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Drought and Political Trust

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Abstract
Droughts can affect people's political trust positively, through rallying effects, or negatively, through blame attribution. We examine how drought conditions affect political trust in the context of Africa. We link high-precision exogenous climate data to survey respondents, 2002–2018, and report moderate negative effects of drought conditions on people's trust in their president. These negative effects increase with the severity of drought conditions. The political economy of favoritism, where some regions are preferentially treated by rulers, should result in heterogeneous effects across territories. We find that trust increases in capital regions and in leader birth regions during dry conditions. In contrast, when droughts take place in such regions, trust levels fall in other regions. This is in line with the idea that capital regions and leader birth regions could be preferentially treated in the aftermath of droughts. Understanding these processes further is important given their salience because of global warming.

Keywords: Africa, Drought, Afrobarometer, Trust, Climate change, Disasters
JEL codes: H70, O10, D74

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1. Introduction

Impending global warming is projected to result in an increase in the frequency and magnitude of extreme weather events in the coming decades, not least in Africa (UN 2019). This will have a significant impact on peoples' perceptions of how society is being governed and managed (IPCC 2018). More broadly, there are uncertainties about the nature of the political effects from future extreme weather events. It is unclear whether the poorer parts of the world will see increased political turmoil and frequent leadership change, or if this will rather result in outcomes where rulers can secure support in an increasingly threatening context. The overall objective of this paper is to further understand whether and how perceptions of political trust are affected by weather-related shocks, focusing on the context of droughts in Africa.

As stated by Green (1993) three decades ago, leaders would be wise to fear droughts turning into disasters: "rural famine and acute urban hunger are *political structure life threatening* so that any ruling group with reasonable self-preservation instincts and foresight will try to avert or defuse them" (p. 263, italics in original). It therefore may not be surprising that we have witnessed how African leaders have acted to either declare an emergency to retrieve international relief aid—as Zimbabwe's President Mugabe did in 2016 (Reuters 2016)—or to be present themselves in drought-stricken areas to signal their compassion to locals, illustrated, for instance, by South African President Zuma's visit in opposition strongholds during a severe dry spell in the KwaZulu-Natal province the same year (South African Government 2016). A drought is, hence, potentially an occasion where citizens' attitudes toward their leaders can be swayed.

A focus on political trust is motivated because it is generally perceived as a fundamental prerequisite for a long list of societal goods, including society's propensity and capacity to overcome collective action problems, generating social as well as economic welfare, and, not least, for the functioning of democracy, good government, and rule compliance (Sønderskov 2009; Tavits 2006). Simply put, if people trust that the political system is committed and competent and possesses sufficient resources to carry out its tasks and assignments, then political trust is assumed to help ensure that political decisions aimed at generating public goods will also be (more) successfully implemented (de Fine Licht and Brülde 2021). According to some, a reservoir of highly trusting citizens can be seen as the glue that keeps the social and political system together (Zmerli and van der Meer 2017). Others advocate political trust because it can serve as a factor making societies more prepared for and resilient to crises when they arise (Donahue et al. 2014). Picking up on the latter, studying the links between *extreme weather events* and *political trust* can constitute an important forward-looking notion of how political stability can be affected by increasingly volatile climatic processes.

The literature has certainly debated the vertical relationship of citizens' political trust (trust in their rulers), where some studies have documented rally-around-the-flag effects from disasters in which people increasingly support their leaders (Chanley 2002), while others have noted how people tend to blame governments for how disasters are being managed (e.g. Arceneaux and Stein 2006). It has been suggested that because different forms of trust are only moderately correlated at the individual level (Citrin 1974), the impact of disasters is possibly heterogeneous across different types of trust. For example, Uslaner (2016) argues that while trust in government is more changeable, trust in generalized others is a stable feature. He therefore proposes that "disasters have strong effects on trust in government and minimal effects on social trust" (Uslaner 2016, 188). There are, hence, different expectations in the literature regarding how weather shocks may shape the social fabric between people and their perceptions of government.

Our geographical focus is on countries in Africa, many of which are predicted to face a severe increase in weather variability in the coming decades. By combining high-precision data on weather conditions with geocoded survey data on African respondents 2002–2018, we approach this overarching problem by focusing on whether drought conditions have a positive or negative impact on people's trust in the president. In addition, we hypothesize—and provide tests for—whether different forms of favoritism condition/interact with the core relationship between drought and trust in the president. Finally, we carry out a number of alternative model specifications and robustness checks.

We contribute theoretically by introducing nuance to the discussions in the current research field by proposing that the relationship between extreme weather events and political trust may be conditioned by different forms of political favoritism, that is, by whether respondents live in the president's home region, in the capital city, or elsewhere in the country. Moreover, our empirical operations are more comprehensive than many prior works in the literature, since (i) we use a more elaborated drought indicator that accounts for shocks during the growing season of main crops and (ii) our design allows us to perform a thorough test over an extensive time period.

2. Literature review

2.1 Conceptualizing political trust

High levels of vertical (political) trust in a society have repeatedly been shown to contribute to favorable outcomes, such as economic growth (Beugelsdijk et al. 2004; Zak and Knack 2001). More broadly, it affects the prospects for collective action and increases the likelihood of mutually beneficial outcomes that follow from cooperation (Ostrom and Walker 2003).[2] Authority bounded form of trust is generally conceptualized as having two partly overlapping components, both relating to the vertical dimension between citizens and state actors: trust in more neutral public institutions (such as the state bureaucracy, the judiciary, and their employees), commonly termed *institutional trust*, and trust in more partisan-oriented institutions, such as parliament, cabinet, the head of state, and parties, which usually goes under the name *political trust* (see Newton et al. 2018).[3] In this article we are concerned with how extreme weather-related events are linked to political trust.

2.2 Prior research on disasters and political trust

More broadly, research debates the extent to which natural disasters, including droughts, tend to increase the likelihood of outcomes related to violent conflict and political turmoil.[4] Our work is related to research on effects from disasters and weather-related shocks on outcomes such as democratization (Bruckner and Ciccone 2011; Burke and Leigh 2010; Gawronski and Olson 2003, 2013; Rahman et al. 2020) and leader transition (Dell et al. 2012; Quiroz Flores and Smith 2013). However, we argue that there are benefits to studying effects from events such as droughts on outcomes that are closer in the causal chain (and more directly affected), for example, citizens' trust in rulers in the wake of extreme weather events.

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[2] For an overview of factors that determine a country's level of trust, see Uslaner (2018).

[3] Political trust is related to, but not synonymous with, incumbency support. The latter refers generally to support for an actor who holds an official post at a given time (see e.g. Collins dictionary, https://www.collinsdictionary.com/dictionary/english/incumbent). It should not be conflated with general system support or partisanship (see Muller and Jukam 1977; Weisberg 2002).

[4] There is debate on linkages between effects from global warming and conflicts (Adams et al. 2018; Buhaug et al. 2021; Dell et al. 2014; Hsiang and Burke 2014). Recent work examines whether droughts increase people's support for political violence (see Detges 2017; Linke et al. 2017; von Uexkull et al. 2020).

Changes in political trust could be a micro-level requisite for many ensuing changes in the political sphere, such as protests, voting behavior, or regime shifts due to swings in mass support.

Regarding trust, there is a lively scholarship on how various aspects of related concepts, such as social capital and the strength of social ties and networks, matter in the *recovery* after disasters strike (see Aldrich 2012). However, rather than exploring how resilient societies are in the wake of disasters,[5] we focus on the impact on citizens' political trust.

As discussed in the literature, a general way in which disasters affect political trust is the rally-around-the-flag effect, in which the nation pulls together during an external threat. Similar effects are found in respect to other types of catastrophes, such as terrorist attacks and pandemics (Chowanietz 2010; Godefroidt 2022).[6] However, there are contrasting findings among existing empirical studies. First, a number of studies point to increases in political forms of trust (Schupp et al. 2017; You et al. 2020). Second, a handful of studies report up-front negative effects on political trust (Gong et al. 2017; Lee 2021). The association between individual experience with and region/province-level damage from a disaster is less clear, and studies have demonstrated some mixed results (Han et al. 2011; Reinhardt 2019). The literature that studies retrospective voting and the electoral effects of disasters (see e.g. Bechtel and Hainmueller 2011; Damsbo-Svendsen and Hansen 2023; Eriksson 2016; Gasper and Reeves 2011; Healy and Malhotra 2009) is largely outside the scope of this paper. However, a study of relevance to our work is one by Arceneaux and Stein (2006), who find that the degree of harm matters for vertical trust, since those most severely affected by flooding in Houston, Texas, in 2001 were also more likely to hold government responsible.

3. Drought and political trust: theoretical expectations

Overall, the literature provides numerous insights into how droughts can impact trust in a broader sense. In the context of African countries, weather conditions can literally be a matter of life and death, especially among the many people for whom rain-fed agricultural activities

[5] Referring to the typology of disasters outlined by Nel and Righarts (2008), droughts are hydro-meteorological slow-onset events, compared to rapid-onset events like earthquakes, volcanic eruptions, or windstorms.
[6] Chanley (2002) and Putnam (2002), for instance, suggest that 9/11 made the US population more supportive of government and more trusting of its military. Related, Esaiasson et al. (2020) studied a panel of Swedish participants and found that the first months of the impact of the Covid-19 crisis substantially increased institutional trust.

are still the basis for subsistence. Dry conditions (especially during the growing season) affect not only the subsistence farmers themselves, via lower crop yields and a corresponding *income shock*, but also access to food more broadly, as crop and livestock prices on local markets are affected (De Juan and Hänze 2021). Unusually dry conditions may hence affect both employment opportunities and access to food more broadly. Income shocks can further force rural households to sell their income-generating goods, such as livestock (Oba 2001). Thus, rising indebtedness in areas with rain-dependent farming is a further likely effect in times of drought. As a result of these processes, individuals in dry conditions may adapt their livelihood strategies and start interacting with neighbors or actors in the market, for example, by increasing trade in cattle, engaging in loaning activities, and adopting other social livelihood strategies. Clearly, all of these plausible courses of events can have reinforcing or debilitating impacts on peoples' levels of social and interpersonal trust. However, when disasters strike, people facing hardships will also be attentive to how the political leadership responds. The leaders' actions at such times can determine whether people's trust in them will rise or plummet.

Thus, the post-disaster development can go two ways. On the one hand, events such as droughts can have a rallying effect, where people in general become more aware of their vulnerability and also become united in the face of the common threat. In such a scenario, "strong man" types of leaders should get opportunities to show their decisiveness by allocating relief aid stemming from both national and international sources, investing in adaptation strategies, and providing compensatory means (see Fuchs and Rodriguez-Chamussy 2014; Lazarev et al. 2014). This way, leaders may gain in popularity by displaying the message that they did not cause the disaster from the beginning but nonetheless continue delivering or providing public goods (You et al. 2020).

On the other hand, disasters could give rise to negative effects on political trust. Theories on "blind" retrospection suggest that people tend to blame leaders for actions outside of anyone's control, such as extreme rainfalls (Achen and Bartels 2016; Birch 2022). More focused on evaluations of how leaders act, it can be assumed that people have expectations that the government should do what is necessary and possible not only when they prepare for droughts. For example, it is likely that people react by lowering their levels of political trust if they feel that the government has not undertaken sufficient protective measures (disaster preparedness) or is providing insufficient assistance (disaster relief) in times of hardship. In a similar vein, Uslaner (2016) theorizes on the relationship between disasters and their potential impact on political trust. He suggests three mechanisms through which political trust can erode in the aftermath of a disaster: 1) leaders and officials are seen as lacking in competence, 2) they are seen as not having enough sympathy for victims, and 3) citizens might perceive that corruption reinforces the negative consequences of the disaster or makes recovery more difficult.

Taken together, the state of the literature leads us to formulate *conflicting expectations* on the effects from dry weather conditions on political trust. On the one hand, it is possible to expect that droughts will give rise to rally effects, that is, that drought will come with increased levels of political trust. On the other hand, however, extreme weather events may instead have the reverse and suppressing effect where people become more inclined to blame the political leaders for making the consequences of the extreme weather worse than necessary, for example, due to people increasingly associating the political elite with neglect, incompetence, corruption, and denial. Thus, this conflicting expectation leads us to propose the following:

Hypothesis 1a: Droughts are associated with an increase in political trust.

Hypothesis 1b: Droughts are associated with a decrease in political trust.

Yet, apart from these more direct effects, it is also plausible that the association between weather-related hardship and political trust is conditioned by other factors. A large body of literature discusses that drought relief and drought declarations are by no means neutral processes (Bedran-Martins and Lemos 2017; Cooperman 2022; Nelson and Finan 2009). In fact, several studies document how partisan politics shape which regions receive relief when drought strikes and demonstrate that political competition and electoral cycles matter (see Blankenship et al. 2021; Knutsen and Kotsadam 2020; Öhler and Nunnenkamp 2014; Tarquinio 2021; Wiltshire and Oppermann 2015). Related to the impact of disasters and droughts, one could reasonably imagine that the areas that are adversely affected would be the ones targeted by leaders in this complex calculus. To illustrate, Eriksen and Lind (2009) discuss how food aid was used strategically to secure political support for a referendum during a 2005 drought in Kenya.

Here, we specifically point to the role played by the political economy of *regional favoritism* (see Hodler and Raschky 2014). Many observers have noted how leaders, especially on the African continent, have systematically imposed policies that benefit their home regions (Posner 2005). Apart from lavish building projects to put a certain area on the map, leader birth regions are preferentially treated in terms of public transfers, taxation, and provision of public goods (see e.g. Burgess et al. 2015; Dahlberg and Johansson 2002).[7] People living in these regions should be more likely than others to receive economic support and the like from government when crops fail due to drought. The insight that drought relief efforts are used preferentially to benefit leader birth regions motivates us to expect droughts to have heterogeneous effects on political trust across territories. However, it is not clear how this plays out. On the one hand, living in a region that is preferentially treated could be associated with experiencing that the government provides sufficient help in droughts, such as relief aid, leading to an increase in political trust. On the other hand, being treated preferentially could lead people to develop unrealistic expectations of the help they will receive, therefore potentially leading to a decrease in their political trust if those hopes are not met when droughts strike. Hence, we pose the following conditional expectation:

> *Hypothesis 2:* The association between droughts and political trust is different in leader birth regions compared to other regions.

Moreover, we propose that there is also a process of what we see as *centralized favoritism*. This reasoning builds on the assumption that leaders may not only treat their home regions more favorably but also that they tend to pay special attention to the region where the capital city is located (see Chen et al. 2017). One reason for this could be that people in these cities are much more likely to mobilize than in rural areas, by the sheer density of the population. A motivation related to favoritism could be leaders' calculus to uphold political support, as the capital is typically where the national political and economic elites are located (Ades and Glaeser 1995). A drought in areas that will harm the well-being and economic interests of the elite is associated with greater political risk, and so to avoid the elite's potential dissatisfaction and maintain political stability, leaders will provide these areas with benefits and favors to mitigate the harm from droughts. Furthermore, having a drought that affects these capital areas could also be more detrimental to how salient the problem becomes—for example, if the effects are portrayed in media and makes it to the agenda—compared to if a dry spell

[7] See Kasara (2007) for the contrasting idea that leaders can use these regions as tax bases.

strikes in more peripheral areas. This argument leads us to hypothesize that there could be differences in how droughts affect political trust among those living in a capital city compared to those in the rest of the country. If the capital region is favored during droughts, we should expect stable or increased levels of trust in those regions and, conversely, decreased levels if no such favoritism is exercised. Thus, we hypothesize:

Hypothesis 3: The association between droughts and political trust is different in capital regions compared to other regions.

4. Empirical framework and data

The empirical analysis links high-precision data on weather conditions to georeferenced survey data on African respondents.

4.1 Afrobarometer data

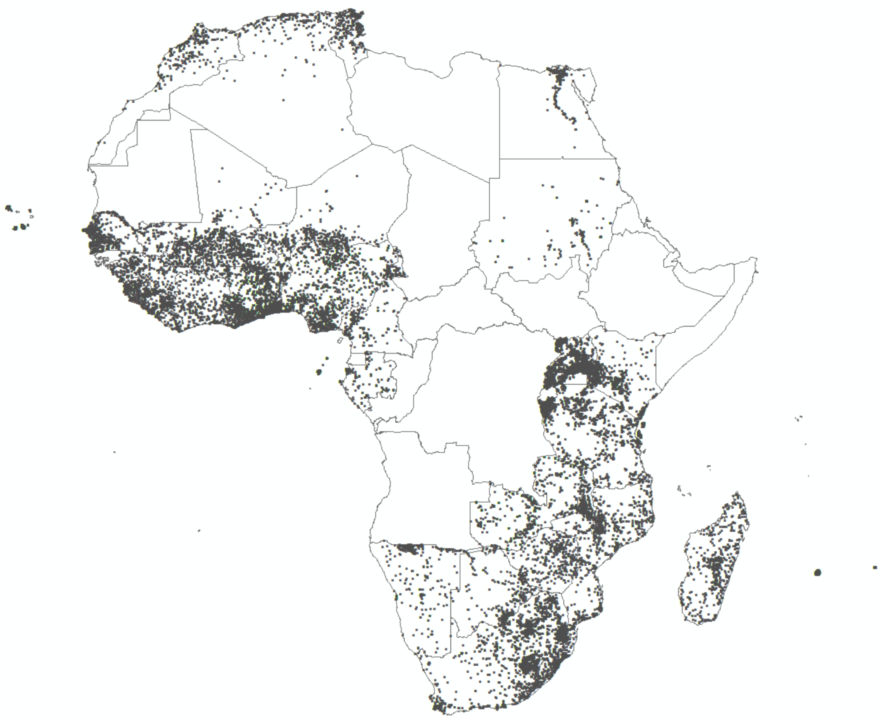
We draw data on trust from the second to the seventh rounds of the Afrobarometer. This cross-national survey is based on a clustered, stratified, multi-stage area probability sample designed to be representative of the voting-age population in each country. Survey teams first stratify the sample according to the main subnational unit of government (state, province, region, etc.) and by urban or rural location.[8] These survey rounds correspond to the period 2002–2018 and include 16 countries in round 2, 18 countries in round 3, 20 countries in round 4, 34 countries in round 5, 36 countries in round 6, and 33 countries in round 7. A protocol oversees the completion of the survey in the same way in all partner countries, and the organization trains the national team, employed by a partner firm, in its implementation. When fielded, in-person interviews are conducted in respondents' households by an enumerator reading each question aloud and recording the verbal responses.

The coordinates of the Afrobarometer respondents were not recorded in the original surveys of rounds 2–6. We therefore use information about the location of the enumeration area of each respondent for these first rounds as supplied by AidData (BenYishay et al. 2017). Since these coordinates are the result of post-survey geocoding, the locations are often inexact. The level of location granularity follows the AidData precision code structure, and

[8] Area stratification reduces the likelihood that distinctive ethnic or language groups are left out of the sample, see /www.afrobarometer.org/surveys-and-methods/sampling.

each level is given a specific precision code (Strandow et al. 2011). The precision codes range from “1,”i indicating that the enumeration area is given the exact coordinates, to “6” if the coordinates merely refer to the country as a whole (the latter two categories constitute about 1% of the sample of respondents in rounds 2–6). In round 7, all respondents are given the more precise coordinates. In the bulk of the analysis, we use respondents whose locations are geocoded with a precision code of 1, 2, or 3, which means that they are at least correctly assigned to a second-order administrative division (district) (which is the case for about 93% of all respondents in rounds 2–7). This choice is based on a trade-off, where, on the one hand, we want precise coordinates but, on the other hand, we do not want to bias the sample, which we would risk if we opted to use only respondents with a precision code of, say, 1. That would potentially skew the sample toward respondents in larger and more well-known locations. While our main findings are thus based on a sample of respondents with a precision code of 1, 2, or 3, the results presented in table S5 show that estimates using a sample with a different range of specific precision codes are the same. Figure 1 illustrates how clusters of Afrobarometer respondents (geocoded to an enumeration area) are mapped on the African continent, 2002–2018.

Figure 1. Afrobarometer Respondents, 2002–2018



Our primary indicator of political trust, *Trust in President*, is the trust one has in the president or the prime minister of the country in which one lives. The following question is asked in the surveys: "How much do you trust each of the following, or haven't you heard enough about them to say: The President/Prime Minister?" Possible answers are "Not at all," "Just a little," "Somewhat," and "A lot." *Trust in President* is created based on the respondents' answers to this question and has a range from 0, for no trust at all, to 3, for a lot of trust in the president. Naturally, *Trust in President* may turn out to capture only political trust, or even just the part of political trust that relates to the trust in the head of state.

Summary statistics on key variables are presented in table 1. For example, the average value on *Trust in President* is 1.8, which lies in the range between trusting the president just a little and somewhat, and the standard deviation is 1.1. In our analysis we mainly report models where we study this variable.

Table 1. Summary Statistics

Variable	**N**	**Mean**	**Std.dev**	**Min**	**Max**
Age	168,283	36.75	14.48	18	130
Drought conditions	168,283	0.00	1.00	-6.40	13.49
Level of education	168,283	3.24	2.13	0	9
Lives in capital region	168,283	0.14	0.35	0	1
Lives in leader birth region	168,283	0.10	0.31	0	1
Male	168,283	0.50	0.50	0	1
Trust in president	168,283	1.81	1.13	0	3

Notes: This table provides summary statistics on respondents from Afrobarometer survey rounds 2–7 for which the location precision code is 1, 2, or 3, and for which all variables included in the baseline specification are non-missing.

4.2 Drought data

Our main indicator for dry conditions is based on the Standardized Precipitation Evapotranspiration Index (SPEI). *SPEI-1*, which is SPEI with a monthly time resolution and a 0.5 degree spatial resolution, is drawn from the Global SPEI database (Vicente-Serrano, Beguería, López-Moreno, et al. 2010; Vicente-Serrano, Beguería, and López-Moreno 2010). It is constructed using data on monthly precipitation and potential evapotranspiration (PET) for each land pixel and accordingly does not capture variability only in precipitation. This is important as it means that it can also capture droughts induced by high temperatures. The SPEI is constructed in three steps. First, trends and variations in temperature are used to estimate the evaporation demand, the PET. The relevance of the PET comes from the fact that high temperatures strongly increase evapotranspiration. Second, the monthly precipitation is set in relation to the PET. Third, for each land pixel, the obtained figure is standardized to have an average of 0 and a standard deviation of 1. The *SPEI* is positive if conditions are wet and negative if conditions are dry. The extensive temporal scope of our analysis ensures that we sample people through the Afrobarometer waves 2–7 (2002–2018) in both the warm and cool phases of the El Niño–Southern Oscillation (ENSO), whereby some years correspond to higher average global temperature than others.

To construct the variable *Drought Conditions*, we proceed as follows. First, we use *SPEI-1* and data on the months of the main-crop growing season at each location from Portmann et al. (2010) and Tollefsen et al. (2012) to calculate the main-crop growing season weighted SPEI during the 12-month period ending with the month during which the respondent was interviewed. Second, we use data on cropland area from Ramankutty et al. (2008) to calculate cropland area in each district and then the cropland and main-crop growing season weighted SPEI. Third, we use the additive inverse (AI) of the obtained values so that higher values signal conditions that are more dry and lower values signal conditions that are more wet. Fourth, we standardize the values to have a 0 mean and a standard deviation of 1.

To further put our estimations to the test, we implemented a type of placebo test, where we use spatial and temporal reordering to show that we do not observe systematic effects from unrelated drought figures (see our section on robustness tests). We also use an alternative type of data that captures droughts turning into reported natural disasters. These additional results can be found in the online supplement.

4.3 Leader Birth Regions and Capital Regions

We used biographies of the 104 leaders that had tenure in these countries across the time period of study to construct *Leader Birth Region*, which is a binary indicator taking the value of 1 for respondents living in this region of their country and 0 otherwise.[9] With a leader of a country we refer to either a president or a prime minister at the time of her or his tenure, for which we recorded a starting and ending year and month. A given leader's birthplace was then linked to geographic ADM-1 level units. We use information about where a capital city of a nation is located to denote one the ADM-1 level unit in each country as the capital region. The variable *Capital Region* is a binary indicator taking the value of 1 for respondents living in this region of their country and 0 otherwise.[10]

4.5 Control variables

The control variables we include capture individual respondent characteristics as well as the character of the area in which the respondent lives. We draw respondent age (and age squared), gender, and level of education from the Afrobarometer. Education ranges from 0 to 9 and captures the respondent's highest level of education, from no formal schooling to post-graduate. The enumerators of the Afrobarometer record characteristics of the enumeration areas they visit and, in some cases, of the area nearby. We use separate binary indicators for whether the area is urban or rural, and for the presence of services and facilities such as an electricity grid, a piped water system, a sewage system, a post office, a school, a police station, a health clinic, and market stalls, or if the enumerator saw any police or soldiers in the enumeration area. In the tables below, these variables are referred to as enumeration area (EA) controls. Complementary indicators are included to capture whether the enumeration area in which the respondent lives is socially, economically, or politically isolated or integrated. For each enumeration area location we calculate the natural logarithm of the distance to a country border (GADM 2018), the natural logarithm of the distance to a city (Natural Earth 2018), the natural logarithm of the distance to the coast (Natural Earth 2018), the natural logarithm of the distance to any river or lake (Natural Earth 2018), and the natural logarithm of the distance to a major road (CIESIN 2013). We also calculate the natural

[9] At a first stage, we sought to obtain this information from Encyclopedia Britannica (see www.britannica.com/biography/). If a leader had no entry, we generally used the dataset Biografías Líderes Políticos (see https://www.cidob.org/en/biografias_lideres_politicos_only_in_Spanish). In a third step we used information from various entrusted sources, including embassies and leading news outlets. When possible, we corroborated data with several sources. For two leaders, we relied on Wikipedia.

[10] For South Africa, having several capitals and potentially an elite dispersed across these regions, we treat Pretoria as the capital as this is where the executive power and most foreign embassies are located.

logarithm of the altitude at the enumeration area coordinates and the natural logarithm of the standard deviation of altitude (Amante and Eakins 2009) in the district. Moreover, we also include the absolute value of latitude as well as the share of cropland in the district, the length of the main-crop growing season in months, and binary indicators for whether the current month is during the main-crop growing season and whether the current month is the last month of the main-crop growing season.

4.6 Estimation strategy

We investigate the effect of dry conditions in the area where the respondent lived during the previous year, including the month of the interview, by estimating variants of the following equation, primarily with ordinary least squares:

$$y_i = \beta_1 \cdot Drought\ conditions_{ea,t} + \alpha_r + \delta_t + \varphi \cdot t + \gamma_i \cdot X_i + \lambda_{ea/d} \cdot X_{ea/d} + \epsilon_i.$$

$y_{i,t}$ is the outcome measure for individual i. $Drought\ conditions_{ea,t}$ takes higher values if conditions are more dry at the location of the enumeration area in which the respondent lived during the 12 months before the interview. This indicator is exogenous to all matters we want to investigate the effects on, yet time-invariant and time-varying covariates are included to reduce the noise and give more precise estimates. α_r are regional fixed effects that remove systematic differences across (subnational) regions. δ_t and $\varphi \cdot t$ represent month and year fixed effects as well as country-specific linear time trends and are included to deal with aggregate shocks and seasonal trends. X_i is a vector of individual-level controls, and $X_{ea/d}$ is a vector of enumeration area and district-level control variables, some of which are drawn from the Afrobarometer directly and some of which are constructed using complementary data sources. Some enumeration areas are sampled during more than one Afrobarometer survey round, but most are not. In some instances, enumeration areas being sampled are quite close to enumeration areas that were sampled during a previous survey round, but the coordinates are not exactly the same. We therefore create a grid of cells that are 0.1 degrees latitude by 0.1 degrees longitude and use grid cell identifiers to cluster the standard errors (ϵ_i) at the level of each such grid cell.

We mainly analyze our measure of political trust using ordinary least squares (OLS) as an estimator. Due to the categorical nature of this variable we also show that the results hold when using ordered probit regression models.

5. Results

We first want to illustrate the dispersion of our dependent variable. Table 2 shows how the respondents answer the questions related to their trust in the president. On average, across all countries surveyed in the Afrobarometer rounds 2–7, one in three has a lot of trust in their president.

Table 2. Frequency of Trust Responses

Trust response	**N**	**%**
Not at all	5,476	18
Just a little	13,555	22
Somewhat	22,019	23
A lot	61,810	37

Notes: Frequency of each response. All respondents from Afrobarometer survey rounds 2–7 are included. The question asked is "How much do you trust each of the following, or haven't you heard enough about them to say: The President/Prime Minister?" Pre-defined answers and corresponding values are: Not at all (0), Just a little (1), Somewhat (2), and A lot (3).

5.1 Drought and Political Trust

Dry conditions have a negative effect on political trust. These baseline results are presented in table 3, where political trust is captured by *Trust in President*. Since the trust measure used in this table is ordinal, we present results obtained by using both OLS and ordered probit. Our focus is here on the indicator *Drought Conditions*, which is the additive inverse of the monthly SPEI values during the last 12 months weighted by main-crop growing season and share of cropland in the district. Higher values represent conditions that are more dry in areas during the months of the growing season of the local main crop in areas with relatively more cropland.[11] We use this estimation as our baseline moving forward and infer that our analysis, so far, lends support for hypothesis 1b.

[11] See table S1 in the Supplementary where we use the AI of SPEI 1 as the independent variable.

Table 3. Drought Conditions and Political Trust

	(1) *OLS*	(2) *Ordered probit*
Drought conditions	-0.029*** (0.005)	-0.031*** (0.005)
All control variables	Yes	Yes
N	168,283	168,283
R^2	0.17	

Notes: The dependent variable is Trust in President. The specification in Column 1 is estimated with OLS, coefficients reported. The specification in Column 2 is estimated with ordered probit, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

The effects across individual characteristics such as gender and education should not in themselves be affected by short-term climatic variation. These full results are presented in table S2 in the online Supplementary. The data does not allow us to establish the channels through which dry conditions affect political trust.[12] Therefore, we choose not to take a strong stance on the specific channels. Some insights can be drawn, however, from the results we present in table S3 in the Supplementary. The models reported in this table show that drought conditions are associated with a decrease in satisfaction with democracy, with the assessment of the country's economy and with the government's handling of the economy, supposedly capturing people's worsened living conditions and indicating their impression that the government is not "doing enough."

We then proceed to report the effect from more severe droughts (see table 4). In column 1, we include a binary indicator for having positive values on our main drought conditions variable. On average, having drought conditions implies about half a point, or about two-fifths of a standard deviation, lower score on the dependent variable, Trust in

[12] Another limitation imposed by the non-repeated sampling of respondents over time in the Afrobarometer is that one cannot investigate heterogeneity in the responses between, say, people that were or were not wealthy or did or did not support the sitting president *before* the drought. One would learn little from an attempt to study heterogeneity due to characteristics that are not fully orthogonal to weather conditions.

President, which has a sample mean of 1.8. In the second column, we use three binary indicators for Drought Conditions in different intervals, between 0 and 1, between 1 and 1.5, and above 1.5, respectively. The estimates show that the negative effect on political trust is stronger when drought conditions are more severe. In the final column, we exclude all observations where conditions are not dry, here defined as having Drought Conditions < 0. Again, we see that having more, rather than less, severe drought conditions are associated with lower levels of Trust in President.[13]

[13] That the estimate for "1.5<Drought Conditions" is smaller in absolute in column 3 than in column 2 is to be expected since the comparison is other respondents that also have (less) dry conditions, while the comparison group in the second column is the average among respondents that do not have dry conditions, i.e., not the average among respondents that have neutral weather conditions.

Table 4. Drought Condition Severity and Political Trust

	(1)	(2)	(3)
Sample:	All	All	0 < Drought conditions
0 < Drought conditions	-0.048***		
	(0.012)		
0 < Drought conditions < 1		-0.041***	
		(0.013)	
1 < Drought conditions < 1.5		-0.074***	
		(0.027)	
1.5 < Drought conditions		-0.099***	-0.074**
		(0.027)	(0.031)
All control variables	Yes	Yes	Yes
N	168,283	168,283	53,172
R^2	0.17	0.17	0.21

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

5.2 Regional favoritism and centralized favoritism

We then proceed to investigate the role of living in the birth region of the present leader of the nation or in the region of the country's capital. Our interest here lies in the variation across regions within each country and we therefore use country fixed effects in table 5 instead of region fixed effects used in the baseline results.

Table 5. Capital Region and Leader Birth Region

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample	All	All	All	Outside CR	All	All	Outside LBR
Drought conditions (DC)	-0.020***	-0.020***	-0.023***		-0.020***	-0.025***	
	(0.006)	(0.006)	(0.006)		(0.006)	(0.006)	
Capital region (CR)		-0.111***	-0.098***				
		(0.022)	(0.023)				
DC * CR			0.095***				
			(0.034)				
Drought in capital				-0.068***			
				(0.010)			
Leader birth region (LBR)					0.115***	0.119***	
					(0.018)	(0.017)	
DC * LBR						0.076***	
						(0.018)	
Drought at leader birthplace							-0.056***
							(0.010)
All control variables[a]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	168,283	168,283	168,283	144,905	168,283	168,283	150,901
R^2	0.14	0.14	0.14	0.14	0.14	0.14	0.13

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). [a]: The model is estimated with country fixed effects instead of region fixed effects. Otherwise the control set is the same as in the baseline table 3, and the control variables included are presented in section 4.5.

The results in the second and fifth columns show that people living in the capital region have less trust in the president, while people living in the birth region of the current president have more trust in the president.

In the first part of this table (columns 2–4), the focus is on the capital region. The positive interaction term in the third column shows that when there are dry conditions in the area where the respondent lives, the response among people living in the capital region is that their trust in the president increases, relative to baseline. This is not evidence that people in the capital regions more often than people living elsewhere in these countries are helped by their governments during hard times and therefore trust the president more, but the result is consistent with such a line of events. In the fourth column, we exclude those that live in the capital regions and analyze respondents that live outside their capital regions to look at how they are affected by dry conditions *in* the capital region. Here the effect is negative. Suppose that the government is indeed helping people living in the capital region during their crisis and that this is observed by people living in other regions. If people in the latter group, which make up the sample in column four, see the current actions of the government as a form of favoritism, the results in the fourth column could be picking up a negative effect on political trust coming from a negative reaction to observing how others are treated more favorably by the government. An alternative explanation could be that national media reported negatively about the potential drought crisis in the capital region and that this had a negative effect on political trust. While the latter explanation is consistent with the results in the fourth column, it is at odds with the results presented in the third column, since people actually living in the capital region trust the president more when there is a drought than when there is not.

In the second part of the table (columns 5–7), the focus is on the leader birth region instead of the capital region. The results in the fifth column show that, on average, respondents living in the president's birth region trust their president more. This is consistent with these regions, or people in these regions, generally being treated more favorably by the government. In the sixth column, the interaction term between Drought Conditions and the indicator for living in the leader birth region is positive. That political trust increases during what should be hard times for the people living in these areas indicates that they approve of what the government is doing. In the final column, only respondents *not* living in the leader birth regions are included in the sample. If there are dry conditions in the leader birth region, in which none of those in the sample used in this specification lives, the effect on their trust in their president is negatively affected. While this does not prove favoritism toward people living in the leader birth region, the results are what should be expected if people outside the leader birth region could observe that the government acted more strongly to support those suffering from a drought just because they happened to live in the in the leader birth region.

Taken together, the analysis presented in table 5 lends support for hypotheses 2 and 3.

5.4 Robustness tests and alternative measures

We then provide several tests to show that our main findings are robust to a set of alternative specifications (we refer to tables S4–S9 and Sb1 in the Online Supplement).

First, we show in table S4 that models where we capture the dependent variable in different binary versions do not alter the main finding. These models use binary outcomes that in three different ways capture those that respond that they trust the president "Just a little," "Somewhat," or "A lot." These results show that drought conditions not only imply a generally lower trust in the president but also have these effects on all margins between the different responses to the trust item. Hence, we get the same qualitative results if we use binary measures of trust instead of our ordinal measures.

Second, we show that our results are stable when altering the sample of respondents based on the precision with which they are geocoded. Table S5 presents three models with different approaches: (a) controlling for the precision code assigned to respondents in rounds 2–7 by including separate binary indicators for each precision code, (b) including only respondents in rounds 2–6, which were all assigned coordinates in post-survey geocoding, and (c) including respondents from all rounds (2–7), but only those with a precision code of 1.

Third, we further demonstrate in table S6 that the main effect is robust to changes in the set of control variables. This table includes four variants of the baseline model where we exclude one of the following in each model: (a) urban location, (b) enumeration area controls, (c) spatial controls, and (d) temporal controls.

Fourth, we show that our baseline model (and the versions with alternative ways to gauge the dependent variable) is robust when including grid-level fixed effects (see table S7).

Fifth, table S8 shows that the results from our baseline model are robust to including standard errors that take potential spatial and temporal correlation into account (HAC standard errors), allowing for a spatial correlation within a 500 km radius of an Afrobarometer enumeration area cluster location and infinite serial correlation.

Sixth, we run a set of tests with a climate-related variable where we would not expect to see results on our measure of political trust. In short, spatial and temporal reordering of the observations give us a set of placebo tests (results and more information of the procedure are presented in table S9), in which the coefficients are close to 0, and they are not statistically significant, supporting the validity of our main regressor.

Finally, we explore an alternative way to capture droughts. Whether dry conditions have disastrous consequences depends both on how severe the weather conditions are and whether they are treated as disasters by the authorities. We use geocoded data on drought disasters from the GDIS dataset (Rosvold and Buhaug 2020), matching the drought disasters to respondents' regions. Table Sb1 reports how the association between officially reported drought disasters and political trust is 0 and far from statistically significant when *Leader Birth Region* is not controlled for. However, to not control for *Leader Birth Region*, or factors capturing similar mechanisms, would be a misspecification, since all reported drought disasters in this data relevant in our context took place in a region that is also the birthplace of the current president. Once *Leader Birth Region* is controlled for in the regression, the association between reported drought disaster and political trust is negative and highly statistically significant. This supports the interpretation that the effect of drought on political trust is negative.

6. Conclusions

This article is concerned with how extreme weather affects political trust. We examine how drought conditions are associated with people's trust in their president in the context of Africa in the period 2002–2018, and we propose that the political economy of favoritism, where some regions are preferentially treated by rulers, results in heterogeneous effects across territories. The main finding is that drought conditions are associated with a moderate decrease in political trust. In addition, we show that trust in the president is higher among people living in the president's birth region and that trust increases in these regions during dry periods. In contrast, we find that if such a region has dry conditions, we tend to witness a decrease in political trust among those living in *other* areas. These findings support the expectation that political leaders' birth regions tend to be preferentially treated in the aftermath of droughts.

We contribute theoretically to the literature by showing that the relationship between extreme weather events and political trust may be conditioned by different forms of political favoritism, that is, whether respondents live in the president's home region, in the capital city, or elsewhere in the country. Moreover, our empirical operations are more comprehensive than in many prior works, since (i) we use a more elaborated drought indicator that accounts for shocks during the growing season of main crops and (ii) our design allows us to perform a thorough test across an extensive time period.

Our results may have important political implications. Increases in frequency and magnitude of extreme weather events will be the inevitable consequences of increasingly noticeable climate changes in many regions of the world. These findings—which point to heterogeneous effects across territories—suggest that deliberate investments in regions where trust seems to plummet could be an acceptable way for leaders to ensure and maintain important political stability during future extreme weather events.

We see several fruitful avenues for future research on this topic. The first is that research on how extreme weather affects people's attitudes would benefit from looking at additional features of political trust, expanding the focus in this article. On this note, we also see that researchers could investigate how such events affect horizontal forms of trust, such as generalized or particularistic trust. A second path for future research that we welcome is more theoretical and empirical work on the temporal effects on trust from weather-related events and disasters. Our reading of the literature is that we do not know very much about the long-term implications from the effects on trust that are observed across studies. More knowledge in this regard would be relevant, especially if we think about the projected increase in frequency and magnitude of disasters, which potentially could result in a drop in political trust among citizens. A third path is to assemble more rich data in a panel format. A limitation of this study is that the data does not allow us to explore effect heterogeneity along lines of pre-drought individual characteristics such as labor market status, wealth, or political attitudes or beliefs. Knowledge on such matters could be used to design disaster assistance efforts in ways that minimize the negative effects on social and political stability.

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Online Supplement

Table S1. Alternative Indicators for Drought Conditions

	(1)	(2)
AI of SPEI-12	0.002	
	(0.006)	
AI of main-crop growing season weighted SPEI		-0.025***
		(0.006)
All control variables	Yes	Yes
N	168,343	168,283
R^2	0.17	0.17

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in Section 4.5.

Table S2. Subsamples

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	Women	Men	No formal education	Primary education	Secondary education	Post-graduate
Drought conditions	-0.033***	-0.025***	-0.013	-0.038***	-0.040***	-0.016
	(0.006)	(0.006)	(0.009)	(0.007)	(0.008)	(0.011)
All control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	83,371	84,912	35,071	52,962	59,380	20,870
R^2	0.19	0.17	0.17	0.18	0.17	0.18

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

Table S3. Intermediary Outcomes

	(1)	(2)	(3)
Dependent variable:	Satisfied with democracy	Good economic conditions in country	Satisfied with economic management
Drought conditions	-0.008***	-0.010***	-0.011***
	(0.002)	(0.002)	(0.002)
All control variables	Yes	Yes	Yes
N	160,731	172,113	165,183
R^2	0.13	0.10	0.11

Notes: Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

The dependent variables are binary. Satisfied with Democracy: Based on the question: "Overall, how satisfied are you with the way democracy works in the country?" Possible answers are: The country is not a democracy, Not at all satisfied, Not very satisfied, Fairly satisfied, and Very satisfied. *Satisfied with Democracy* is a binary indicator for being fairly or very satisfied. Good Economic Conditions in Country: Based on the question: "Looking back, how do you rate the following compared to twelve months ago? … Economic conditions in this country" Possible answers are: Much worse, Worse, Same, Better, Much better. *Good Economic Conditions in Country* is a binary indicator for answering better or much better. Satisfied with Economic Management: Based on the question: "Now let's speak about the present government of this country. How well or badly would you say the current government is handling the following matters, or haven't you heard enough to say? … Managing the economy" Possible answers are: Very badly, Fairly badly, Fairly well, Very well. *Satisfied with Economic Management* is a binary indicator for answering fairly or very well.

Table S4. Binary Indicators of Trust

Trusts president *at least:*	(1) *A little*	(2) *Somewhat*	(3) *A lot*
Drought conditions	-0.008*** (0.002)	-0.011*** (0.002)	-0.010*** (0.002)
All control variables	Yes	Yes	Yes
N	168,283	168,283	168,283
R^2	0.10	0.14	0.16

Notes: Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

The binary outcomes capture different versions of our trust item. In Model 1, 1 is denoted by those that trust the president “a little,” “somewhat,” and “a lot” (0 to those that answer “no”). In Model 2, 1 is denoted by those that trust the president “somewhat” and “a lot.” In Model 3, 1 is denoted by those that trust the president “a lot.”

Table S5. Precision code

Treatment	(1) All observations and with precision code as control variable	(2) Rounds 2–6	(3) Precision code = 1
Drought conditions	-0.030***	-0.039***	-0.026***
	(0.005)	(0.006)	(0.006)
All control variables	Yes	Yes	Yes
N	178,058	133,228	113,726
R^2	0.17	0.19	0.18

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

This table presents three models with different approaches: (a) controlling for the precision code assigned to respondents in rounds 2–7 by including separate binary indicators for each precision code, (b) including only respondents in rounds 2–6 which were all assigned coordinates in post-survey geocoding, and (c) including respondents from all rounds (2–7), but only those with a precision code of 1.

Table S6. Baseline Control Variables Omitted

Controls omitted	(1) Urban/rural	(2) EA controls	(3) Distances measures etc.	(4) Temporal variables
Drought conditions	-0.029***	-0.029***	-0.029***	-0.028***
	(0.005)	(0.005)	(0.005)	(0.005)
All other control variables	Yes	Yes	Yes	Yes
N	168,283	168,283	168,283	168,283
R^2	0.17	0.17	0.17	0.14

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

Each model omits one of the following: Model 1: urban/rural identifier from the Afrobarometer data. Model 2: The EA services/facilities coded by enumerators. Model 3: Altitude, variation in altitude, distance to city, border, coast, river, and road. Model 4: Year FE, Month FE, linear country time trends.

Table S7. Baseline and Binary but with 0.5 Degree Grid Cell Fixed Effects

	(1)	(2)	(3)	(4)	(5)
	OLS	*Ordered probit*	*OLS*	*OLS*	*OLS*
			Trusts president at least:		
Dependent variable:	*Trust in president*		*A little*	*Somewhat*	*A lot*
Drought conditions	-0.034***	-0.037***	-0.009***	-0.013***	-0.011***
	(0.005)	(0.006)	(0.002)	(0.002)	(0.002)
All control variables[a]	Yes	Yes	Yes	Yes	Yes
N	168,283	168,283	168,283	168,283	168,283
R^2	0.20		0.13	0.17	0.18

Notes: The dependent variable is Trust in President. The specification in columns 1 and 3–5 are estimated with OLS, coefficients reported. The specification in column 2 is estimated with ordered probit, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5. The region fixed effects included in the baseline are here replaced by country-specific 0.5 degree grid cell fixed effects.

Table S8. Spatial HAC Standard Errors

	(1)
Drought conditions	-0.029**
	(0.013)
All control variables	Yes
N	168,283
R^2	0.17

Notes: Estimated with OLS, coefficients reported. In parentheses are spatial HAC standard errors allowing for a spatial correlation within a 500 km radius of an Afrobarometer enumeration area cluster location and infinite serial correlation. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

Table S9. Placebo Tests Using Temporal and Spatial Reversal of SPEI Values

	(1)	(2)	(3)	(4)
Drought conditions	-0.029***			-0.029***
	(0.005)			(0.005)
Placebo 1: Temporal reversal of SPEI-1		0.006		0.005
		(0.005)		(0.005)
Placebo 2: Spatial reversal of SPEI-1			0.004	0.002
			(0.005)	(0.005)
All control variables	Yes	Yes	Yes	Yes
N	168,283	168,036	167,540	167,044
R^2	0.17	0.17	0.17	0.17

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5. "Placebo1" is the result of a temporal reversal of the SPEI-1 values. Values for the southwestern-most observation are replaced with the values of the northeastern-most observation, etc. To construct "Placebo2," we reverse years and months and thus, for example, replace the January 2002 SPEI-1 values with the December 2018 values. With these spatially and temporally reversed SPEI-1 values, we then construct the additive inverse of the cropland and main-crop growing season weighted SPEI exactly as we do for our main explanatory variable.

Supplementary B. Alternative data on drought disasters

One channel through which weather conditions that are unusually dry could have an effect on attitudes is if they cause a natural disaster. Whether dry conditions have disastrous consequences depends both on how severe the weather conditions are and whether they are treated as natural disasters by the authorities, which also depends on social, economic, and political circumstances (these processes are hence endogenous to societal factors). We utilize the Emergency Events Database, which records those events with a certain degree of fatalities, affected people, or state responses (EM-DAT) (Guha-Sapir et al. 2014). Using a geocoded version of this data, the GDIS dataset (Rosvold and Buhaug 2020), we match drought disasters to the regions in which the Afrobarometer respondents live.

Table Sb1. Reported Drought Disasters From EMDAT/GDIS

	(1)	(2)
Drought disaster in region$_{t,t-1}$	0.001	-0.151***
	(0.043)	(0.048)
Leader birth region		0.212***
		(0.027)
All control variables	Yes	Yes
N	168,493	168,493
R^2	0.17	0.18

Notes: The dependent variable is Trust in President. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 10% (*), 5% (**), and 1% (***). The control variables included are presented in section 4.5.

Drought Disaster in Region$_{t,t-1}$ is a binary indicator for whether a drought disaster was reported in the region during the year of the Afrobarometer survey or the year before. In the first and third columns we use the same econometric specification as before, but instead of *Drought Conditions* we include *Drought Disaster in Region$_{t-1}$* as an explanatory variable. Given the endogenous nature of the latter indicator, the results are unlikely to reflect causal relationships. Several factors unrelated to weather determine whether there is a drought disaster reported. It is worth noting that all the drought disasters that occurred in the respondents' regions of the in the year of the survey or the two years before the survey took place in a region is also a leader birth region. It seems highly unlikely that this reflects that the weather conditions as such are severely dry only in leader birth regions. With the caveat that the results using data on reported drought disasters will be endogenous, one can note the following: In the first model, drought disasters are not statistically associated with changes in political trust. However, as shown in Model 2, when accounting for whether a disaster took place in the president's home region, we witness a negative association between reported drought disasters and political trust. Model 3 depicts that among respondents living in leader birth regions, experiencing a drought disaster the past year is associated with less political trust, yet the estimates here are not statistically significant. As such, the results in the last two columns, both using this endogenous indicator of drought disasters, point in the opposite direction to the results obtained using the arguably more exogenous indicator of weather conditions we use in our main analysis.