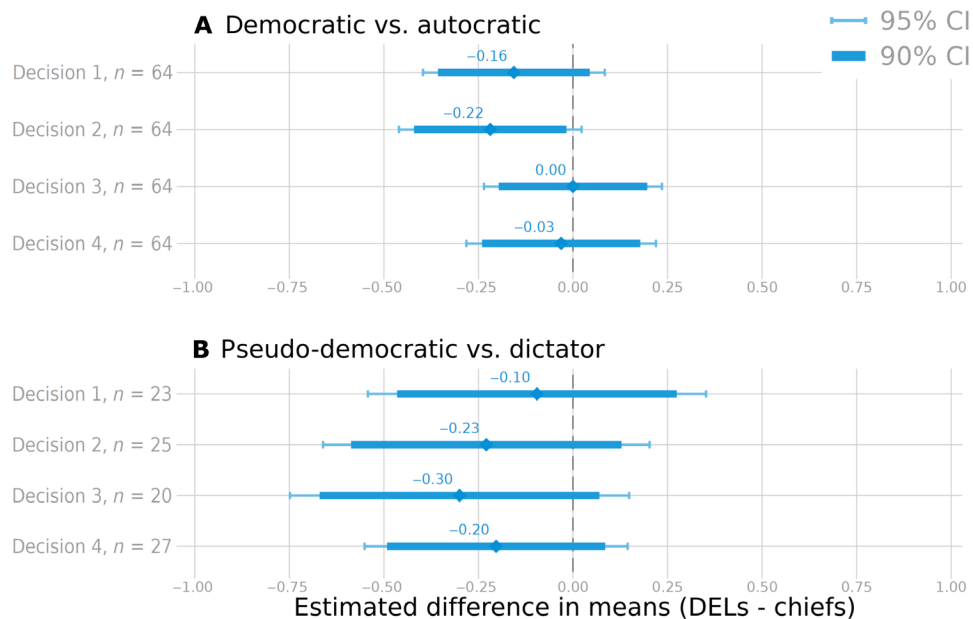
Moral judgments on decision-making processes can be consequentialist, as in utilitarianism, or nonconsequentialist, focusing instead on the adequacy of the decision process. Procedural fairness relates to the nonconsequentialist notion of fairness, whereby the moral rightness of an action is derived from absolute rules of behavior, such as Kant’s categorical imperative (31), or from a human rights perspective (32). For example, a benevolent dictator who increases the welfare of every single person in a society can be positively assessed from a consequentialist notion of morality, but not from a nonconsequentialist view. In support of the procedural perspective of morality, extensive research in psychology (33), experimental economics (34), and development studies (35) has documented that including people in decision-making increases self-determination, a sense of personal control, and people’s intrinsic motivation to

cooperate with one another (36). Even in extreme settings where outcomes are unaffected by the decision process, people experience a feeling of empowerment when included in decision-making (14, 15, 34).

To study procedural fairness in the field, we implement a task in which leaders make decisions in two stages. In the first stage, the leader chooses among three procedural rules (democratic, pseudo-democratic, and dictator). In the second stage, the leader and six villagers choose between two distributions of money, A or B, to be implemented for individual payoffs. The leaders and villagers repeat the process for four different pairs of distributions, capturing different distributional trade-offs, including a choice that tempts the leaders to make money at the expense of their villagers (A1) (see Materials and Methods), thus capturing the selfish behaviors that constitute the centerpiece of the critique to nondemocratic institutions. The other distributions captured the tension between equity considerations among villagers (A2), spite harming the leader (A3), and spite harming the villagers (A4). Decision A1 was always played first, being the key trade-off of interest; the order for all other decisions was randomized to control for potential sequencing effects.

Under the democratic rule, the leader and the six villagers vote on their preferred allocation, A or B. In stage 2 under the democratic rule, the allocation that receives the most votes will be implemented, and the respective outcomes paid out to each member of the group. The dictator rule allows the leader to decide in stage 2 on his or her own which of the allocations will be paid out. In this case, it is communicated to the villagers that the leader decided on his or her own. Last, under the pseudo-democratic rule, the villagers vote on their preferred distribution, but the leader alone (without knowing the result of the vote) decides in stage 2 which allocation will be paid out to the group. If the leader chooses the democratic or pseudo-democratic rule, the villagers are informed that the leader “allows a vote.” Thus, the pseudo-democratic option lets the leader decide on his or her own regardless of the villagers’ vote, allowing the leader a possibility of electoral fraud while maintaining a reputation of democratic behavior. Villagers cannot distinguish between a pseudo-democrat and a true democrat even after the workshop, as the final payout for participating villagers includes compensation for several tasks and a show-up fee (see Materials and Methods for further details). The democratic rule is the only nondictatorial rule and thus represents the fairest of the three options. In this way, we test whether leadership styles are aligned to the institutions that define their office. The narrative in the analysis of leadership styles herein refers to “democratic” leadership (participation of group members in decision-making) and “autocratic” leadership (individual control over decisions without the input of group members).

We find that leaders prefer the democratic option; the democratic rule is implemented in 63% of cases, followed by 23% in the pseudo-democratic rule and the dictator rule in 14% of cases. Figure 1A shows point estimates and confidence intervals (CIs) from a bivariate linear probability model for the difference in means between leader types in implementing a democratic procedure rather than an autocratic one (pseudo-democratic or dictator). These differences are displayed for each of the four allocation decisions, showing point estimates together with their CIs to highlight the uncertainty underlying our estimations. Contradicting theoretical priors and previous experimental evidence, we cannot reject the two-sided null hypothesis that there is no difference between leader types. A one-sided hypothesis test investigating whether DELs are, on average,



**Fig. 1. Likelihood of procedural choices.** (A) Point estimates of the differences in means between democratic leaders and chiefs ( $\mu_{\text{DELS}} - \mu_{\text{chiefs}}$ ) of the likelihood to implement a democratic procedure compared to pooled autocratic choices. Negative values imply higher prevalence of the democratic rule option among chiefs. CI, confidence interval. (B) Estimates for a subsample of only autocratic choices (excluding the democratic alternative), where negative values imply higher prevalence of pseudo-democratic rule among chiefs. All coefficients and CIs are computed using OLS regressions with robust SEs.

across all four decisions, more likely to choose the democratic rule is highly insignificant (coefficient =  $-0.102$ ;  $P = 0.869$ ; 95% CI =  $-0.28$  to  $0.08$ ). Given our sample size and modeling assumptions, this entails that chiefs are most likely more inclined to choose the democratic rule and, at worst, slightly less democratic on average (see Fig. 1A for the CIs). Supporting the robustness of these results, we consistently obtain Bayes factors (BFs) below  $1/3$  (decision 1 BF = 0.14, decision 2 BF = 0.12, decision 3 BF = 0.33, and decision 4 BF = 0.18), which can be regarded as substantial evidence against our prior belief that DELs are more democratic (see Materials and Methods for further information on the BF and equivalence tests) (37).

Figure 1B plots the point estimates for the ratio of pseudo-democratic to dictator procedures (excluding the democratic option). This ratio is an indicator of leaders' reputational concerns, as both procedures give them the freedom to implement their preferred allocation of money but differ in the message that is conveyed to the villager participants. Thus, leaders can use the dictatorial rule to communicate a signal about their dominant leadership style or choose the pseudo-democratic rule to appear democratic to the villagers and experimenters. Higher reputational concerns regarding the need to appear democratic might be related to the accountability of leaders or their valuation of social image. Our analysis shows that chiefs tend to have stronger reputational concerns for democracy than DELs. However, although these differences are substantial in magnitude, we are unable to estimate the effects with high precision, as is illustrated in the wide CIs in Fig. 1B. This results from a combination of the limited sample size of the study (64 real-life leaders) and the common democratic orientation of leaders, which resulted in 20 to 27 observations in comparing the two nondemocratic rules depending on the distribution at stake. In any case, we can reject the common assumption and theoretical prior that dem-

ocratic leaders are generally more likely to establish fair decision-making procedures among constituents or care more about being seen as inclusive in their decision-making (see section S3.1 for additional analyses using multivariate probit models on the determinants of democratic and autocratic rule choices, as well as robustness checks using equivalence tests and BFs).

### Nepotism task

Granting preferential treatment to specific individuals or groups based on personal relationships rather than merit is a common form of abuse of public office. Like other forms of corruption, favoritism toward friends, relatives, or members of a specific social group may result in inefficiencies and can hamper growth and development (38). A large body of literature has confirmed that national political leaders in democracies and autocracies choose distributive policies that systematically favor their home regions to secure political support; see Golden and Min (39) for a review. For example, Hodler and Raschky (40), using nighttime light as a measure of development, show for a large panel sample of subnational regions worldwide that the birth regions of political leaders currently in office have more intense nighttime light, regardless of how these leaders came into power. Such favoritism in the form of the preferential distribution of resources has been studied quite extensively, but favoritism in judicature and rule enforcement by real-world leaders has received less attention in empirical research. Recent work has established that this latter form can be of great importance for collective action outcomes (37, 41).

The nepotism task that we study is based on a series of binary, one-shot trust games (42) with the particular design attribute that we allow real-life leaders to engage in costly third-party punishment, similar to (37). Player 1 can decide whether to make a trusting



move toward player 2 or to take a conservative action that secures her payoffs. Player 2 then can decide whether to behave trustworthy, benefiting also player 1, or to take advantage of player 1 to further increase own earnings. After players 1 and 2 have made their decisions, which affect the earnings of players 1 and 2 only, real-life leaders can decide whether and how much they want to punish player 2, who faces the temptation to take advantage of a trusting move by player 1. In our game, leaders receive an endowment of 40 N\$, and any money spent on punishment reduces their payoff from the task. This form of punishment has been referred to as “altruistic punishment,” as the punisher decides based on behavior relevant for the earnings of players 1 and 2, bears a material cost, but wins no material benefit (43). The punishment propensity thus provides a measure of leaders’ intrinsic motivation to enforce sharing norms in the trust game. A second novel design attribute is that in a within-subject experimental design, each leader decides on punishment for three different pairs of villagers, who are relatives and nonrelatives of the respective leader. We focus on the differences between DELs and chiefs in terms of their propensity to engage in nepotistic punishment by selectively changing their punishment strategy when relatives are involved. As in the first task, we hypothesize that DELs are less likely to be nepotistic compared to appointed chiefs. In contrast to the first task, leaders could not build any public reputation by punishing, as villagers were unable to trace back the leader’s punishment decisions.

For each leader, we construct three different pairs of villagers playing the trust game and distinguish between participants who are relatives and nonrelatives of the respective leader. In our sample of relatives, we consider both blood (siblings, children, and parents) and in-law connections (mainly spouses). In the RN pair, player 1 is a relative (R) of the punishing leader, whereas player 2 is a nonrelative (N). In the NR pair, player 1 is not related to the leader, but player 2 is. The control group consists of pairs of villagers in which neither player is related to the leader (NN pair). To convey the information about the relationship status to the leader, we provide for each pair of villagers two names of participating villagers for player 1 and player 2 in the trust game. This method of providing names was chosen as a subtle way to introduce nepotism in our experimental setting. We elicited the information about each leader’s relatives 1 week ahead of the sessions in a survey about personal characteristics, social involvement, and procedures concerning their position (see Materials and Methods). For example, for the RN pair, the two names of potential people who might act as player 1 in the trust game would be people we knew to be related to the leader, and the two names for player 2 would be nonrelated. This design choice reduces possible demand effects in comparison to explicitly stating, “Player 1 is a relative of yours.” Moreover, by giving two names for each role in the game, in contrast to a single name, we moderate behavior that might only be related to one specific person (e.g., someone with whom the leader had personal conflicts). We use the so-called strategy method, whereby leaders make two punishment decisions for each of the potential actions of player 2 (trustworthy and untrustworthy) in all three decision pairs (NN, RN, and NR).

A comparison of the leader’s punishment behavior between the NR pair and NN pair informs us about leniency. A priori, we expected that leaders would be more lenient with relatives than with nonrelatives. This would entail that they punish a nontrustworthy player 2 more mildly when he or she is a relative rather than a nonrelative. Thus, for our analysis, we define a leader to be a lenient punisher if the punishment in the NR pair is milder than in the NN pair. The

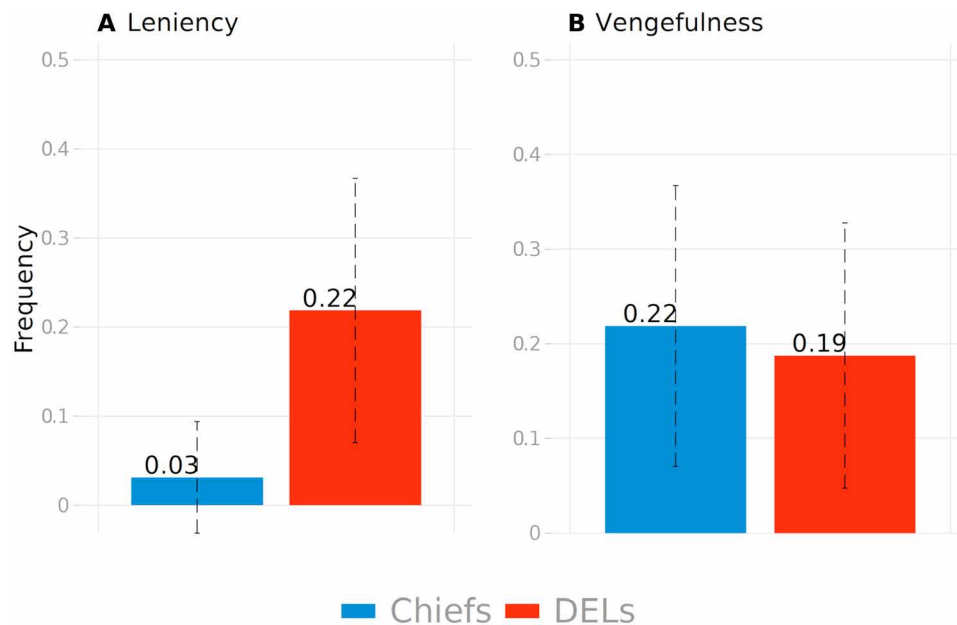
second form of selective punishment may occur in situations associated with revenge, where player 1 in the trust game (the potential victim of the norm violation by player 2) is a relative (RN pair) instead of a nonrelative (NN pair). Materials and Methods provides detailed information on treatment compositions and comparisons.

We find that most of the leaders engage in altruistic punishment. About two-thirds of leaders punish violators of the trustworthiness norm in at least one pair. Punishment decisions are, in most cases, directed toward norm violators (untrustworthy player 2), suggesting that leaders are willing to invest in the enforcement of sharing norms (see fig. S3). Sharing norms are also common among villagers playing in the position of player 2: About 60% of them are trustworthy.

Our empirical results show that the vast majority of leaders do not condition their punishment decision on the relationship status of the norm violator (table S4). This result contrasts with previous findings on selective punishment observed for third parties drawn from a general population (43, 44). Thus, a leadership role in real life might temper the nepotistic predisposition toward selective punishment (see Fig. 2). Regarding the direction of selective punishment, we observe no significant difference among leader types in vengeful selective punishment. No significant difference does not imply that the effect is zero, as we are unable to estimate the effect size with full confidence; DELs could be up to 24 percentage points less likely to be vengeful or up to 17 percentage points more likely to be vengeful than chiefs (coefficient =  $-0.03$ ;  $P = 0.76$ ; 95% CI =  $-0.24$  to  $0.17$ ; BF = 0.37). In terms of leniency, DELs are about 19 percentage points more likely to be lenient punishers than chiefs. The CI in this case varies between DELs being between 3 and 35 percentage points more lenient (coefficient =  $0.188$ ;  $P = 0.023$ ; 95% CI =  $0.03$  to  $0.35$ ; BF = 0.10). The results remain significant, but the difference between leader types decreases when we control for the degree of relationship, and the fact that, in some cases, villagers labeled as relatives were actually just close friends (table S5). In addition, we provide equivalence tests and BFs as robustness checks in section S3.2. Overall, our results again contradict our initial hypothesis, in this case showing that chiefs are not more nepotistic than DELs.

## DISCUSSION

When examining differences in the behavior of the people holding the two types of offices, our main finding is that DELs do not outperform traditional (nonelected) leaders. These tasks rather provide some evidence that traditional authorities, on average, tend to choose more democratic decision-making procedures and are less nepotistic in punishment than DELs. Because we consider leader types as defined by real-life institutions that have been interacting for 20 years, we measure a compound effect of selection into office, incentives while in office, and historical context development. To further understand selection into office, we start the discussion on how local democratic institutions are implemented and the respected role of traditional authorities from the lenses of citizens and the self-image of traditional authorities. These context descriptions provide justification for why elections might not be as effective as they should in selecting public-spirited leaders and that at the same time chiefs operate in a system of accountability. By comparing social preferences and personality traits between chiefs and DELs, we substantiate this discussion showing that selection of public-spirited leaders is similar between the two offices. The discussion ends with a reflection on external validity and generalizability.



**Fig. 2. Share of nepotistic leaders.** (A) The frequency of lenient (leniency = 1, if punishment<sup>NR pair</sup> < punishment<sup>NN pair</sup>) behavior and (B) the frequency of vengeful (vengefulness = 1, if punishment<sup>NR pair</sup> > punishment<sup>NN pair</sup>) behavior for DELs and chiefs. The bars in blue represent the lenient and vengeful punishment behavior of chiefs; the bars in red denote the behavior of DELs. The dotted grey lines indicate 95% CIs.

### Bricolage in the implementation of democratic procedures

Institutional bricolage refers to the processes in which people draw on existing practices, rules, norms, or relationships when redefining imposed ideas into hybrids of “modern” and “traditional” elements (18). This can be exemplified for the case of elections and office term duration: Fair and open elections allow citizens to vote for their preferred candidate, and knowing that elections are fair attracts public-spirited people from the pool of candidates to participate. However, selecting more public-spirited leaders might not be easy if voting is public rather than anonymous, with the accompanying social pressures. Moreover, norm enforcement related to the democratic procedures may be more problematic in small communities, given interdependencies with other villagers in multiplex networks (45). In our sample, elections were held completely anonymously in only 13% of all villages, and the degree of electoral competition varied between villages. About five candidates, on average, ran for the DEL positions during the last election, but 9 of the 32 DELs reported that they faced no electoral competition at all. Perhaps owing to this, we find that DELs have held their offices for more than 8 years on average (with a maximum of 15 years). Long occupation of offices might also be related to the fact that only 14 of 32 DELs stated that they have a limited time in office before the next election, which they reported to range between 2 and 5 years. All others reported that their office had no specified duration until the next election. Formally, their position should have a limited duration before the next election, where the local Water Point Association has some freedom to decide upon how long that duration is. Thus, democratic rules are not generally considered binding and gradually resemble the traditional practices. This might or might not be detrimental to the leadership selection, depending on whether villagers have other options to voice their disapproval; such expression might well be feasible, given the multiplex networks within their communities. In

any case, this entails that local democratic institutions are implemented as hybrids and are at odds to the theoretical best practice models of democracy. This divergence from best practice is further highlighted by the fact that DELs are related with the chief in 15 of 32 villages in our sample, which could be seen as a form of elite capture that reinforces existing power relations and inequalities (46). Quite a large proportion of villages thus do not seem to have democratic institutions that provide a clear alternative governance model against the traditional chiefs. If the two leaders are related with each other, it is unlikely that there will be open disagreement and opposition as may be desired from a polycentric view.

Weak implementation of democratic procedures could then potentially be a major reason behind the lack of overperformance of DELs as compared to chiefs in the procedural fairness and nepotism tasks. A related consideration supporting a weaker functioning of democratic institutions than the idealized standard of democratic ruling derives from selectorate theory (12). It posits that democratic leaders can have incentives to favor a subset of constituents to guarantee a winning coalition in electoral processes. In our study region, chiefs enjoy widespread support from all villagers and have no need to appease selected constituents to stay in office. Support for DELs, in contrast, is less pronounced on average, and friends and family might represent an important part of a winning coalition. Therefore, DELs might benefit more from forming coalitions of supporters who can be gratified through nepotistic acts, which is consistent with the results from the nepotism task.

### Local traditional leaders are legitimate, accountable, and popular

An alternative reason behind DELs not displaying superior behavior than chiefs could be related to a better functioning of the traditional

offices than the suspected autocratic leadership style. Traditional leaders have a continued relevance and legitimacy in the social and political life in Namibia, as well as in other African countries. Weber (47) discusses that legitimacy can be gained from a combination of tradition, charisma, and cultural relevance, all of which are important sources of legitimacy in our study sites. Chiefs may act in the interest and may feel accountable to those whom they represent by virtue of representing a centuries-old, cultural institution. Accountability of chiefs is further fostered through a hierarchical system consisting of councilors and a king or queen overseeing their behavior. Also, since the introduction of democratic structures on the national and subnational level in the early 1990s, chiefs are challenged and potentially disciplined by democratization. In a context of legal pluralism, chiefs could anticipate that they stand a lot to lose if they fail to prove their legitimacy through performance. Thus, from a polycentric perspective, the existence of DELs could make chiefs behave more in the public interest, so as to preserve their power. Chiefs are also risking their reputation and future social ties within the village whenever they abuse their power. These informal incentives and power constraints are in play for both chiefs and DELs. Also, the media is likely to report on extreme forms of power abuse.

Furthermore, the long planning horizon for chiefs may raise incentives to invest in community development, as they benefit materially and nonmaterially (prestige) from a flourishing community (6). Virtually all chiefs in our sample report “keeping peace and foster social cohesion” as one of their main responsibilities. Their motivation might not be completely unselfish, as our survey shows that chiefs collect fees from allocating grazing lands or for the opening of small businesses like bars and grocery shops. Consequently, higher well-being of villagers and peace in the community result in higher benefits for chiefs.

Logan (21) provides evidence from a cross-country survey on why support for traditional authorities still thrives in many of the 19 studied SSA countries. Her results show that traditional leaders play an important and desirable role for conflict management and enjoy widespread legitimacy for being symbols of community identity. Chiefs could damage their high reputation when implementing unfair procedures or when being nepotistic and may therefore have created habits and internalized norms condemning such behavior. Logan (21) also reports that support for traditional authorities is negatively correlated with age, and it does not arise from rejection or a perceived failure of democracy. The latter suggests that the popularity of chiefs does not rely on a field implementation of democracy failing short of its idealized notion.

### Selection of leaders: Social preferences and personality traits

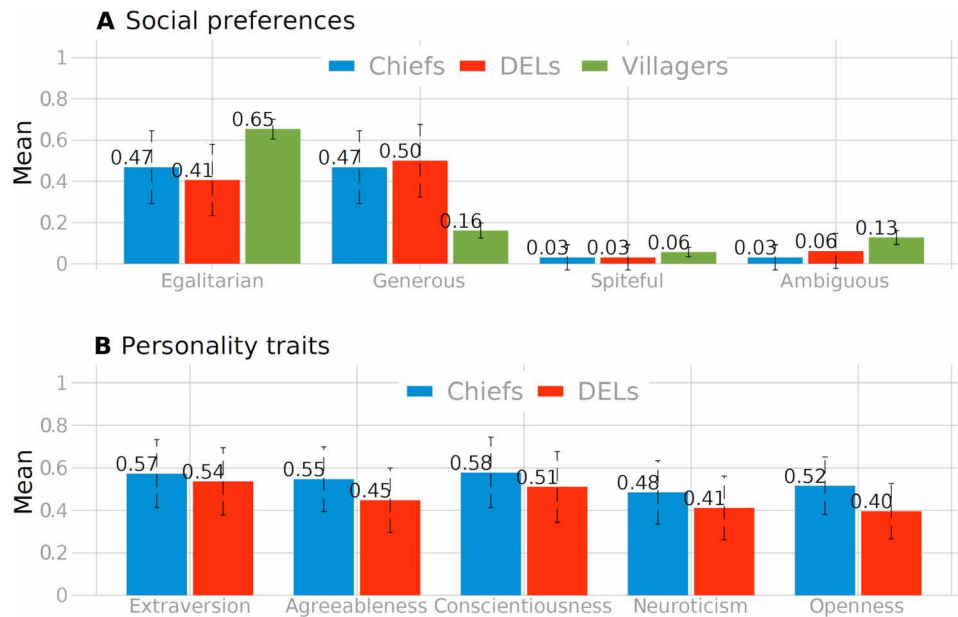
A key feature of democratic institutions is that they should enable villagers to select public-spirited leaders and filter out bad candidates. In a well-functioning democracy, the high degree of transparency in small communities is further expected to ease the selection of good leaders and facilitate the quick removal of undesirable leaders. To measure the public-spiritedness of leaders, we rely on social preferences (48) and personality traits (49), which are not highly context dependent and therefore stable over time. Following this assumption, a comparison of such preferences and traits between chiefs and DELs would indicate whether different “types of people” are selected for each leadership institution.

We measure social preferences using the incentivized task by Fehr *et al.* (50). On the basis of three decisions, we classify participants into egalitarian, generous, and spiteful types (see Materials and Methods). In addition, personality traits of leaders were measured using the established 10-item short form of the Big Five psychometric scale (51). The results indicate that there are no significant differences between leader types in terms of either their social preferences or their personality traits (see Fig. 3). The behavior of chiefs and DELs in the social preferences task is consistent mainly with egalitarian (41 and 47% for DELs and chiefs, respectively) and generous types (50 and 47%, respectively). This evidence supports the idea that there are no strong differences in the social preferences and personality traits of people who are elected into local democratic offices as compared to those appointed to offices of traditional authorities. This is not to say that we do not observe variability of behavior in our sample population, as these preferences significantly differ from villagers. Leaders are significantly more generous (48% combining leader types and 16% for villagers; Mann-Whitney *U* test,  $P < 0.01$ ) and less egalitarian (44 and 65%, respectively; Mann-Whitney *U* test,  $P < 0.01$ ) than villagers. These differences remain significant after controlling for wealth, age, gender, and education. Overall, we do not find evidence supporting a more prosocial selection of leaders by democratic institutions, which is one of the commonly alleged mechanisms by which democratic leadership would outperform traditional appointment of leaders. This could then be one of the reasons behind the lack of overperformance of DELs as compared to chiefs in the procedural fairness and nepotism tasks and consistent with the incentives arising from the de facto institutions.

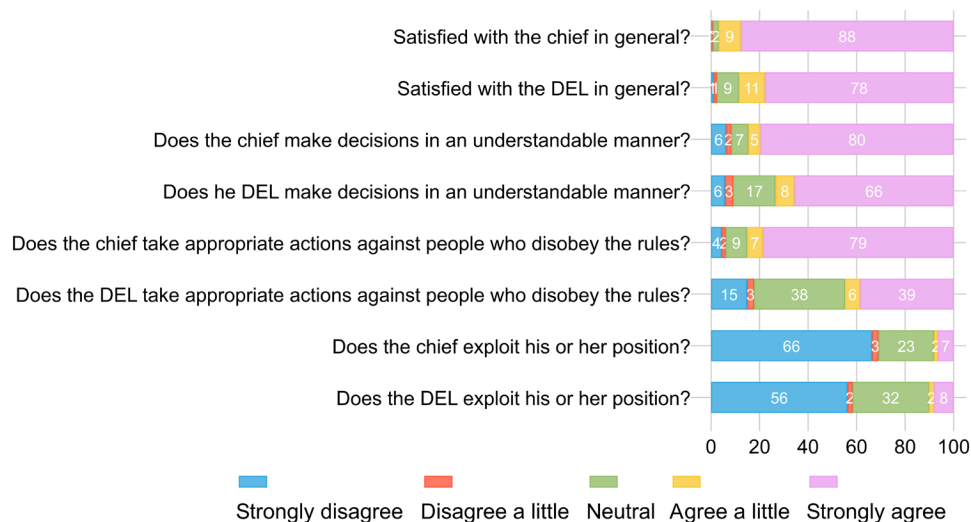
### External validity: How do villagers perceive leaders?

To complement our analyses, we report the villagers’ assessment of each of the two leaders within their community using survey measures (see Fig. 4). In line with the behavior of the leaders in the two main tasks, we find that the villagers hold very positive views of their chiefs and DELs overall, as well as in specific domains such as transparency of choices, rule enforcement, and misuse of power ( $n = 384$  for each survey item). Villagers believe that chiefs deal responsibly with their position of power. However, they are more satisfied with the performance of chiefs than DELs. Differences in the assessment of leaders are especially prominent in the domain of proper rule enforcement: Nearly 80% of villagers strongly agree that chiefs take appropriate actions against people who disobey rules, compared to only 40% for DELs. Over 70% of villagers are of the opinion that the chief allocates farming and grazing land fairly (only about 8% strongly disagree), finds fair solutions to conflicts, and treats all people equally in front of the traditional court. The majority of villagers disagree with the statements that the chief made promises he did not keep (84% disagree) or lost power (89% disagree) due to the creation of the water point committee. Lower approval rates for DELs’ rule enforcement are in line with the finding that they are more lenient toward their relatives than chiefs and punish less harshly overall consistent with potential constraints arising from multiplex networks.

In addition, we asked leaders on a Likert-type scale ranging from “strongly disagree” to “strongly agree” about their agreement to statements about leadership (see table S7 for exact wording and results). Surprisingly to us, there are no differences between chiefs and DELs in their responses. They report similar attitudes toward democratic elections, accountability toward villagers, corruption or the gender,



**Fig. 3. Social preferences and personality traits of leaders and villagers.** (A) Differences in social preferences between DELs, chiefs, and villagers. Subjects are classified according to their distributional choices across three decisions. Participants are categorized as prosocial if they select a distribution of (5,5) versus (5,0), as sharing if they choose (5,5) versus (10,0), and as spiteful if they choose (5,5) versus (5,10). Participants are considered egalitarian if they at least choose (5,5) in the prosocial and spiteful trade-off. Generous participants at least maximize their partner's payoff in the prosocial and spite decisions, when their payoff is not at stake. If subjects minimize their partner's payoff in all decisions, they are categorized as spiteful. (B) Differences in standardized personality traits between the two leader types (data on villagers are not available).



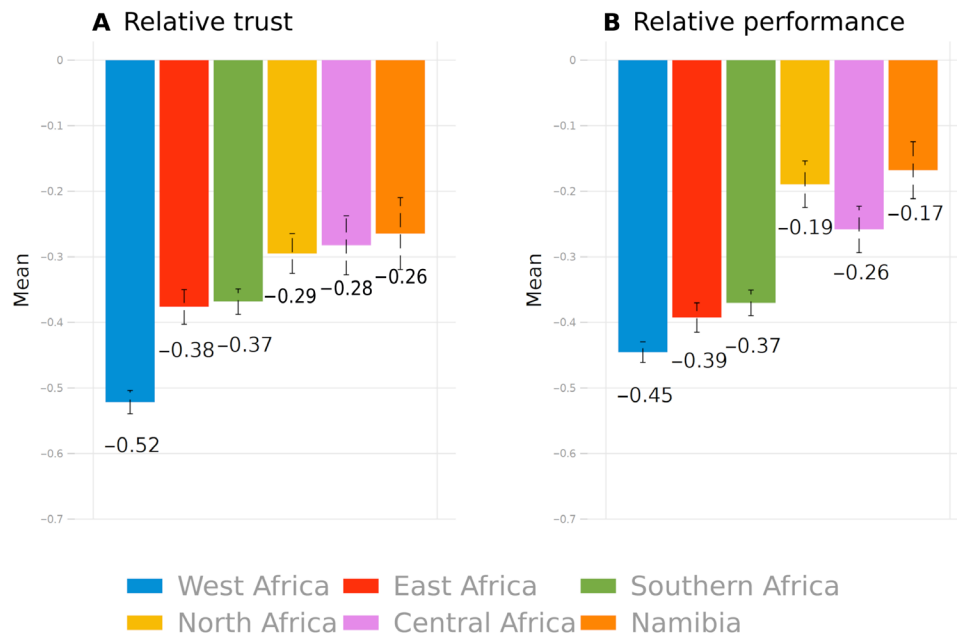
**Fig. 4. Villagers' perception of leader performance.** Villagers ( $n = 384$ ) evaluated the performance of both DELs and chiefs in the survey.

education, and age effect on leadership capacity. These are self-reported attitudes and are therefore susceptible to desirability bias.

When looking into the relative assessment of traditional authorities and democratic offices in other pluralistic societies in SSA, we observe that the results are not confined to our study site. Because all regions in Namibia (and most in SSA) are pluralist and chiefs coexist with democratic leaders, we can use some items from round 6, the latest Afrobarometer, conducted in 2011 with a representative sample of 1200 Namibians to compare the average of the study region Ohangwena ( $n = 120$ ) to the rest of Namibia ( $n = 1080$ ). In

the Afrobarometer, participants were asked about their approval of their traditional leaders' and local councilor's performance (democratically elected) in the past 12 months and trust on a four-point Likert scale (and an additional "do not know" category). Figure 5 shows that our study region is not significantly different from the rest of Namibia in terms of relative trust in their local councilors and chiefs (Mann-Whitney  $U$  test; difference = 0.02;  $z = 0.23$ ;  $P = 0.79$ ) nor in terms of relative performance (Mann-Whitney  $U$  test; difference = -0.09;  $z = -0.87$ ;  $P = 0.38$ ). The analysis further reveals that, on average, respondents in the Afrobarometer trust their chiefs





**Fig. 5. Relative trust and performance of chiefs compared to elected local councilors.** Own illustration using the data from round 6 of the Afrobarometer. The bars represent the mean difference of (A) trust ( $n = 45,502$ ) and (B) performance ( $n = 34,852$ ) of elected councilors compared to traditional leaders. Negative values imply that people have more trust or are more satisfied with the performance of the traditional authority than with the elected councilor. Afrobarometer, Merged Round 6 Data (36 countries) (2016) (available at <http://www.afrobarometer.org>).

slightly more and are more satisfied with them compared to the local councilor. The slightly higher satisfaction with the performance of chiefs in the Afrobarometer (mean difference =  $-0.17$ ;  $SD = 0.73$ ) is comparable to the slightly higher general satisfaction with chiefs in our sample (mean difference =  $-0.2$ ;  $SD = 0.84$ ).

Doing the same exercise with the Afrobarometer data to compare Namibia ( $n = 1200$ ) to all other regions in Africa ( $n = 52,735$ : West, East, Southern, North, and Central Africa) reveals that the higher trust in traditional authorities than democratic offices in Namibia is significantly weaker than the overall average in Africa (Mann-Whitney  $U$  test; difference =  $-0.15$ ;  $z = -4.87$ ;  $P = 0.00$ ). The values for Namibia are at the lower range as compared to all regions (where data on both traditional leaders and local councilors are available, i.e., pluralistic countries). The level of relative trust in Namibia is comparable to North Africa (Mann-Whitney  $U$  test; difference =  $-0.03$ ;  $z = -1.31$ ;  $P = 0.19$ ) and Central Africa (Mann-Whitney  $U$  test; difference =  $-0.02$ ;  $z = -0.78$ ;  $P = 0.43$ ) and significantly lower compared to the other regions in Africa (Mann-Whitney  $U$  test; difference =  $-0.26$ ;  $z = -7.93$ ;  $P = 0.00$  for West Africa; difference =  $-0.11$ ;  $z = -4.09$ ;  $P = 0.00$  for East Africa; and difference =  $-0.10$ ;  $z = -3.12$ ;  $P = 0.00$  for Southern Africa). The results on the relative satisfaction with the performance of leaders point in the same direction as the results on trust; namely, respondents are, on average, more satisfied with their traditional leaders than local councilors. Again, the difference in relative performance is smaller in Namibia compared to the African average (Mann-Whitney  $U$  test; difference =  $-0.22$ ;  $z = -7.54$ ;  $P = 0.00$ ) but comparable in size again to North and Central Africa. In the other regions (West Africa, East Africa, and Southern Africa), people are even more satisfied with their traditional leaders compared to local elected leaders (Mann-Whitney  $U$  test; difference =  $-0.28$ ;  $z = -9.48$ ;  $P = 0.00$

for West Africa; difference =  $-0.23$ ;  $z = -7.38$ ;  $P = 0.00$  for East Africa; and difference =  $-0.20$ ;  $z = -6.25$ ;  $P = 0.00$  for Southern Africa). This would point to our results supporting chiefs doing similarly well in governance tasks as compared to subjects holding a democratic office, being a lower-bound estimate, so that in other locations, traditional authorities could be operating even more pro-socially than our findings suggest. These results are in line with those of Logan (21) who uses data from an earlier Afrobarometer (round 4, 2008) to compare 19 SSA countries. Her results highlight that the public in SSA agrees that traditional authorities have widespread influence, legitimacy, and popularity. Namibia is right around the average of the 19 reported countries regarding these measures.

#### Limitations: Stake size, local level, pluralist societies, and rare events

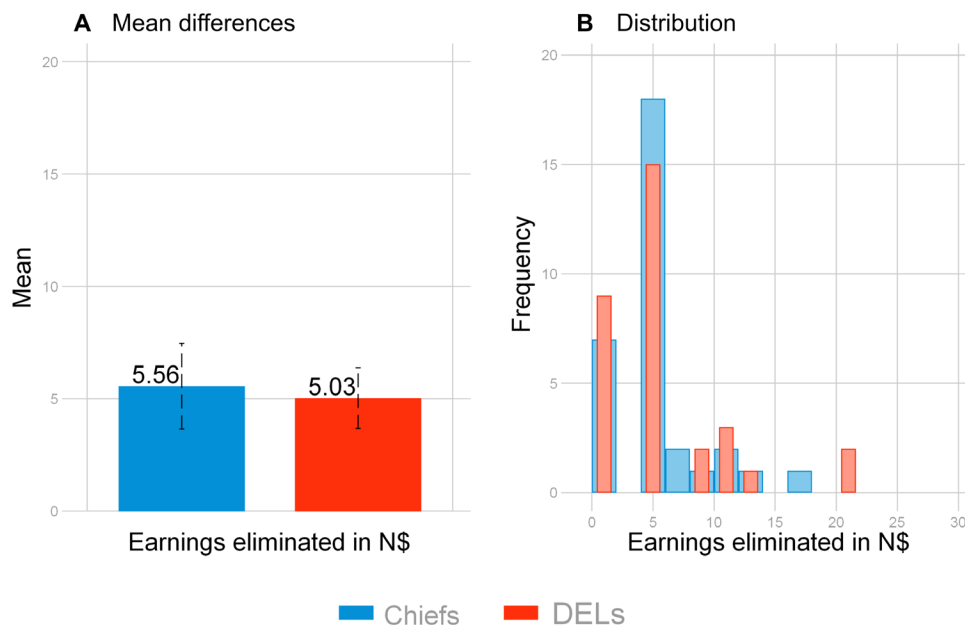
Our study presents average results from incentivized tasks where monetary stakes are much lower than the temptations often associated to abuse of office. First, our study addresses the hypothetical bias by offering leaders substantial monetary incentives. Earnings for leaders from the workshop could be as high as \$52 [purchasing power parity (PPP) adjusted], which is about 4 times the average daily income in the study site and even 10 times the self-reported daily income of leaders. Nevertheless, these earnings are not as high as they might be in real life. This is a general limitation of experimental methods, and despite the fact that stake sizes have been studied in different domains showing consistency in behavior (52), one cannot ascertain a priori how this effect transfers to a new study setting. Second, our study aims to assess local-level governance, and results should not be extrapolated to higher levels of governance, such as national leaders. Local leaders are distinct as they have a different motivation for serving, less to earn, and face stronger social

multifaceted networks of trust and accountability as compared to leaders at higher levels of governance. Third, we intentionally focus on a setting of legal pluralism; consequently, all of the findings in this study are limited to and applicable only to pluralist societies. We cannot inform on the performance of democratic offices when operating in isolation, nor can we of traditional authorities as the single unit of power. Fourth, average effects presented in this study abstract from rare events extremely antisocial leaders may perform. We can provide some empirical evidence by reporting on the antisocial behavior displayed by single leaders in our sample. Previous research has experimentally documented the relationship between the antisocial behavior of leaders and the real-life conditions in which their constituents live—particularly poor forest management outcomes (37). In the procedural fairness, nepotism, and social preference tasks, leaders had the chance to destroy the earnings of villagers without gaining any monetary benefits themselves. We generate a combined index of antisocial behavior based on the sum of villagers' earnings that a leader destroys, with a maximum value of 30 N\$ (see Materials and Methods). Average amounts eliminated in antisocial decisions are small for both leader types and are not significantly different (Mann-Whitney  $U$  test,  $P > 0.1$ ; see Fig. 6A). However, the range of villagers' earnings destroyed by DELs is weakly larger than that of chiefs (variance ratio test,  $P = 0.06$ ; see Fig. 6B). Although there are slightly more DELs than traditional chiefs in our sample who did not destroy any earnings, the two most antisocial leaders are democratically elected, destroying 20 and 22 N\$, respectively. This suggests that, in our study site, democratic selection does not prevent the selection of antisocial leaders, in contrast to the results of theoretical models (11, 53). However, these results on antisocial behavior must be interpreted with caution, as they may not extrapolate to the high stakes, little accountability and weak disciplining institutions for real-life governance at high levels. This is beyond the scope of the empirical evidence that this study

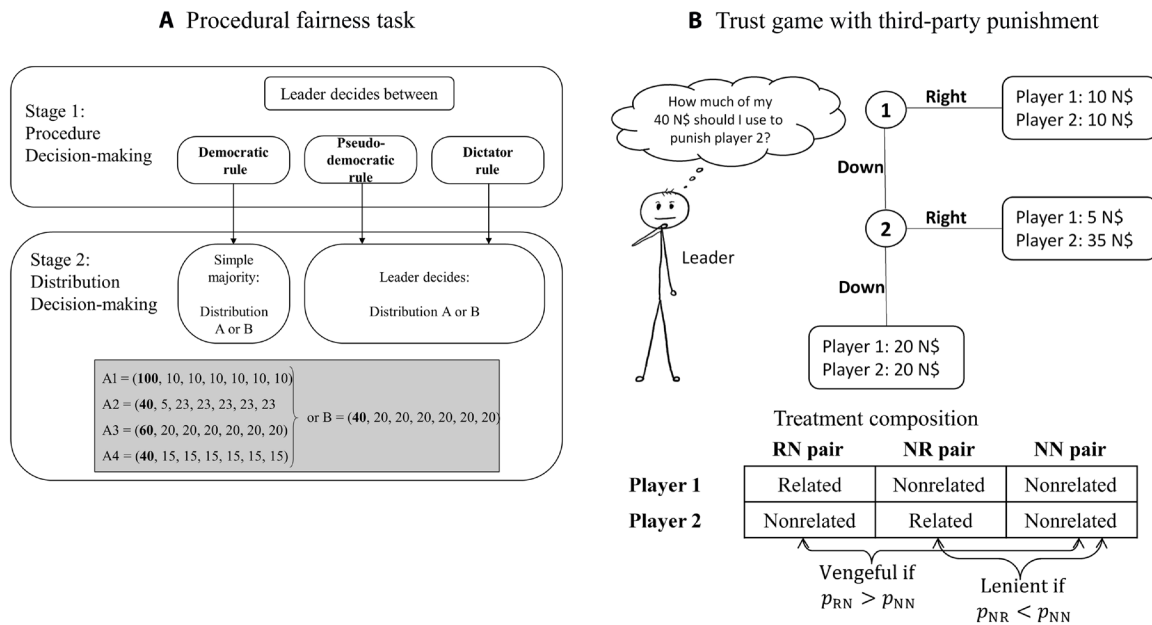
can offer. Nevertheless, we want to make this point explicit so that the reader does not trivialize the risks associated with accepting nondemocratic forms of governance or implementing democracy in so-called fragile states (54).

## CONCLUSION

Our results and discussions highlight that traditional authorities in our sample from rural Namibia are not acting as “decentralized despots,” as they prefer inclusive, fair decision-making and are conferred a high degree of legitimacy in civil society. In a context of legal pluralism, local leaders exhibit high levels of procedural fairness and low levels of nepotistic behavior in two incentivized behavioral tasks. These findings apply equally to democratically elected and traditional authorities and are in line with villagers' perceptions of their leaders. Thus, access to power does not equal exploitation of power. Similarly, traditional authorities need not be autocratic leaders. They are part of multiplex networks, particularly in pluralist societies, and are deeply embedded in the social and economic lives of their communities. Villagers can voice their opinions and displeasure in village meetings that are regularly held to make important decisions, thereby constraining the actions and power of traditional leaders. Their performance may vary, but the analogy to autocratic leaders or autocratic leadership styles is at least misleading, if not false. Most of the traditional leaders in our study do not exhibit a preference for an autocratic leadership style. They are not more likely to decide unilaterally, privilege their relatives, or make antisocial decisions that would harm their villagers than DELs are. They even do weakly better in those domains, which is in line with villagers' perceptions of their leadership quality and general satisfaction. Thus, building on the local knowledge and legitimacy of traditional authorities in polycentric systems, instead of ignoring them due to a fear of empowering “despots,” could be a way forward to create



**Fig. 6. Monetary consequences of leader's antisocial behavior.** (A) Average amount reduced through antisocial decisions (as defined in the text) in all three tasks by leaders. (B) Distribution of destroyed earnings.



**Fig. 7. Decision settings for the procedural fairness and the nepotism task.** (A) Procedural fairness task. The numbers in the gray box refer to monetary amounts in Namibian dollars. The first amount in each distribution goes to the leader; the following six go to the villagers. Under a democratic and pseudo-democratic rule, villagers are informed that the leader “allows a vote.” Under pseudo-democratic rule, villagers are permitted to vote, but it is the leader who decides alone in the end. Under dictator rule, villagers are informed that the leader has decided unilaterally. (B) Nepotism task. Leaders receive 40 N\$ for each of the three pairs of villagers, which they can spend on punishing player 2. Every dollar spent on punishment ( $p$ ) by leaders reduces the second player’s income by three times as much, but not below zero. The income of the first player remains unaltered. The treatment composition shows the relationships between villagers 1 and 2 and the leader. Leaders make two punishment decisions for villager 2 in all three compositions of pairs (RN, NR, and NN). For each pair, we have 64 punishment observations in which villager 2 plays “down,” as well as 64 observations in which villager 2 plays “right.”

more sustainable, long-lasting benefits for communities through decentralization efforts in SSA.

In short, we illustrate how the local implementation of democratic structures in our study site falls short of the ideal standards of functioning of democratic offices. At the same time, the office of traditional leadership is perceived as legitimate, accountable, and popular among its constituent villagers. Thus, both institutions are de facto not resembling the theoretical depicted ones. Several additional theories help us to put forward these arguments such as the multiplexity of networks, the theory of selectorate, and the embeddedness and legitimacy of traditional authorities. Also, we report evidence on leader selection by comparing preferences and traits of leaders. Because we do not find differences in the social types of leaders in each of the offices while both are different to the constituent villagers, selection process seems not to be operating differently for the two offices, and the two offices seem to be working to select more public-spirited leaders than the average constituent. We cannot prove whether this is the result from elections underperforming in selecting public-spirited people or traditional authorities selecting better than one could imagine, but our discussion suggests that the combination of the two factors might be at work.

The high popularity and legitimacy of traditional authorities combined with the weak implementation (or institutional bricolage) of democratic institutions is not a peculiarity of our study region; rather, it is part of a larger phenomenon wherever legal pluralism exists. Blueprint democratic decentralization is often implemented without local ownership, neglecting local needs and circumstances. Central authorities often withhold discretionary powers and funds,

as they fear losing power; this has limited the success and effective functioning of local democratization across many parts of SSA (55). Therefore, our findings can be understood as a call for future work on the topic of de facto institutions and their endogenous formation within a given context. More research is needed to analyze the outcomes and performance of institutional bricolage (20). Our findings suggest two main avenues for theory development and testing in future research.

First, we believe that the social networks of leaders are pivotal. If networks are institutionally multiplex—that is, leaders interact with the same person in different domains—leaders may find it difficult to punish rule violators in one of these domains (45). This idea, first formulated by the sociologist N. Long (56), considers that actors’ decisions made in one institution may generate positive or negative externalities for other institutions, by influencing either payoffs or strategies. This effect may be especially strong for short-term elected leaders who might fear retaliation after their term in office. The milder punishment levels imposed by DELs in comparison to chiefs and their greater leniency in punishment would be consistent with this theory.

Second, a “theory of local chiefs” could convey the conflict resolution skills and sense of moral duty handed down within families for generations of local leaders. On the basis of this moral duty, chiefs may act in the general public interest and feel accountable to their communities as representatives of a centuries-old cultural institution. This perspective presents a richer view of local leadership that contrasts with the stereotype of selfish kleptocrats often described at higher levels of governance. At the local level, reputational

losses for traditional leaders would threaten the leaders' families as well as the institution of traditional authority itself. Weber (47) emphasizes that a leader's legitimacy can be gained from a combination of tradition, charisma, and cultural relevance, all of which are at stake when leaders misbehave. Thus, traditional leaders may have both high intrinsic costs for lying (57) due to their socialization and high extrinsic costs for lying due to the fear of losing their good reputation. The results of the procedural fairness decisions suggest that the higher reputational concerns of chiefs are consistent with this view. Having discussed the external validity and limitations of our experiment, we want to further stress one element of caution in interpreting our results. Our results should not be taken as opposing democratization. We do not observe superior performance from DELs in comparison to chiefs, but we find some positive gender effects regarding women's access to power. Similarly, from a polycentric perspective, the existence of DELs could make chiefs behave more in the public interest, so as to preserve their legitimacy. Because our results are consequentialist in nature, democracy can still be the preferable option from a nonconsequentialist point of view (58). The nonconsequentialist desirability of democratization (that is, the desirability of democratization *per se*) is a moral debate for individuals and societies to address.

## MATERIALS AND METHODS

### Experimental design

Incentivized experiments are controlled interactions among individuals based on game-theoretic predictions. The use of pecuniary or other material incentives and anonymity make experiments less prone to hypothetical bias or social desirability biases than surveys. The main virtue of the method is the control in the decision context. Only recently, laboratory experiments have begun to be carried out with real, local-level political leaders (7, 8, 37).

We conducted 32 experimental sessions in autonomous villages within our study region (see fig. S1). All sessions consisted of 12 villagers and the two leaders of each village. They were separated into groups of seven, six villagers plus one leader. All tasks were conducted in three distinct locations: one for the villagers and one for each leader. Thus, there was no interaction between either of the leaders and the villagers during the session.

The recruitment of participants was an important aspect of the experimental design. To identify relatives of the leaders, we administered a short pregame questionnaire with both leaders 1 week before the actual experimental sessions. The pregame questionnaire gathered sociodemographic characteristics and information on leadership functions and, most importantly, included a module on social involvement, which, among others, contained items where respondents had to name up to five close friends and relatives residing within this village. A local informant showed us the houses of relatives and friends named by both leaders (without mentioning the purpose of this exercise). Our field assistants then recruited three relatives of each leader (one as a possible replacement) and 10 additional villagers (including two possible replacements) that neither leader had mentioned as a close friend or relative. The random recruitment of the additional villagers occurred on a door-to-door basis: Skipping every two consecutive houses on a given street, our local assistant approached the third house and invited the household to send one of its members to the upcoming experiment. We did not allow two subjects from the same household to participate.

Participants, including the leaders, did not know the specific purpose of the study and were invited to take part in a "workshop on decision-making."

Each session consisted of a procedural fairness task, a nepotism task, a social preference task, and an ex-post survey. We avoided value-laden words, such as defection and dictator or trust and punishment, and used neutral language throughout the sessions. At the end of the session, to make the decisions fully anonymous and the leaders' choices untraceable, we paid out the total sum of all experimental earnings including a show-up fee of 30 N\$. Across all incentivized tasks and including the show-up fee, villagers earned about  $90 \pm 12$  N\$ (\$16 PPP adjusted in 2014), and leaders earned about  $165 \pm 42$  N\$ (\$29 PPP adjusted) on average. This is a substantial amount of money for our participants, as the average self-reported monthly income in our sample is about 280 N\$ for villagers and 890 N\$ for leaders. In our study, attrition was very low; only one chief refused to let us conduct research in his community, and we had to select the first village from our randomly drawn backup list.

### Procedural fairness task

The objective of the task is to study the importance that leaders attach to the inclusiveness of decision processes within their village. Figure 7A presents the decision setting. In stage 1, leaders have to choose between three rules of decision-making, namely, a democratic rule, a dictator rule, and a pseudo-democratic rule, as described in the "Procedural fairness task" section under Results. In stage 2, one of two money distributions, A or B, will be determined for group payoff under the decision-making rule that leaders chose in stage 1. Stage 1 and stage 2 were repeated in four different situations varying the monetary implications of distribution A. In all cases, allocation B is a payoff of 40 N\$ for the leader and 20 N\$ for each villager. A1 entails a higher amount of 100 N\$ for the leader and a lower amount of 10 N\$ for villagers, thus allowing the leader to selfishly appropriate payoffs from the villagers. In both B and A1, the total group payment is 160 N\$ to rule out efficiency concerns. Permitting a vote might result in most of the villagers choosing the distribution in which they would earn 20 N\$. Thus, the trade-off is whether the leader prefers to follow a democratic procedure even if it comes at a personal expense in the form of a lower payoff. It might be reasonable to assume that leaders who came to power via an election (DELs) would be more likely to accept the relevance of procedural fairness and have a stronger inclination to adhere to it. In addition, the second pair of distributions captured the tension between equity considerations among villagers (A2). For the leader, both A2 and B would result in 40 N\$, and total group payoffs would remain constant at 160 N\$. The difference is that in A2, five of the six villagers would obtain 23 N\$, and the remaining one would obtain 5 N\$, whereas in B, all villagers would obtain 20 N\$. Thus, egalitarian preferences would favor B as opposed to A2. Last, two additional pairs of distributions included different forms of spite, also harmful to social welfare (A3 and A4). In B, the leader receives a lower amount (40 N\$) than in A3 (60 N\$) (spite harming the leader), and the villagers receive the same 20 N\$; in A4 (spite harming the villagers), the leader gets the same amount (40 N\$) as in B, and the villagers get a smaller amount (15 N\$). Envy from the leaders' perspective plays no role in evaluating allocations A and B, as the leader is better off than the villagers in all scenarios. Decision A1 was always played first, being the key trade-off of interest (selfish appropriation from villagers); the order for all other decisions was randomized to control for potential sequencing effects.



### Nepotism task

The objective of this task is to study leaders' inclination toward preferential treatment of relatives. In this task, we use a standard trust game between pairs of villagers with a punishment option for the leader similar to (37). Figure 7B presents the decision setting. In comparison to previous applications of the trust game with third-party punishment (42), the experimental design includes two novel components. First, the third party is either the chief or DEL in the village, allowing a comparison of different offices. Second, both the two villagers playing the trust game and the leader are aware of the names of other players (and thus relationship to the leader). We used the strategy method (59), whereby leaders made their conditional choice on punishment for each possible strategy of the second villager in the trust game (being or not trustworthy) without learning the actual decision of the two players. We used a within-subject design for leaders, such that each leader made two independent punishment decisions (for being and not being trustworthy) for each of the three pairs of participants (NN, NR, and RN). We randomized the sequence in which leaders made decisions on these pairs to control for potential order effects.

### Social preference task

We measure the participants' social preferences by looking at their decisions in three binary distributive choices. The three dictator choices entail alternative allocations between own and other payoffs. In the prosocial game, the participants decide between the alternatives (5 own, 5 other) and (5,0). Thus, the participants can decrease others' payoff without cost to himself, entailing a welfare loss. In the sharing game, the alternative payoffs are (5,5) and (5,10). This entails that the participant can increase others' payoff without a cost to himself, inducing a welfare gain. Last, in the envy game, the alternatives are (5,5) and (10,0). Here, the participant can increase own payoff at a cost to the others' payoff. These choices allow a complete classification into behavioral types following Fehr *et al.* (50). All participants made their decisions as senders. To calculate payoffs, we implemented within-session matching, whereby half of the participants were randomly selected to be senders and the other half, receivers.

### Ex-post survey

The survey included personal sociodemographic characteristics and opinions about local leadership. Leaders responded to questions on their perceptions about local governance and the operational rules of their office. Villagers were asked their opinions on local authorities and information on their relationships to the other participants (see appendix S2).

### Antisocial measure of leaders' decisions

We constructed a combined index of the leader's antisocial behavior across all three incentivized tasks. In the procedural fairness task, we define antisocial behavior as a preference in decision 4 for distribution A4 (leader earns 40 N\$, and each villager earns 15 N\$) over B (leader earns 40 N\$, and each villager earns 20 N\$), which would be a reduction of 5 N\$ in earnings for each villager without a benefit to the leader. In the nepotism task, similar to (37), we define antisocial preferences as the costly punishment of a trustworthy villager in the neutral pair, with potential payoff consequences of up to 20 N\$. In decision 2 of the social preference task, antisocial behavior is defined by preferring leader 5 N\$ and villager 0 N\$ over an equal split of 5 N\$ each.

### Statistical analysis

To address the relevance of different observable characteristics into the results, we present in the Supplementary Materials (section S3)

further analyses based on linear probability models, multivariate probit models, and random-effects models, including additional control variables to the type of office a leader holds. Linear probability models allow for the interpretation of coefficients as marginal effects and are thus our models of choice. To correct for potential heteroscedasticity, we use robust SEs. Control explanatory variables include sociodemographics (age, education, and a wealth proxy), behavioral types (derived from the social preference task), the Big Five personality traits (51), and, for the DEL subsample, political variables (electoral competition and term of office dummies). The (insignificant) results for procedural fairness do not change when controlling for observable characteristics, the strength of the degree of relationship of related players and order effects, as well as behavioral types and personality traits. The significant differences between leader types on lenient punishment (nepotism task) are robust to controlling for the same set of control variables.

### BFs and equivalence tests

As a robustness check for our results, we report equivalence tests and BFs for all four decisions of the procedural fairness task (fig. S2) and the two nepotism measures, lenient and vengeful punishment (fig. S4). We specify our prior belief on the reasoning of an expected mean difference of  $d = 0.2$  in favor of DEL with  $\alpha = 0.1$ . On the basis of a specified prior belief about how data are expected to look like, BFs provide a continuous measure or relative support for  $H_0$  over  $H_1$  or vice versa. The interpretation is straightforward

$$\text{BF} \in \begin{cases} (0, 1) \Rightarrow \text{data } \frac{1}{\text{BF}} \text{ times more likely under } H_0 \\ 1 \Rightarrow \text{data equally likely under both } H_0 \text{ and } H_1 \\ (1, \infty) \Rightarrow \text{data BF times more likely under } H_1 \end{cases}$$

BFs below  $1/3$  or above 3 indicate substantial evidence for  $H_0$  or  $H_1$ , respectively. Equivalence tests allow for similar inference after specifying a smallest effect size of interest, which the data are tested against two one-sided tests (TOSTs) around the null effect. Together with a conventional point-null hypothesis significance test (NHST), this analysis allows one to narrow conclusions drawn from the observed data to four cases: The tests can be statistically equivalent or not and statistically different from zero or not. Thus, the procedure allows strengthening null effects (NHST insignificant and TOST significant), null rejections (NHST significant and TOST insignificant), and insignificance of data (NHST significant and TOST significant). The last case (NHST and TOST insignificant) yields inconclusiveness, because the data are neither statistically different from zero nor equivalent. For further elaboration on BFs and equivalence tests, look at (60).

### Power analysis

We calculated the power for finding a meaningful effect given our sample size of 64 leaders. Compared to other studies with real leaders, we are on the upper end of observations. For example, Kosfeld and Rustagi (37) sampled 51 local DELs in Ethiopia and Beekman *et al.* (8) sampled 44 chiefs in Liberia. We calculate a range of minimal detectable effect (MDE) sizes for a one-sided hypothesis that DELs are more likely to opt for the democratic rule than chiefs. Power is fixed at 80% and  $\alpha = 0.05$  (0.1), and we assume to have no prior knowledge on the share of democratic rule choices among chiefs (i.e., 50%—resulting in the most conservative estimates on confidence of estimations). Given these assumptions, we would have been able to identify MDE sizes around 30 percentage points (25 percentage points

for  $\alpha = 0.1$ )—a medium-sized effect that one could expect given the strong theoretical and empirical evidence in favor of democratic leaders.

Given the unexpected outcomes, the analysis of chiefs potentially outperforming DELs is exploratory, and interpretation needs to be cautious. We do not believe the results from the two incentivized tasks, and additional survey evidence from villagers jointly points to a robust finding that chiefs outperform DELs. A future study could investigate whether chiefs really outperform introduced democratic grassroots institutions. To achieve an MDE of 0.2 (that is, chiefs are 20 percentage points more likely to implement a democratic rule), the researcher would need to collect data from at least 160 leaders (80 chiefs and 80 DELs).

## SUPPLEMENTARY MATERIALS

Supplementary material for this article is available at <http://advances.sciencemag.org/cgi/content/full/6/15/eaay7651/DC1>

## REFERENCES AND NOTES

- B. F. Jones, B. A. Olken, Do leaders matter? National leadership and growth since World War II. *Q. J. Econ.* **120**, 835–864 (2005).
- M. Mamdani, *Citizen and Subject* (Princeton Univ. Press, 1996).
- D. Acemoglu, T. Reed, J. A. Robinson, Chiefs: Economic development and elite control of civil society in Sierra Leone. *J. Polit. Econ.* **122**, 319–368 (2014).
- P. Bardhan, D. Mookherjee, Capture and governance at local and national levels. *Am. Econ. Rev.* **90**, 135–139 (2000).
- J.-P. Platteau, F. Gaspart, The risk of resource misappropriation in community-driven development. *World Dev.* **31**, 1687–1703 (2003).
- K. Baldwin, *The Paradox of Traditional Chiefs in Democratic Africa* (Cambridge Univ. Press, 2015).
- M. Voors, T. Turley, E. Bulte, A. Kontoleon, J. A. List, Chief for a day: Elite capture and management performance in a field experiment in Sierra Leone. *Manag. Sci.* **64**, 5441–5959 (2017).
- G. Beekman, E. Bulte, E. Nillesen, Corruption, investments and contributions to public goods: Experimental evidence from rural Liberia. *J. Public Econ.* **115**, 37–47 (2014).
- R. J. Barro, The control of politicians: An economic model. *Public Choice*, **14**, 19–42 (1973).
- T. Besley, Political selection. *J. Econ. Perspect.* **19**, 43–60 (2005).
- J. D. Fearon, Cambridge studies in the theory of democracy, in *Democracy, Accountability, and Representation*, A. Przeworski, B. Manin, S. C. Stokes, Eds. (Cambridge Univ. Press, 1999), pp. 55–97.
- B. B. de Mesquita, A. Smith, *The Dictator's Handbook: Why Bad Behavior is Almost Always Good Politics* (Hachette UK, 2011).
- S. Wong, S. E. Guggenheim, "Community-driven development: myths and realities" (WPS8435, The World Bank, 2018), pp. 1–36.
- A. Beath, F. Christia, R. Enikolopov, Direct democracy and resource allocation: Experimental evidence from Afghanistan. *J. Dev. Econ.* **124**, 199–213 (2017).
- B. A. Olken, Direct democracy and local public goods: Evidence from a field experiment in Indonesia. *Am. Polit. Sci. Rev.* **104**, 243–267 (2010).
- A. Avdeenko, M. J. Gilligan, International interventions to build social capital: Evidence from a field experiment in Sudan. *Am. Polit. Sci. Rev.* **109**, 427–449 (2015).
- K. Casey, R. Glennerster, E. Miguel, Reshaping institutions: Evidence on aid impacts using a preanalysis plan. *Q. J. Econ.* **127**, 1755–1812 (2012).
- F. Cleaver, *Development Through Bricolage: Rethinking Institutions for Natural Resource Management* (Routledge, 2017).
- K. P. Andersson, E. Ostrom, Analyzing decentralized resource regimes from a polycentric perspective. *Policy Sci.* **41**, 71–93 (2008).
- F. Cleaver, Reinventing institutions: Bricolage and the social embeddedness of natural resource management. *Eur. J. Dev. Res.* **14**, 11–30 (2002).
- C. Logan, The roots of resilience: Exploring popular support for African traditional authorities. *Afr. Aff.* **112**, 353–376 (2013).
- A. Greif, D. D. Laitin, A theory of endogenous institutional change. *Am. Polit. Sci. Rev.* **98**, 633–652 (2004).
- J. R. Hamman, R. A. Weber, J. Woon, An experimental investigation of electoral delegation and the provision of public goods. *Am. J. Polit. Sci.* **55**, 738–752 (2011).
- R. Luo, L. Zhang, J. Huang, S. Rozelle, Elections, fiscal reform and public goods provision in rural China. *J. Comp. Econ.* **35**, 583–611 (2007).
- G. Grossman, Do selection rules affect leader responsiveness? Evidence from rural Uganda. *Q. J. Polit. Sci.* **9**, 1–44 (2014).
- D. Baldassarri, G. Grossman, Centralized sanctioning and legitimate authority promote cooperation in humans. *Proc. Natl. Acad. Sci. U.S.A.* **108**, 11023–11027 (2011).
- K. Holzinger, F. G. Kern, D. Kromrey, The dualism of contemporary traditional governance and the state: Institutional setups and political consequences. *Polit. Res. Q.* **69**, 469–481 (2016).
- D. Behr, R. Haer, D. Kromrey, What is a chief without land? Impact of land reforms on power structures in Namibia. *Reg. Fed. Stud.* **69**, 455–472 (2015).
- J. Knight, I. Sened, *Explaining Social Institutions* (University of Michigan Press, 1995).
- J. Mendelsohn, *Atlas of Namibia: A Portrait of the Land and Its People* (Sunbird Publishers, 2009).
- I. Kant, J. B. Schneewind, *Groundwork for the Metaphysics of Morals* (Yale Univ. Press, 2002).
- A. Sen, *The Idea of Justice* (Harvard Univ. Press, 2009).
- R. Foels, J. E. Driskell, B. Mullen, E. Salas, The effects of democratic leadership on group member satisfaction: An intergroup. *Small Group Res.* **31**, 676–701 (2000).
- P. Dal Bó, A. Foster, L. Putterman, Institutions and behavior: Experimental evidence on the effects of democracy. *Am. Econ. Rev.* **100**, 2205–2229 (2010).
- P. Bardhan, Irrigation and cooperation: An empirical analysis of 48 irrigation communities in South India. *Econ. Dev. Cult. Change.* **48**, 847–865 (2000).
- B. S. Frey, F. Oberholzer-Gee, The cost of price incentives: An empirical analysis of motivation crowding-out. *Am. Econ. Rev.* **87**, 746–755 (1997).
- M. Kosfeld, D. Rustagi, Leader punishment and cooperation in groups: Experimental field evidence from commons management in Ethiopia. *Am. Econ. Rev.* **105**, 747–783 (2015).
- World Bank, *World Development Report 2017: Governance and the Law* (The World Bank, 2017); <https://elibrary.worldbank.org/doi/book/10.1596/978-1-4648-0950-7>.
- M. Golden, B. Min, Distributive politics around the world. *Annu. Rev. Polit. Sci.* **16**, 73–99 (2013).
- R. Hodler, P. A. Raschky, Regional favoritism. *Q. J. Econ.* **129**, 995–1033 (2014).
- L. Glowacki, C. von Rueden, Leadership solves collective action problems in small-scale societies. *Phil. Trans. R. Soc. B.* **370**, 20150010 (2015).
- B. Vollan, The difference between kinship and friendship: (Field-) experimental evidence on trust and punishment. *J. Socio-Econ.* **40**, 14–25 (2011).
- H. Bernhard, E. Fehr, U. Fischbacher, Group affiliation and altruistic norm enforcement. *Am. Econ. Rev.* **96**, 217–221 (2006).
- H. Bernhard, U. Fischbacher, E. Fehr, Parochial altruism in humans. *Nature* **442**, 912–915 (2006).
- M. Schnegg, Institutional multiplexity: Social networks and community-based natural resource management. *Sustain. Sci.* **13**, 1017–1030 (2018).
- M. Rusca, K. Schwartz, L. Hadzovic, R. Ahlers, Adapting generic models through bricolage: Elite capture of water users associations in peri-urban Lilongwe. *Eur. J. Dev. Res.* **27**, 777–792 (2015).
- M. Weber, The three types of legitimate rule. *Berkeley Publ. Soc. Inst.* **4**, 1–11 (1958).
- F. Carlsson, O. Johansson-Stenman, P. K. Nam, Social preferences are stable over long periods of time. *J. Public Econ.* **117**, 104–114 (2014).
- S. E. Hampson, L. R. Goldberg, A First large cohort study of personality trait stability over the 40 years between elementary school and midlife. *J. Pers. Soc. Psychol.* **91**, 763–779 (2006).
- E. Fehr, H. Bernhard, B. Rockenbach, Egalitarianism in young children. *Nature* **454**, 1079–1083 (2008).
- B. Rammstedt, O. P. John, Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *J. Res. Personal.* **41**, 203–212 (2007).
- A. Larney, A. Rotella, P. Barclay, Stake size effects in ultimatum game and dictator game offers: A meta-analysis. *Organ. Behav. Hum. Decis. Process.* **151**, 61–72 (2019).
- S. Ashworth, E. Bueno de Mesquita, Electoral selection, strategic challenger entry, and the incumbency advantage. *J. Theor. Polit.* **70**, 1006–1025 (2008).
- P. Collier, *Wars, Guns, and Votes: Democracy in Dangerous Places* (Harper Collins, 2009).
- J. C. Ribot, J. F. Lund, T. Treue, Democratic decentralization in sub-Saharan Africa: Its contribution to forest management, livelihoods, and enfranchisement. *Environ. Conserv.* **37**, 35–44 (2010).
- N. E. Long, The local community as an ecology of games. *Am. J. Sociol.* **64**, 251–261 (1958).
- U. Gneezy, Deception: The role of consequences. *Am. Econ. Rev.* **95**, 384–394 (2005).
- H. Rosling, A. R. Rönnlund, O. Rosling, *Factfulness: Ten Reasons We're Wrong About the World—and Why Things Are Better Than You Think* (Flatiron Books, 2018).
- R. Selten, Die Strategiemethode zur Erforschung des eingeschränkt rationalen Verhaltens im Rahmen eines Oligopol-experiments, in *Beiträge zur experimentellen Wirtschaftsforschung*, H. Sauermann, Ed. (Mohr, 1967), pp. 136–168.
- D. Lakens, N. McLatchie, P. M. Isager, A. M. Scheel, Z. Dienes, Improving inferences about null effects with bayes factors and equivalence tests. *J. Gerontol. B Psychol. Sci. Soc. Sci.* **75**, 45–57 (2018).

61. NSA, *Namibia Household Income and Expenditure Survey 2009/2010* (Namibia Statistics Agency, 2012).
62. B. Herrmann, C. Thöni, S. Gächter, Antisocial punishment across societies. *Science* **319**, 1362–1367 (2008).

**Acknowledgments:** We thank three anonymous referees and the editor for helpful comments. We thank P. Mengela Logonda, I. Ndeshi Nangula, S. Joy, and P. Ndishishi Aaron for field assistance; I. Mogotsi for logistical and strategic planning; and all the participants in the sessions. We thank M. Kosfeld, H. Rusch, I. Hoem Sjørusen, R. V. Nghiteveleka, M. Pröpfer, and J. Brown, as well as participants in the European Public Choice 2016, Tropentag 2016, ESA 2016, and IASC 2017 and seminar participants in Cologne 2016 and Windhoek 2017 for their discussions and comments on previous drafts of the manuscript. **Funding:** Funding was provided by University Innsbruck Nachwuchsförderung (to B.V.), the FWF P 25973-G11 (to E.B.), the Fritz Thyssen Foundation (to S.P.), and the FWF P-28632-G27 and SFB63 (to F.P.).

**Author contributions:** B.V. and E.B. conceived the study and designed the experimental

procedures. B.V., I.S., F.P., and S.P. conducted the fieldwork and data analysis. All authors contributed to the writing of the manuscript. **Competing interests:** The authors declare that they have no competing interests. **Data and materials availability:** All data needed to evaluate the conclusions in the paper are present in the paper and/or the Supplementary Materials. Additional data related to this paper may be requested from the authors. In addition, all data and analysis files (Stata) to reproduce the results in the paper are available on GitHub (<https://github.com/IvoSteimanis/Leadership-Namibia>).

Submitted 16 July 2019

Accepted 9 January 2020

Published 8 April 2020

10.1126/sciadv.aay7651

**Citation:** B. Vollan, E. Blanco, I. Steimanis, F. Petutschnig, S. Prediger, Procedural fairness and nepotism among local traditional and democratic leaders in rural Namibia. *Sci. Adv.* **6**, eaay7651 (2020).