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Most Africans place primary responsibility for climate action on their own government

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Global increase in the pace of climate action is urgent. Yet, it is less clear who citizens expect to take the lead on climate action across different regions of the world: historical emitters, their own governments, or themselves? Our analysis of Africa's largest public opinion survey, the Afrobarometer, across 39 countries finds that Africans place primary responsibility for addressing climate change on their own government, a further third see ordinary citizens as most responsible, while very few place responsibility on historical emitters. Multinomial logistic regression analysis shows that education, decreased poverty, and access to new media sources are associated with increased attribution of responsibility to historical emitters. Our results suggest that poverty alleviation and increased access to education, combined with professional frontline government bureaucracies can re-apportion citizen expectations of responsibility for climate action onto historical emitters and actors with more resources for scalable climate action.

Rapid reduction of greenhouse gas emissions and adaptation to the impacts of climate change require urgent, sustained, and accountable action globally[1]. Understanding citizens' perspectives on who is responsible for climate action helps clarify their expectations on climate commitments and determines the extent to which citizens have an appetite for holding certain actors to account for local, national, and international implementation. Analysing the determinants of citizens' views is particularly important given the common but differentiated responsibilities for climate action[2,3] and the diverse climate change response capabilities of citizens and governments, both across and within countries[1,4].

Globally representative data has recently shown an almost universal demand for action on climate change and varied expectations across countries for both individuals and others to act[5]. There is a stronger willingness of individuals in countries with higher vulnerability to climate change to contribute proportionally more to climate action across 25 African countries showing an average of 71.5% of population willing to contribute 1% of their household income[5]. In contrast, a growing number of studies have shown dissatisfaction of citizens with their own government's lack of ambition and actions addressing climate change[6–9]. A further study has shown that citizens across China, Germany and the USA seem to share the norm of common but differentiated responsibility for climate change: that fairness should guide responsibility for greenhouse gas (GHG) mitigation costs across countries[10]. But as global conversations continue about who is responsible for addressing climate change and their differentiated roles and attached commitments, it is critical to consider the opinions of populations from regions most vulnerable to its impacts.

Little is known about citizens' expectations of responsibility for climate action across low- and middle-income countries, and particularly for Africa. Yet these regions include some of the fastest growing economies, cities, and populations together with the greatest increases in climate risks in the coming decades[11,12]. These are also regions of the world facing persistent development challenges associated with service delivery deficits that exacerbate the impacts of climate change and the need to pursue climate-resilient development pathways[13,14]. Without accountable local and national government responsiveness to these needs, increases in vulnerability and exposure will not be met with adequate responses to reduce increasing risks from climate change for people and nature. Here we ask: Which actors do Africans believe are most responsible for addressing climate change?

Recently published data from the Afrobarometer collected between 2021 and 2023 provides new insights into citizens views on responsibility for

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climate action[15]. The survey asked a sample of 53,444 people across 39 countries whether they had heard of climate change. The 26,735 respondents who said yes were then asked: "Who do you think should have primary responsibility for trying to limit climate change and reduce its impact?" Response options included business and industry, the national government, rich or developed countries, everyday Africans in their country, traditional leaders, or someone else. These data allow us to identify the distribution of responsibility attributed to each actor across the continent, as well as explore correlates of attribution of responsibility to each actor. The analyses are limited to those who have heard of climate change, though in the Supplementary Table 1 we replicate all primary results using hurdle models which estimate both having heard of climate change as well as the response to each subsequent dependent variable (see Methods for additional information).

Participants who had heard of climate change were also asked whether they believe everyday Africans *can* do anything to limit climate change, and whether they believe their national government *should* do anything to address climate change even at the expense of the economy (see Supplementary Note 1 for full question wording). Responses to these questions supplement the results above: Citizens may hold the same *relative* evaluation of who is most responsible for addressing climate change, but these subsequent questions provide information about absolute evaluations of the role of government and everyday Africans.

Our focus is on individual and state-level correlates, such as access to information and resources, socio-demographic characteristics, and state capacity, previously identified as associated with public opinion on climate change in the region[5,16,17]. We emphasize that the cross-sectional nature of the data are such that we can only identify the correlates, not the causes, of attribution of responsibility. This endeavour is a critical first step in understanding the landscape of a historically under-studied populations' perceptions of climate action and lays a foundation for future work in identifying the causes and consequences of attributing responsibility to different actors.

How might we expect Africans to rank who is most responsible for limiting climate impacts? For those aware of the shared but differentiated responsibilities for human-caused climate change, one might expect the burden for climate action to be placed on both wealthy countries as well as business and industry, given their historic greenhouse gas emissions[2,3,18]. But low rates of climate change literacy on the continent[16] could preclude the potential effect that such awareness has and substantially reduce citizens allocations of responsibility to such entities[19,20].

On the other hand, people may attribute responsibility to their own government[21]. Compared to Europe and North America[22], very little is known on how much responsibility Africans attribute to their governments. Yet this is a potentially important view for climate governance given the large inter-and intra-state variation in governments' capacity to reduce their emissions and vulnerability, and adapt to the impacts of climate change[23,24]. As citizens experience the impacts of climate change or with increases in climate change literacy, they may recognize this variation and adjust their expectations regarding climate action from their government accordingly.

Finally, it is also possible Africans could attribute primary responsibility to themselves. Studies from outside Africa suggest the potential for a strong relationship between concern about climate change and personal responsibility for climate action[25]. One recent study from China for example has shown higher climate change literacy can drive individuals to translate their pro-environmental intentions on climate change into behaviours when combined with personal experience or perception of climate change[26]. In contrast, a further study has shown that for herders and farmers in Tibet among whom there is generally low climate change literacy, those living at higher altitudes are more likely to perceive impacts of climate change, but rarely consider themselves able to adapt to climate change[27]. Further, much global research is mitigation focused and does not extend to the everyday adaptation context faced by African citizens nor position the relative importance of individual responsibility of Africans vis-a-vis other key actors like historical emitters or governments. Indeed, the most frequently observed climate change adaptation-related responses in Africa are implemented at the household-level and by individuals rather than by governments[28]. In addition to low levels of understanding of the connection between climate impacts and historical emitters outside the continent[16], perception of local climate changes can be mediated by local social networks[29], potentially increasing the perceived responsibility for climate action on local actors, including individuals' agency to cope with climate impacts.

Results and Discussion

Citizen's views on responsibility for climate action

Almost half (45%) of Africans who have heard of climate change, believe their own government is primarily responsible for addressing climate change and reducing its impacts. By comparison, 30% attribute primary responsibility to everyday Africans themselves. Historic emitters are least often selected, including rich countries (13%) and business and industry (8%). Respondents most likely to have heard of climate change include men, those with higher levels of formal education, increased news access, resources, community engagement, and drought perceptions, replicating existing work identifying the determinants of climate change literacy on the African continent[16,30] (Supplementary Table 1).

Figure 1 shows the variation in who citizens say is primarily responsible for climate action. West African citizens stand out with the highest proportion of views that their own governments are responsible for climate change (Nigeria, Liberia, Niger, The Gambia, Guinea, Mauritania, Sierra Leone, Mali and Senegal; >50%). For example in Nigeria, 76% of respondents in Africa's most populous country that have heard of climate change assign primary responsibility for addressing climate change to their government and other analysis of this data have shown 71% want the Nigerian government to take immediate action to limit climate change, even if it is expensive, causes job losses, or takes a toll on the economy[31].

Some countries like Uganda, Benin, Ethiopia, Ghana and Kenya show a relatively even split in primary responsibility placed on government and ordinary people. Yet there is a range of countries from all regions, and across low- to middle-income countries, where responsibility is primarily attributed to individuals (Madagascar, Burkina Faso, Zambia, Botswana, Tanzania, Kenya; >45%). These findings are consistent with other global surveys that show the majority of respondents in 42 countries think that individual people are the most responsible for reducing causes of climate change, including 8 from sub-Saharan Africa (Ghana, Benin, Burkina Faso, Zambia, Botswana, Malawi, Kenya and Tanzania)[9].

Among the top ten countries in which citizens attribute primary responsibility to historic emitters are all four small island states (Cabo Verde, Mauritius, Seychelles, and Sao Tome & Principe). This may reflect an awareness that these populations face growing risk of sea level rise. Malawi and Zimbabwe stand out as the two countries where a significant number of respondents (9%) attribute responsibility to traditional leaders highlighting the particular importance of including Indigenous knowledge holders in climate action in such countries. In Supplementary Table 16, we present the joint descriptive statistics for the proportion who have heard of climate change and proportion who attribute responsibility to each actor for each country.

Individual Differences: The role of resources, education and information

This analysis focuses on the attitudes of citizens who are aware of climate change. Using a multinomial logistic regression approach (see Methods), it first identifies the relationship between resources and information on the attribution of responsibility. Africans who have access to material resources are more likely to attribute responsibility for climate action to their fellow citizens. Those who score lowest on the lived poverty index (i.e., low levels of material deprivation) are 5.20 percentage points more likely to attribute responsibility to ordinary Africans compared to the other entities ($p = 0.04$; Fig. 2). It also aligns with global assessments of observed human responses to climate change that show household and community level actors are the

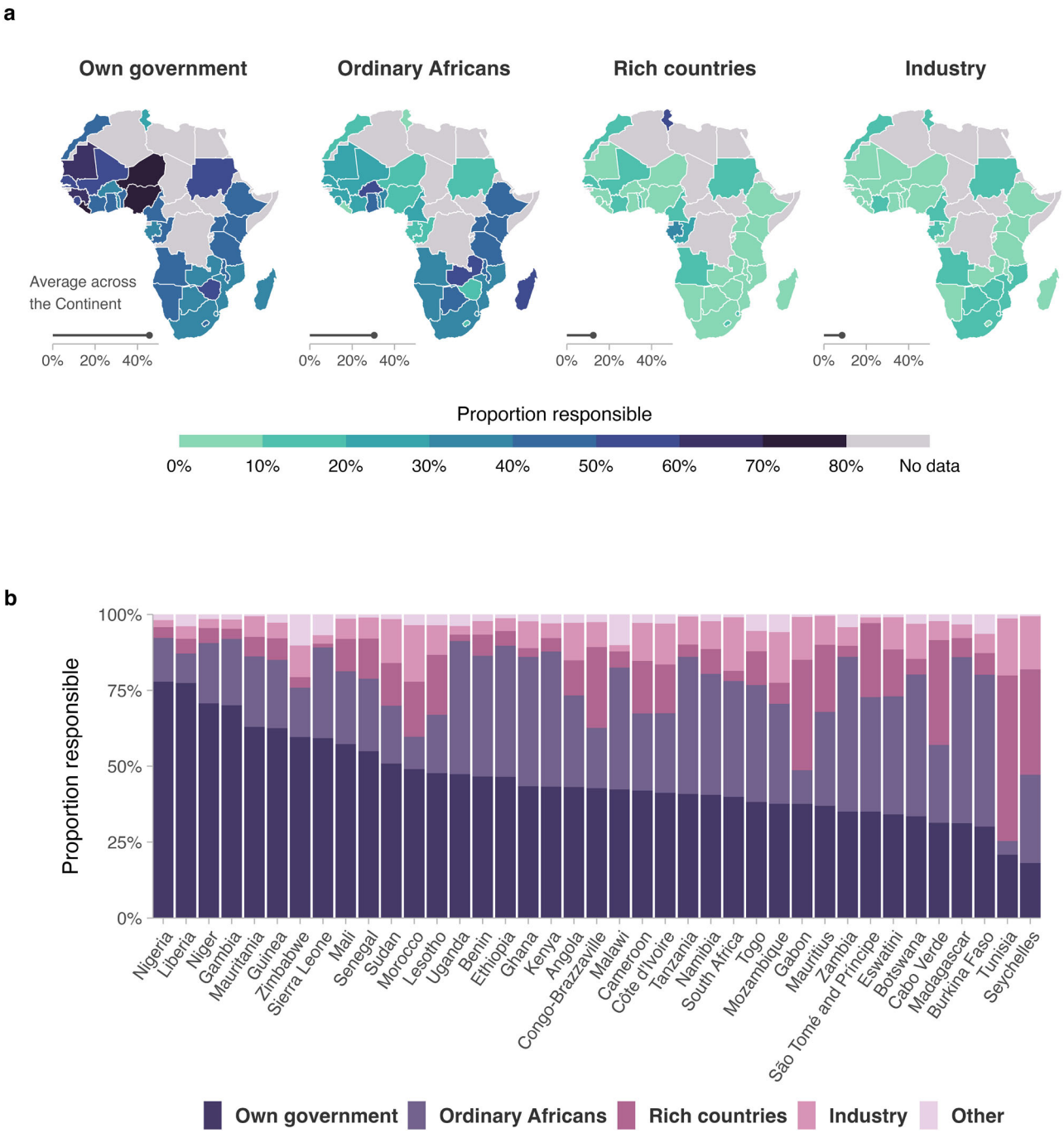

Fig. 1 | Allocations of responsibility for climate action in Africa. a Comparison of proportion of respondents in each country who have heard of climate change and believe the actor most responsible for limiting climate change is their own government, ordinary Africans, rich countries, or industry. **b** Per country proportions for all response options among those that have heard of climate change. 'Traditional leaders' and 'someone else' were combined to a single "Other" category.

most frequently documented responders to climate change in Africa[28]. The results also extend those of other studies that show those more vulnerable to climate change are more willing to act[5].

Those with secondary or post-secondary education are significantly more likely to attribute responsibility to rich countries (secondary: 3.80 percentage points, post-secondary: 4.90 percentage points, both p's <0.001). Further, frequent access of new media sources, including social media and the internet, is also associated with a shift in responsibility away from one's own government (4.59 percentage point decrease, $p = 0.006$) toward business and industry (2.85 percentage points, $p < 0.001$). The results are substantively similar across alternative model specifications (see Methods and Supplementary Tables 3 – 6).

Respondents were also asked whether they believe everyday Africans *can* do something to stop climate change, as well as whether the government *should* do something to stop climate change. Lower levels of poverty, higher levels of education, and more frequent access to new media are associated with both belief Africans can and their government should do more to address climate change (Supplementary Table 7). In conjunction with the findings on attribution of responsibility, these results suggest that resources and information are associated with support for climate action broadly, increased confidence that everyday Africans can act, and recognition that historic emitters should play a larger role in such action. That is, increased resources and information may increase an overall sense of responsibility to address climate change while shifting priorities of who should act.

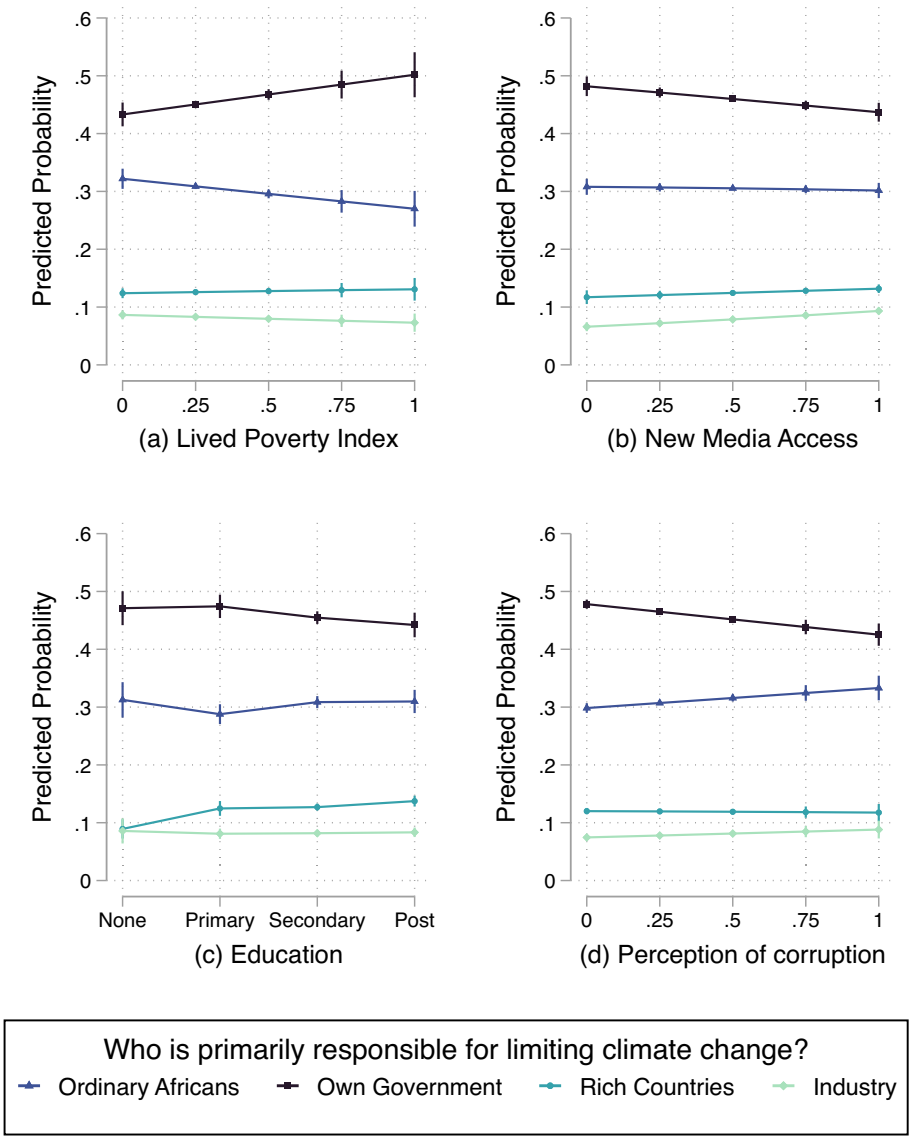

Fig. 2 | The predicted probability that respondents select their own government, ordinary Africans, rich countries, or business and industry as the most responsible for limiting climate change and its impacts, holding all other socio-demographic characteristics constant. Results are from multinomial logit models. Full results for panels **a**-**c** are available in Supplementary Table 2, and for Panel **d** are available in Supplementary Table 10. Error bars are 95% confidence intervals clustered at the country level.

Other socio-demographic characteristics have little to no relationship with attribution of responsibility for addressing climate change to different actors (Supplementary Table 2). This includes other markers of vulnerability associated with increased climate change literacy, such as community engagement, access to traditional news sources like radio and newspapers, and gender.

Responsibility attribution and the role of government

Most Africans attribute primary responsibility for climate action to their own government. Yet, state capacity and citizens' perceptions of government performance vary widely across the continent, which has the potential to influence responsibility attributed to the government.

Starting with individuals' perception of corruption, those who believe their government is corrupt are less likely to attribute responsibility for addressing climate change to their government (5.24 percentage points, $p < 0.001$; Fig. 2), and instead place more responsibility on citizens. Perceived corruption is therefore associated with lower expectations of government to engage in climate action. This effect remains statistically significant even after controlling for respondents' party identification (close to ruling party), and their evaluation of elected officials' responsiveness to citizen concerns (Supplementary Tables 10 and 11).

To more precisely identify the relationship between attribution of responsibility and state functioning, we turn to measures of state professionalism. Professionalism measures whether a range of services are easy to use and free from corruption. They are important because they are enablers of climate action and human development more broadly (e.g., education, health care, and municipal services)[13]. The professionalism measure used here aggregates individual reports about ease of service access and freedom from corruption to the regional level and these analyses include a control variable for the geographic reach of the state. Given the significant variation of state infrastructure across these types of services in Africa, as well as low- and middle-income countries more broadly[32,33], controlling for state infrastructure helps to isolate the effect of professionalism on climate action. These measures have been previously validated (see Methods)[34].

State professionalism has a significant and positive association with responsibility attributed to citizens and decrease in perception that their government is responsible (both p's <0.001). This could reflect developments on the continent where private actors are taking on climate-related actions such as securing energy or water access through installing household-level solar power or drilling boreholes in response to climate change impacts or development deficits when the state does not obstruct such actions[35–40]. It is also important to note that while the state may be

present in the region, for example by providing schools and hospitals, that does not necessarily mean those public resources are run well. And indeed, the mere presence of the state does not associate with increased responsibility attributed to ordinary Africans nor the state government (see Supplementary Table 15 and Supplementary Fig. 1 for additional results).

State capacity and climate action: a virtuous cycle?

The results above suggest that state professionalism may encourage citizens to take climate action. This has the potential to create a virtuous cycle in which a capable state enables citizen action and political accountability[41,42], which in turn further increases governments' incentives to provide basic and professional services[43]. While relying on cross-sectional data limits the ability to fully test for this cycle, additional results presented here are consistent with the hypothesized dynamic.

For state professionalism to encourage citizens to engage in climate action, it should be associated with increased citizens perception that everyday Africans can do something to address climate change. Empirical evidence supports this: in regions with high levels of state professionalism, respondents are more likely to say that ordinary citizens *can* do something to address climate change (0.154, $p = 0.011$). The relationship holds, even after controlling for other factors such as education and material wealth, which are also associated with individuals' efficacy in the face of climate change (Supplementary Table 15).

At least two additional connections are required to establish the virtuous cycle between government professionalism and citizen action. First, citizens living in regions with higher levels of state professionalism also need to be more likely to believe that the government should do more to address climate change (even if it does not take a lead role). Second, citizens living in these parts of the country and holding these beliefs need to be more likely to hold the government accountable.

Consistent with these predictions, where state professionalism is higher, citizens are also more likely to say that their government should act now to address climate change, even if it might come at a cost (0.119, $p < 0.05$). Optimistically, while citizens believe everyday Africans should take a larger role in addressing climate change, this belief does not crowd out and is instead associated with support for government action (see also[8,44]).

They are also more likely to take action to hold the government accountable. Specifically, they are more likely to report having turned out to vote in the previous election (0.158, $p = 0.26$, see Supplementary Table 15). While voting is only one action citizens can take to hold their governments accountable, it is both a centrally important action and, in many instances, a costly action making it a conservative test of the virtuous cycle. We note that while political participation can be subject to social desirability biases where people feel pressure to over-report turnout, Afrobarometer's 'Voting turnout' variable is the standard way of measuring turnout across regime types in Africa[45–48].

It is important to reiterate that the cross-sectional nature of the data provides correlational evidence, but prohibits any causal claims. State professionalism is associated with citizens' increased willingness to address climate change, their increased demand that the state also addresses the issue, as well as their willingness to hold the government accountable, all three are consistent with the virtuous cycle.

Future work is necessary to fully identify this cycle, as well as to determine which actors and institutions and government most affect and are affected by this interface with the public in the context of climate change (see also[49]). In contrast, the mere presence of public service infrastructure has no statistically significant effect on citizens' perceptions of being able to limit climate change; and actually decreases perceptions that the state should do something to address climate change (Supplementary Table 15). This suggests that a virtuous cycle is unlikely to develop by merely expanding the reach of the state in Africa, but rather, highlights the importance of state professionalism in climate action.

Future work is also necessary to uncover the causes and consequences of the different types of action governments may take in this cycle. For example, governments can allocate resources across mitigation and adaptation, and implement both of these policies across different sections (e.g., disaster prevention, water management)[50–52]. The intersection of the growing literature on determinants of government action and public opinion has the potential to shed light on how the specific steps taken by the government change public attributions of responsibility and vice versa.

Our results are limited to the perspective of citizens who are aware of climate change. Those who are unaware will also not have an opinion about which group is most responsible for addressing the crisis. While these citizens may not hold their government accountable for failing to act on climate change, they may note that limited government resources are being diverted away from other important issues facing their country. Future work is needed to identify the joint effects of climate change literacy, the attribution of responsibility, and how the Africans evaluate the action of their governments in addressing or failing to address ongoing climate change.

Conclusion

Who is responsible for limiting climate change and who should take the lead on climate action? These have become central questions of climate justice as they highlight the governance, distribution and burdens of climate action[25,53,54]. Governing bodies that make decisions about who will tackle both mitigation and adaptation must consider the opinions of those they govern. Across the African continent, people primarily point to their own government, then ordinary Africans, then a mix of industry and historic emitters to be responsible for climate action. These notions of responsibility are not uniform, and variation is associated with a range of socio-demographic characteristics and differences in state capacity.

These results provide a citizenry perspective, albeit with one important caveat. These results refer to climate action, but do not distinguish between who people believe is responsible for mitigation versus adaptation. Respondents were asked: "Who do you think should have primary responsibility for trying to limit climate change and reduce its impact?" Variation may be due to differences in who people believe are most responsible for addressing climate change, but it may also be due to variation in whether respondents are considering adaptation versus mitigation. Preferences may also be mediated through different levels of knowledge about climate change. Unfortunately, these data only provide a binary measure of climate change awareness. For example, individuals may place responsibility on themselves to protect their homes from climate disaster, but responsibility on historic emitters for reducing carbon dioxide emissions.

This work contributes to a growing body of evidence that everyday people are willing to act to address the climate crisis and expect their governments to do the same. One recent global study based on a representative survey across 125 countries has shown countries facing higher vulnerability to climate change, including the surveyed sub-Saharan African countries, show a particularly high willingness of individuals to act on climate change[5]. This shows an internalised burden of responsibility on those most affected. Importantly however, that study also showed high expectation for governments to act on climate change with 86% of respondents indicating that people in their government should try to fight global warming (87.7% average for the 28 African countries surveyed)[5]. The results here add to these findings by identifying who everyday Africans believe is most responsible for addressing climate change, and to what extent state capacity could play a role in creating a virtuous cycle of climate action in low-resource environments that are particularly vulnerable to climate change.

Contrasting the potential virtuous cycle, internalisation of allocation of responsibility for climate change by individuals or communities that are generally identified to be more vulnerable to climate change is a potentially concerning trend if not combined with responsibility and action from governments and historical emitters. It suggests that for those receiving least support from their governments—including under conditions of government corruption—and for those with least capacity to deal with climate

impacts, there is low expectation of any improvement on responsiveness of their government. This is important because the political salience of climate change themes among political parties and voters remains comparatively low in Africa. Nevertheless, political actors and climate governance stakeholders more broadly will need to pay greater attention to climate action as citizens experience climate impacts, understand its consequences, and increasingly look to hold their representatives and governments to account. Indeed, this analysis suggests that citizens who have access to resources and information are associated with support for climate action broadly, the empowerment of everyday Africans to act, and the recognition that historic emitters should play a larger role in climate action.

Finally, global climate debates link responsibility with the need to rapidly scale up support for climate action, including proportional climate finance from rich countries that is commensurate with their historical emissions[20,54]. In contrast, Africa's citizenries currently attribute little primarily responsibility on historical emitters. Other work finds directly addressing climate change is not one of the most important issues Africans want their governments to address. Rather, other concerns such as tackling unemployment, management of the economy, building of infrastructure projects, as well as the improvement of social services (e.g., health care, education) top citizens' agenda[55]. Other political actors such as civil society organisations and donor organisations, as well as regional fora and alliances are more likely to determine African countries' positions in international negotiations[56,57]. However, this trend could change with development progress, particularly on education, as secondary and post-secondary education and access to new media sources increase responsibility attributed to historic emitters, including both wealthy countries and industry.

Methods

Survey Data

Survey data were drawn from the Afrobarometer's Round 9 public opinion survey, which collected data from 53,444 people across 39 African countries between 2021 and 2023[15]. Afrobarometer provides data on Africans' experiences and evaluations of democracy, governance, and quality of life. Round 9 included a range of new questions that enables analysis of citizen views of responsibility for limiting the effects of climate change (Supplementary Note 1). Afrobarometer conducts face-to-face interviews in the language of the respondent's choice with nationally representative samples of between 1200 to 2400 respondents, yielding country-level results with margins of error of ±3 to ±2 percentage points at a 95% confidence level[34]. The Afrobarometer sample design is a clustered, stratified, multi-stage, area probability sample, first stratifying the sample according to the main subnational unit of government (state, province, region and so on) and then by urban or rural location[34]. The Round 9 survey achieved a gender balance of 27,202 men and 27,234 women[58]. Additional information on sampling is available in Afrobarometer technical information reports[34]. When reporting multi-country findings such as regional or Africa-wide averages, each country is weighted equally (rather than in proportion to population size).

Statistical Analysis

To identify which group respondents believe is most responsible for addressing climate change, we used a multinomial logistic regression. This approach regresses the nominal variable identifying whether respondents selected rich countries, business and industry, their own government, everyday Africans, or other on the independent variables of interest. Question wording and coding for all independent and dependent variables are available in the Supplementary Note 1.

An alternative approach is to recode the dependent variable into four indicator variables, each indicating whether or not a respondent selected each actor as the most responsible for addressing climate change. Then, regressing each dichotomous variable on the independent variable in four separate linear probability models. The benefits of the multinomial logistic regression approach are threefold: First, it is more efficient than conducting four separate models. Second, it allows us to compare the magnitude of the effect of each independent variable on the probability of attributing responsibility to each group. Finally, they allow for the inclusion of probability weights (provided by the Afrobarometer). However, there may be unobserved variables correlated with respondent location that affect these results[59]. Previous work using the Afrobarometer data has addressed this concern by including country random effects. However, including either random or fixed effects at the country level is computationally infeasible with the multinomial approach given the number of countries in the dataset[60]. Including fixed or random effects is also incompatible with including probability weights given weights are calculated at the individual level and not uniform within each country.

We address the concern of unobserved country-level variation in two ways. First, in the multinomial logistic regressions, we cluster the standard errors at the country level, accounting for any correlation in the error within countries. We additionally include an indicator variable for country of residence in the regression, ensuring any main effect of country of residence is not reflected in the other independent variables of interest (Supplementary Tables 2 and 10). We replicate the model with bootstrapped standard errors which can perform better when the number of clusters is low[61], and results are robust to this alternative specification (Supplementary Tables 5).

Second, we replicate the results using linear probability models, regressing the indicator identifying whether respondents selected each group as most responsible for climate change on the independent variables of interest across four separate linear probability models. We first include country level random effects: Given the large number of cases within the country unit, random effects are more efficient than fixed effects (Supplementary Tables 3 and 11)[62]. However, random effects assume errors within each country are uncorrelated with errors in other countries. Because we cannot test this assumption, we further replicate the results with fixed rather than random effects (Supplementary Tables 4 and 12). The substantive results are the same across all approaches.

All models that include regional level variables (state reach and professionalism) rely on the linear probability model approach. We cluster the standard errors at the region level, accounting for any correlation in the error within this level of analysis. The presented results therefore are a product of linear probability models, estimating the effect of each independent variable on a dichotomous variable identifying whether respondents place most responsibility on everyday Africans, their own government, rich countries, or industry separately[63].

To identify whether respondents believe everyday Africans can do something to stop climate change, and believe whether their own government should do something to stop climate change, we rely on a linear regression approach. We first regress the dependent variables on individual level socio-demographic characteristics. Models include standard errors clustered at the country level, and results are robust to using country level fixed or random effects, as well as bootstrapped standard errors (Supplementary Tables 7 and 8). Second, we replicate the results and include regional level measures of state professionalism and state reach. These models include standard errors clustered at the region level (Supplementary Table 15).

Data collection occurred from 2021 to 2023. Within each country, data collection occurred only within a single year. All strategies to account for country-level differences (i.e., fixed effects, random effects, and clustering) account for differences introduced by the timing of data collection. More information about the timing of the data collection is available on the Afrobarometer website.

As a reminder, only respondents who indicate they have heard of climate change were asked follow-up questions about who is responsible to address the issue. As a consequence, while the full sample is representative of each included country, the subsample who have heard of climate change are not (Supplementary Table 1). To address this limitation, for each set of analyses included in the manuscript we include a robustness check using a

hurdle model[64]. This model jointly estimates first the process of having heard of climate change and then the response to the subsequent question, thereby maintaining the entire sample in the modelling process. Because this class of models is not suitable for categorical dependent variables, for each entity to which respondents can attribute responsibility, the variable is set to 0 if the respondent has not heard of climate change, 1 if the respondent has heard of climate change but does not select the focal entity, and 2 if the respondent selected the focal entity. The model therefore first identifies the effect of each independent variable on having heard of climate change, and then the effect of each independent variable on the probability of attributing responsibility to each group. The results are robust to this modelling approach (see Supplementary Tables 6, 9, and 1,3). Supplementary Table 16 shows the percent who have never heard of climate change, and among those who have the percent who attribute responsibility to each category by country.

Data availability

All data is available online on the Afrobarometer website at the following link: https://www.afrobarometer.org/data/.

Code availability

All code to replicate the analyses will be made publicly available upon publication.

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Author contributions

Talbot Andrews, Nicholas Simpson, and Matthias Krönke were responsible for jointly conceptualizing and administering of the project; Talbot Andrews, Nicholas Simpson, and Matthias Krönke were responsible for analysis and wrote the original draft; Talbot Andrews, Nicholas Simpson, Matthias Krönke, Andreas Schwarz Meyer, Christopher Trisos, and Debra Roberts reviewed and edited the manuscript and revision drafts; Nicholas Simpson and Christopher Trisos were responsible for funding acquisition.

Competing interests

The authors declare no competing interests.

Inclusion & Ethics

All data collection was overseen by the Afrobarometer and conducted with approval from the Institutional Review Board at the Institute for Democracy, Citizenship and Public Policy in Africa at the University of Cape Town in South Africa. Data collection was completed by Afrobarometer in-country partner research consultants. Informed consent was collected from all participants. For more information about the survey methodology and protocol approval, see: https://www.afrobarometer.org/surveys-and-methods/.

Additional information

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