Check for updates

Clientelism and Community Support in Times of Crisis: Evidence Following Floods in Ghana

John F. McCauley[1]

Abstract

Residents of poor, rural settings have several potential sources of informal support: political patrons, non-political patrons, family, and the community. This study explores how preferred channels of informal support change in the aftermath of crisis. Following a logic of "safety first," I argue that individuals exposed to crisis invest in family and community as complementary forms of insurance against future setbacks, alongside their appeals to patrons. Using survey data from respondents living in two localities that happened to face atypical flooding in northern Ghana, and comparing those respondents to residents of two otherwise similar localities that did not face flooding, I show that residents do not instinctively increase their reliance on patrons. Instead, three months after a crisis, they tend to place greater relative emphasis on family networks and stronger community ties. Networks in which the clients themselves have greater control constitute lower-risk priorities in the event of future crises, whereas calamity can highlight the risks of relying solely on patron-client relationships to address critical needs.

Keywords Patron-client networks · Informal insurance · Crisis · Safety first · Ghana

Introduction

Residents of poor, rural settings often lack adequate institutionalized support from the state but may nevertheless have access to various sources of informal support: political patrons, non-political patrons, family, and the community. This study explores how exposure to crisis in rural Africa causes individuals to reassess those sources of support.

✉ John F. McCauley
    mccauley@umd.edu

1   Department of Government & Politics, University of Maryland, College Park, 3140 Tydings Hall, College Park, MD, USA

One perspective places political patrons at the center of African life, suggesting that clients exposed to crisis should demand more of the "big men" to whom they have provided loyalty (Bayart 1993). Similarly, non-political patrons, such as ethnic or religious group leaders, may be well placed to provide informal support to clients in need (Joseph 1987; McCauley 2013).

An alternative perspective, developed in the 1970s but infrequently tested empirically, places greater priority on the "moral economy" in subsistence environments, in which kinship ties foster a collective responsibility to the group that protects members from pending risk and serves as a kind of insurance (Polanyi 1977; Scott 1976). According to this logic, subsistence leads rural dwellers to reprioritize their commitment to family and local community networks.

Often missing from both perspectives is attention to the calculations of clients and community members as their living conditions change, especially as a result of crisis. Studies focusing on patron-client networks have provided important insights regarding the electoral interests of patrons in contexts of persistently weak institutions (Kitschelt and Wilkinson 2007; Veenendaal and Corbett 2020). Yet demand for patronage is often assumed to be fairly constant, so less attention is given to the fact that patron-client relationships might ebb and flow and that several other forms of insurance exist from the constituent's perspective. On the other hand, studies that propose a moral economy of the peasant run the risk of romanticizing subsistence living. They, too, often treat rural African life as insecure but relatively static, managed through reciprocal exchanges with neighbors. Increasingly, however, scholars recognize that shocks create new, less optimal equilibria for the poor (Mogues 2019; Sachs 2006), suggesting that communities facing crisis are likely to reassess their sources of informal insurance and support.

This paper argues that residents of poor communities have incentives to supplement their reliance on patrons with investment in other forms of insurance in the aftermath of crisis. Patrons constitute a clear source of much-needed resources in a post-crisis context, but their clients are also likely to recognize that patronage tends to be reserved for electoral contexts, that patrons may face reduced access to resources following crisis, and that the patronage those clients received to that point had been insufficient to prevent suffering. In short, community members in a post-crisis context may recognize patron-client relationships alone as insufficient to address the slate of prospective needs they face. Ties to family and community can provide additional, complementary support against future setbacks.

To evaluate post-crisis preferences regarding informal insurance, the study relies on original data collected following a naturally occurring crisis, a major flooding that affected northern Ghana in 2007. Consistent with an increasing number of more recent events attributable to climate change in Africa (see Baarsch et al. 2020), unforeseen and atypical floods hit the region in late August and early September of that year: over 50 people died as a result of the flood and its aftermath, and over 300,000 people in Ghana were left homeless (Samimi et al., 2012). Importantly, however, villages were not affected in a uniform manner. Some were devastated by the floods, while others escaped largely unaffected.

The research design capitalizes on this variation by comparing the priorities of individuals in villages that are otherwise very similar but which differ markedly in

terms of the unanticipated flood damage they suffered. Absent pre-event data, one may exploit differential event exposure as a source of subsequent preferences, conditional on the assumption of pre-event similarities in paired locations, and a careful accounting of potential differences.

Using survey data from respondents across four locations in the Upper East region, the findings suggest that, while big men remain important, northern Ghanaians who lived through disaster do not reflexively rely more heavily on patrons to provide the prospective support they need. Instead, relative to their counterparts in stable settings, respondents in post-crisis settings place greater priority on the family and the broader community, forms of informal social insurance over which they can exert control and minimize risk.

Post-crisis studies are inevitably hampered by uncertainty in the local administrative context and limited access to research participants and data. For those reasons, the study aims primarily to introduce theoretical considerations that bring cultural and communal choices into a literature heavily reliant on patron-client exchange. It focuses on the impact of calamitous events that affect poor communities as units, in this case relying on the natural occurrence of floods in northern Ghana but applicable also to other crises that create a shared, adverse experience, such as earthquakes, terrorist attacks, or epidemics that undermine food supply.

The paper contributes to the political economy of development literature in several respects. First, theories building on community ties and a moral economy have rarely been tested empirically as a complement to patronage, perhaps precipitating their neglect in favor of theories that prioritize institutional or leadership factors. This study renews calls to treat informal social networks as a key aspect of the political economy of development. Empirically, the study exploits an exogenous shock consistent with treatments used in natural experimental studies (see, e.g., Healy and Malhotra 2010; Patrick and Cormier 2020); it demonstrates the inferential leverage that can be gained by exploiting such events, provided appropriate controls are employed. Finally, as studies focus increasingly on the threats to resilience that climate shocks engender (see Adzawla et al. 2019), this study provides important insights into how rural Africans change and adapt to unanticipated setbacks.

Informal Support in the Aftermath of Crisis

In the marketplace for sources of informal support, residents of communities with insufficient public goods provision have numerous options in which to invest. First, in the African context, the literature suggests that political patrons loom largest, providing private transfers to citizens in exchange for loyalty (Arriola 2009; Bayart 1993). This is true not only at the national level but also in various forms of distribution to more local levels (see Green, 2010). Scholars note that successful patron-client relationships are underpinned by a channel that ensures ongoing exchange, such as political parties (Kitschelt and Wilkinson 2007), or more frequently in the African context, ethnic group networks (Hyden 2006; Ishiyama 2012).

Political patrons conventionally seek loyalty in the form of electoral support (Hyden 2006). In exchange, they offer material benefits to constituents: big men

may provide, through brokers, cash handouts in the lead up to elections (Kramon 2016), targeted club goods such as electricity or health clinics to supportive communities (Lindberg 2013), and access to lower-skilled jobs (Brierley 2021). While ethnic ties typically create the channels for patron-client exchange in Africa, the goods that patrons provide are oftentimes not locally excludable, so even non-coethnic residents of favored localities may lend electoral support to the patron (Ichino and Nathan 2013). Conventionally, the exchange of resources for loyalty is facilitated by either party insiders (Carlson 2020) or traditional leaders (Baldwin 2013).

Second, individuals in post-crisis settings may invest in relationships with other, non-political patrons, such as religious or ethnic group leaders. Those patrons facilitate the provision of resources from the state (Baldwin 2016) and can also provide non-material benefits, such as the prospect of salvation or ethnic group status, which may be particularly valuable in a post-crisis setting (McCauley 2017). Investing in relationships with traditional chiefs may ensure better public goods provisions from the state (Baldwin 2016), but in the absence of electoral incentives, some forms of non-political patron-client networks entail greater risk. For example, non-political patrons may simply withdraw from relationships with fewer consequences (Carney 1989), and clients typically expect some degree of tangible assistance even when patrons operate without the benefit of resources from the state (Hyden 2006).

Third, residents of poor communities may invest in fellow community members as a source of informal insurance and support. Where the formal provision of public goods is uncertain, Ostrom (1996) argues that private, informal social insurance networks are essential. Other scholars note, furthermore, that the poor can be viewed as non-altruistic players in dynastic relationships who seek to avert risk (see Coate and Ravillion 2001). Ayifah et al. (2020), Fafchamps (1992), and others suggest that ostensibly cultural practices allow households and individuals to cope with risk through expectations of long-term reciprocity. Structured as a patron-client exchange, community networks may provide material essentials in times of need but also access to local information, status, and a sense of belonging (Block 2018). The incentive to offer loyalty to the community may thus operate according to psychological as well as strategic rationales. Importantly, if households interact repeatedly and are equally likely to suffer setbacks, community members would alternately play both roles in the patron-client exchange, helping neighbors as a means of insuring one's own protection from future catastrophe.

Finally, community members may seek protection against risk by investing in their own families. Like community networks, broader family networks may practice resources-for-loyalty reciprocity (Attanasio et al. 2015). In the nuclear family context, studies have shown that individuals in poor environments find the productive benefits of additional family members to outweigh the costs of feeding more mouths, so larger family sizes are common (Lanjouw and Ravillion 1995). The mean desired number of children can thus reach as high as eight in some low-income countries, compared to approximately two in the USA (Banerjee and Duflo, 2007). Family size thus represents a source of long-term insurance over which the individual has a strong measure of control and which can be used to complement investments in various patron-client networks.

Crises pose threats to each of these forms of informal support: patrons have less to give, and communities and kin often suffer collectively. Yet, the experience can alter the risks and rewards of investing in each, so community members may wish to reconsider their investments as they seek to avoid future calamities. Here, I outline several reasons why community members in post-crisis contexts may not reflexively invest more heavily in patron-client relationships with big men. I then consider mechanisms that may encourage those community members to invest relatively more in their communities and families as alternative sources of informal insurance.

In a well-functioning patron-client context, unforeseen crises should be met with increased contributions of resources from the political patron to clients, on the logic that the emergency outlay will be compensated for commensurately with an increase in future loyalty. Studies describe several shortcomings in patron-client exchanges, however, that may be particularly pronounced following crises. First, patrons tend to enjoy disproportionate power in relationships with clients and often provide inadequate resource outlays even in normal times (Lawson and Greene 2014; Scott 1972). Further, unforeseen crisis can place a resource burden on governments that undermines the typical flow of patronage that political big men exploit (Levitsky and Way 2012).

Political patrons are also motivated by electoral incentives, which differ across political contexts and which may further discourage outlays of resources to clients following crisis. For example, political incumbents enjoy electoral advantages that may militate against providing private transfers following a crisis, relying instead on formal or programmatic channels to a greater degree than political challengers or newly elected officials might (Briggs 2012). The timing of elections also bears on the provision of patronage from political big men (Eifert et al. 2010; Pepinsky 2007): an exogenous crisis in the run-up to an election would likely evoke extensive outlays from patrons to clients, yet crises occurring outside of election cycles may not inspire the same urgency for political patrons to use the event to cultivate loyalty. Furthermore, crises can alter the priorities of local party executives who serve as brokers but also as key family and community members (Cruz et al. 2017). Finally, the partisan tendencies of localities affected by crisis may affect the likelihood that political patrons extend additional patronage following a crisis (Luna 2019). For all these reasons, communities living through a crisis may be as likely to sour on political big men as to anticipate additional patronage. One may add that incumbent patrons in post-crisis contexts are subject to evaluation by clients who have suffered setbacks and who, fairly or not, may assign responsibility to their political leaders.

Crisis contexts might also underscore the limitations in relying too heavily on non-political patrons. Especially in the context of religious big men who often promise either salvation or health and prosperity in exchange for congregants' loyalty (McCauley 2014), the crisis itself may constitute evidence that the investment in a patron for non-material protection did not pay dividends, so to rely more heavily on those non-political patrons for future support would invite additional uncertainty.

The political economy of development literature tends to focus on those patron-client networks, conventionally with political big men as patrons, as the informal response to shortcomings in public goods provisions. Yet, those exposed to crisis may pursue other sources of informal support. James Scott's *Moral Economy of the*

Peasant (1976) proposes an alternative to the exclusive reliance on patrons; it suggests that rural subsistence farmers live in a fairly steady state of subsistence, which they manage so long as disasters are averted. Crises, however, mean "the difference between the normal penury of peasant life and a literally hand-to-mouth existence" (Scott 1976: 17). To minimize the probability of livelihood crises, peasants adopt a strategy of "safety first," in which they invest in long-term relationships that can serve as a backstop against disaster in times of real need. This may suggest stronger relationships with a patron, but it also prioritizes self-help tactics and family, kin, and community relationships. Many sub-Saharan Africans continue to live in the conditions described by Scott: despite important improvements, four out of 10 lack access to safe drinking water, 20% are chronically undernourished, and half have no access to electricity.[1] In rural, subsistence settings, in which half of sub-Saharan Africans currently reside, choices may thus be embedded in a moral economy in which community members seek to minimize risk and to ensure that all members are accorded a right to livelihood security (Booth 1994).

A safety-first logic may encourage residents of post-crisis contexts to invest relatively more in their community network. By paying into a community-wide system, individuals can receive returns from all members of that community. Thus, in the aftermath of crisis when covariant risk is highest, the broad pool of informal insurers in a community reasonably suggests that some remain relatively better off and able to assist neighbors as others are hit hardest. Community members may also broaden their base of support, drawing kin from outside the immediate community into the village network or strengthening ties to those with non-agricultural sources of income, particularly in more urban settings where nuclear families tend to be smaller. As Rosenzweig (2018) notes, even the better off in poor communities face dire setbacks when crisis strikes, but broader, diversified networks help by providing multiple avenues for reciprocity.

Important non-material resources, such as comfort and hope, may also be available to residents in post-crisis contexts following investment in the community (Norris and Inglehart 2004). Beyond the strategic explanations, experience with shared crisis tends to engender a closeness among survivors that reinforces psychological and cultural bonds, as well (Kissileff and Lidji 2020), which may further elevate the importance of community in a post-conflict context. Thus, even as covariant risks might undermine the material capacity of community members and kin to provide assistance, crisis survivors gain other prospective benefits from investing in those relationships.

Individuals can also benefit from investing relatively more in their own families following a crisis. Beyond calculations to simply replace crisis-related loss or anticipated loss in family members (while holding family priorities constant), additional investments in family can provide added long-term insurance over which the individual has a strong measure of control when contemplating protection against future shocks. For example, studies demonstrate that in families with more children,

---

[1] For data on electrification, see https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=ZG. For data on undernourishment, see http://www.fao.org/news/story/en/item/1180443/icode/. For data on potable water sources, see https://www.un.org/waterforlifedecade/africa.shtml.

members enjoy greater familial contact (Grundy and Read 2012) and report lower rates of chronic pain (Jamison and Virts 1990). From a social-psychological perspective, Overstreet and Dempsey (1999) note that larger families can serve as a countermeasure to depression, even if they do not help to reduce post-traumatic stress following crises. Investing in family, particularly in terms of larger family sizes, may thus serve as both a prospective form of safety-first protection and a source of psychological reassurance that big men are perhaps less likely to provide.

If community and family can serve as alternatives to big men, it is worth considering whether they might act as complements or substitutes in the aftermath of crisis. Evidence suggests that clients do move away from relationships with their patrons when resource provisions no longer merit allegiance: Sives (2002) shows that community members in 1990s-era Jamaica transferred their loyalty from political big men to drug dons, and Johnson (1983) argues that Lebanon's civil war in the 1970s caused conventional patron-client relationships to break down, replaced in part by social movements. Studies also suggest that positive shocks to public goods provision lead to declines in patron-client relationships (Bobonis et al. 2017). Patrons nevertheless maintain their usefulness and relevance in a variety of ways. For example, even outside of electoral campaigns, political big men provide patronage to build esteem (Rizzo 2015) and preserve legitimacy (Paller 2019). Following crises, big men and their clients may engage in relational clientelism, using declarations of future support to insure against reneging (Nichter 2018). It is thus likely that community members in post-crisis contexts look for informal insurance against future setbacks from whatever sources are available. Recognizing shortcomings in patronage relationships, they may nevertheless maintain those networks while diversifying to community and family resources. This would be in keeping with Scott's description of a safety-first approach.

To summarize expectations, patron-client relationships are an integral component of African politics, but primarily in the context of elections and anticipated exchanges of resources for loyalty. Following crises, as individuals reevaluate their priorities and contemplate moving forward, a safety-first logic suggests greater relative emphasis on family and community.

Empirical Strategy

In recent years, as climate change has induced more extreme weather events especially in the tropics (Baarsch et al. 2020), floods and famine have affected numerous countries in Africa, including Nigeria (Israel 2017), Somalia (Martin-Canavate et al. 2020), and elsewhere. In Ghana, heavy rains hit the northern part of the country between late August and early September 2007, with flooding reaching its peak in mid-September. Hardest hit was the Upper East region, in the northeast portion of the country.

The circumstances of this flood created opportune conditions for studying the effects of exposure to crisis. First, the floods were by all accounts a once-in-a-generation occurrence in the region; according to reports, the region had not seen floods near this magnitude in over 40 years (see U.N. OCHA, 2007). Second, the excessive

rains were exacerbated by the decision of the government of Burkina Faso, Ghana's neighbor to the north, to open the Bagré dam on August 27 (Bempeh and Oyhus 2017). Opening the dam relieved pressure north of the border but had devastating, atypical consequences south of the border in Ghana. Finally, the flooding was not uniform across the region: whereas some villages suffered massive crop and housing losses, others—for difficult to observe reasons—escaped unharmed.

Site Selection

Two pairs of research sites were selected in the Upper East region, each of which paired a flooded site with a non-flooded site. Site selection started with the identification of two flooded but still accessible locations and then identified the nearest, similarly sized village or town as a matched, non-flooded site, in order to minimize differences in cultural characteristics, geographic factors, and livelihood patterns.[2] At the time of the data collection, 3 months after flooding, residents in the flooded villages were living in temporary conditions such as tents, school buildings, or with neighbors. They had developed alternative means for obtaining food and money, such as root diets and selling wood, but had otherwise settled into routines.

Figure 1 presents the locations of the four research sites in the Upper East region. Sandema and Bolgatanga are larger towns located in the central part of the region, approximately 40 km apart; Garu and Musiga are smaller villages in the northeast corner separated by 26 km. Despite their proximity and other similarities, the paired locations had very different experiences with the flood: in the flooded sites of Sandema and Garu, 96% of participants sustained loss of at least parts of their homes; in the non-flooded sites of Bolgatanga and Musiga, only 3% of respondents reported home damage due to rains.[3]

The research design hinges on two conditions: that the flooding constitutes an atypical exogenous shock, and that the flooded and non-flooded sites represent otherwise similar settings. First, if the flooding was a regular feature of life in the region rather than an atypical shock, residents would have already developed regular coping mechanisms across all flood-prone areas. Second, if some areas were more prone to flooding, the same characteristics affecting flood proneness could also affect the outcomes of interest. For example, flood-prone areas may have local leaders or governments that devote more resources to flood protection, which could impact the ways in which residents interact with their potential patrons. Since the study aims to evaluate how a crisis affects preferences for informal support, any features of paired villages potentially related to those preferences must be comparable ex ante.

Evidence suggests that the paired locations were indeed comparable prior to the flood in terms of both flood proneness and other factors potentially related to the outcomes of interest. First, as Table 1 reports, during the year preceding the flood, precipitation totals in 25-km geographic cells that include each village were almost

---

[2] The research team relied on familiarity with the local area rather than Mahalanobis distance to identify paired villages, owing to uncertainties in accessibility.

[3] While inaccessibility could generate selection bias, it would likely to do in a conservative direction if more damaged locations were avoided.
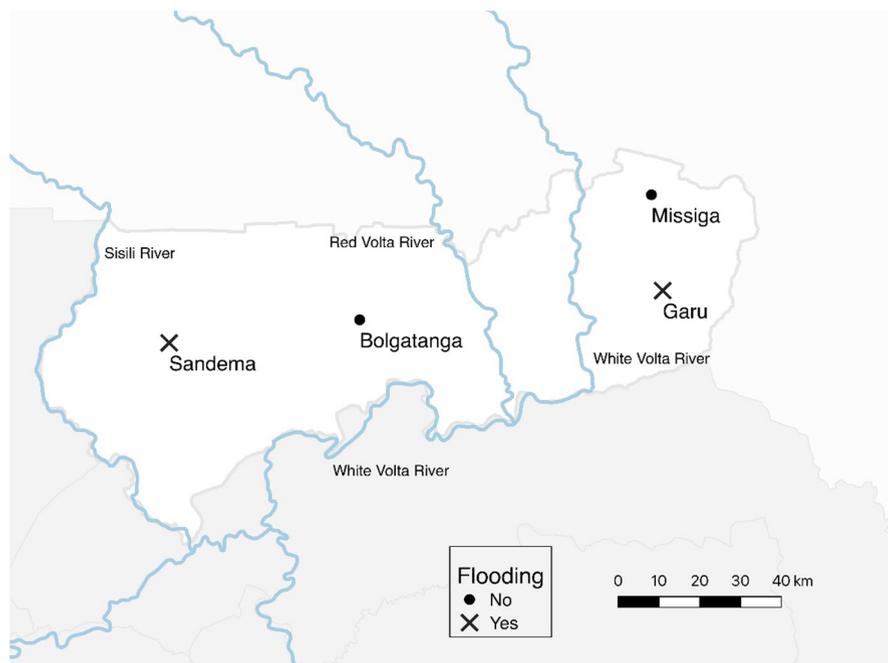
Fig. 1 Map of Upper East region, with research sites

identical for the larger towns and smaller villages. Second, none of the locations spent any of the prior year in drought, and the average temperatures in each pair of villages were also nearly identical. Third, in terms of land use, Sandema and Bolgatenga both feature approximately 50–70% mosaic croplands, with shrubland comprising the rest; the small villages of Garu and Musiga are both comprised primarily of rainfed croplands (see Fig.A.1 in the Appendix).[4] Fourth, the elevations of each pair of villages are very similar. Finally, both child malnutrition rates and cultural norms are comparable across the paired locations.[5]

Respondent Sampling Procedures

The study relies on a local survey in which respondents are selected via a systematic, clustered random sampling procedure with stratification by gender (see Appendix Table A.1 for details). Given the atypical conditions in flooded locations in particular, the sample size was limited to 205, resulting in less precision and larger standard errors than would be possible to achieve under more stable conditions. As Ford et al. (2009) note, crisis contexts create considerable barriers for large-n data collection, but smaller sample sizes collected in close proximity to crises can nevertheless generate important

---

[4] See Arino et al. (2012) for GIS descriptions. See Table 1 for additional data sources.

[5] Locations do differ in terms of the predominant sub-group of Mole-Dagbani, though anthropological studies suggest common cultural practices across those sub-groups (Mwakikagile 2017).

Table 1 Pre-flood features of study locations

	Sandema (flooded)	Bolgatanga	Garu (flooded)	Musiga
2006 precipitation (mm)	230.1	224.05	199.78	205.30
Proportion of 2006 in drought (%)	0	0	0	0
Average temperature (C)	28.12	28.19	28.47	28.41
Land use	Mosaic cropland (50–70%); vegetation	Mosaic cropland (50–70%); vegetation	Rainfed cropland	Rainfed cropland
Elevation (m)	174	172	240	244
Child malnutrition (%)	33.80	34.47	35.50	33.30
Predominant ethnicity	Mole-Dagbani (Builsa)	Mole-Dagbani (Frafra)	Mole-Dagbani (Kusasi)	Mole-Dagbani (Kusasi)
Predominant religion	Christian	Christian	Christian	Christian

GIS data from Schneider et al. (2016) for precipitation; Vicente-Serrano et al. (2010) for drought; Fan and van den Dool (2008) for temperature; Arino et al. (2012) for land cover; and CIESIN (2005) for childhood malnutrition. Elevation data available via https://en-gb.topographic-map.com/maps/zr4/Ghana/

insights and offer advantages over larger surveys that are either not tailored to the research question or conducted at intervals too far removed from the event in question.

Table A.1 in the Appendix presents descriptive statistics for the respondents from the pooled sample. Slightly more men than women participated in the survey, and about half of respondents had received no formal schooling. Figure A.2 illustrates that the sample is generally balanced across paired locations on individual-level covariates, though respondents from Sandema are somewhat more likely than their counterparts from Bolgatanga to be older and less educated.

Key Outcome Measures

Survey questions compare how respondents prioritize potential sources of support when living in a post-crisis situation (floods) as opposed to a relatively stable situation (no floods). The analyses draw on theoretical expectations from the literature to consider four potential sources: a political patron, other non-political patrons, family, and the broader community.

To measure reliance on a political patron, respondents were asked whether they had contacted a local political leader to help them solve a problem within the last 2 months. The idea of a local politician is understood by most rural Ghanaians to mean their district assembly representative or party executive, who is typically well-known at the community level. Nevertheless, the design did not constrain those who may have political patrons in other positions, as the question was framed in a general manner.

To measure reliance on non-political patrons, respondents were asked whether, in the last 2 months, they had contacted a religious leader or a traditional chief/delegate for help solving a problem. Each option was presented in a discrete question,

the format of which followed survey questions on the Afrobarometer public opinion survey.

During the immediate post-flood period, it is likely that respondents would have contacted their leaders at a higher rate, not necessarily as a function of altered preferences or attitudes but for purely logistical reasons in the aftermath of the flood. Yet, pre-survey focus groups indicated that non-governmental organizations (NGOs) provided much of the emergency support during that initial period, and many of the food sacks and tents provided for shelter were marked with NGO insignias. Further, relatively normal routines were reestablished after approximately 1 month. Because the objective of the study was to capture how post-flood priorities may have changed once the initial wave of emergency had passed, the survey question focused on the 2-month period beginning after the initial disruption caused by the flood.

Measuring reliance on family and the broader community is more complicated; in the flooded sites, those to whom a respondent might have turned for help may well have been seeking assistance themselves. Further, respondents would be expected to communicate regularly with family and community members, so a measure of contact frequency would not be appropriate. Instead, to measure longer-term reliance on family as an altered priority post-flood, respondents were asked what they consider to be the ideal number of children in a family. Studies suggest that higher numbers of children represent an insurance good in low-income contexts, especially in more rural areas (Pörtner 2001), and participants in this study expressed in pre-survey discussions that larger family sizes constitute the centerpiece of nuclear family investment. One male participant indicated that a big family is his "protection" that allows him to "sleep well at night."[6] A woman, mother of six, stated: "when I see our house full of children, that's how I know my family will be alright."[7] Higher numbers would thus suggest a desire to have more insurance against catastrophe; lower responses would suggest a go-it-alone attitude or a belief that the costs of larger families outweigh the potential benefits of support and insurance. To minimize non-responses, the survey question was framed as follows: "Recognizing that the number of children we have is often not in our hands, what would you consider to be the ideal number of children in a family?".

To measure reliance on the broader community, the study exploited the important place that funerals hold in Ghanaian society (Jack et al. 2020). Large funeral ceremonies—and the pressure even distant acquaintances face to attend them—have become ubiquitous in Ghana: funeral notices plaster outdoor walls; hosts rent stereo equipment, tents, and chairs and provide abundant food and drink; and attendees are expected to provide envelopes to the host, who often announces the amounts of money in each. The burden on both hosts and attendees has become so great that the government has considered methods to curb the excess (Ghanaian Times 2008), yet the events continue as a commonplace means of investing informally in the broader community. Critically, as Darkwah and Mavis (2017) note, funeral attendance has become more about representation in the community than about paying respects to the deceased. To fail to attend a funeral or send a family representative is to damage

---

[6] FG-04–03-2007.

[7] FG-01–08-2007.

ties that bind individuals and families to the rest of the community in times of crisis (Darkwah and Mavis 2017).

The question posed to respondents was as follows: "Suppose a key member of your community passed away. Would you attend the funeral if it were as far away as Kumasi?" Kumasi is a major city between 800 and 900 km from the research sites. Respondents could answer "no," "doubtful," "maybe," "probably," or "definitely." The location was intentionally selected to be of significant distance from the research sites to overcome facile expressions of hypothetical commitment; respondents were forced to weigh non-trivial personal costs against their desire to offer socially desirable responses. The objective of the funeral measure is not to gauge the extent to which respondents reap benefits from the community but rather to determine whether they prioritize investing in the community in this manner following crises. Akuoko (2008) writes that community members often discuss those who fail to attend funerals, and one study participant called funeral attendance "the way you can be sure that other families will hold your own family in good standing."[8] An expressed willingness to attend the funeral would thus suggest a stronger reliance on the community as a source of informal support.

Findings

Results are presented first in bivariate form for each outcome of interest, on the assumption of as-if random exposure to flooding and pre-event equivalence across individuals in paired locations. That assumption is then relaxed to evaluate outcomes in a multivariate framework.

Reliance on Patrons

The data suggest that reliance on patrons is indeed an option for residents of rural northern Ghana. All told, 13.9% of respondents in the survey said that they had contacted their local politician at least once during the previous 2 months, a figure in keeping with national results obtained in the nearest round of the Afrobarometer survey, in which 15% of Ghanaians stated that they had contacted their local politician over the previous 1 year.[9]

Disaggregating the data by flooded and non-flooded sites, however, indicates that individuals do not reconfigure their relationships with political patrons in notable ways after having experienced major crisis. Residents of the flooded sites are slightly more likely than residents of the non-flooded sites to have contacted their local politician during the same 2-month time period (15.2% vs. 12.4%), but the difference is not statistically significant in a difference-of-means test ($p = 0.557$). Local party members certainly played a role following the flood, if only to help coordinate NGO activity, but the experience of crisis does not seem to have inspired residents to lean significantly more on their political patrons.

---

[8] FG-2–2-2007.

[9] See Afrobarometer Round 3 data for Ghana at http://afrobarometer.org/data/ghana-round-3-data-2005.

An alternative explanation is that local politicians may have remained very active, tempering the need for residents of flooded areas to contact them at a higher rate. By all accounts, local notables did assist in keeping track of which families had received food donations after the flood. On the other hand, no signs of regular engagement from government entities were apparent at the 3-month mark, and residents noted that they were relying on NGOs and their own adaptations. Political patrons did work for their constituents, but residents do not appear to place greater expectations on those patrons as a result.

Regarding non-political patrons, individuals who suffer crises may instead learn to prioritize their relationships with religious and ethnic leaders to provide insurance against future catastrophe. Residents of the flooded sites were again slightly more likely to contact these potential patrons: 19.8 versus 17.2% sought help from their religious leader, while 6.6% of respondents contacted their traditional chief or delegate in flooded areas, compared to 6.1% in non-flooded areas. Again, however, neither of these differences approach statistical significance in difference-in-means tests ($p = 0.628$ and 0.874, respectively).

To account for potential non-random exposure to the floods that could correlate with the outcomes of interest for individuals in the flooded versus non-flooded locations, logistic regression analyses in Table 2 report the effects of flood exposure and a series of covariates on the likelihood of contacting both political patrons and non-political patrons. *Flooded* is a dummy variable coded 1 if the respondent lives in one of the flooded research sites and 0 otherwise. *Large town* is a dummy variable coded 1 for respondents living in either Sandema or Bolgatana and 0 for those living in the small villages of Garu or Musiga. *Age* is a continuous variable ranging from 18 to 85. *Education* values range from 0 to 6, where 0 = no formal education, 1 = some primary school, 2 = completed primary school, 3 = some secondary school, 4 = completed secondary school, 5 = university, and 6 = post-graduate studies. To measure *standard of living*, enumerators cataloged the reported assets of the respondent prior to the flood (bicycle, radio, livestock, etc.) and used those lists along with a subjective evaluation of the individual's current relative wealth to generate a ranking from 1 to 3 representing "low," "medium," or "high" standard of living.

The first model for each patron type (columns 1, 3, and 5) uses robust standard errors, and the second (columns 2, 4, and 6) uses standard errors clustered at the village level to account for the clustered nature of exposure to flooding. All models include ethnic and religious group fixed effects.

In these models, residents of the smaller villages appear somewhat more likely to contact a political leader, females are modestly more likely to contact a religious leader, and younger people appear slightly more likely to seek help from both their political and religious leaders. Those affected by the floods are also significantly more likely to reach out to their religious leaders in the model with standard errors clustered at the village level (Column 4); this finding is consistent with evidence of increasing reliance on religion in contexts of existential insecurity (see Norris and Inglehart 2004). Residing in the flooded locations, however, is otherwise not a statistically significant predictor of contacting these potential patrons.

Table 2 Determinants of prioritizing relationships with patrons

	Political big man		Religious big man		Ethnic big man	
	(1)	(2)	(3)	(4)	(5)	(6)
Flooded	− 0.049	− 0.049	0.631	0.631 ***	0.356	0.356
std error	(0.471)	(0.309)	(0.509)	(0.110)	(0.849)	(0.448)
p-value	0.917	0.874	0.215	0.000	0.675	0.427
Large town	− 1.980	− 1.980 *	− 0.441	− 0.441	− 0.430	-0.430
std error	(1.299)	(0.783)	(0.889)	(0.862)	(1.045)	(0.456)
p-value	0.127	0.011	0.620	0.609	0.681	0.346
Female	− 0.698	− 0.698	0.923 †	0.923 †	0.655	0.655
std error	(0.640)	(0.457)	(0.510)	(0.527)	(0.800)	(1.201)
p-value	0.275	0.126	0.070	0.080	0.413	0.586
Age	− 0.014	− 0.014 *	− 0.045 **	− 0.045 **	− 0.015	− 0.015
std error	(0.018)	(0.006)	(0.017)	(0.015)	(0.025)	(0.021)
p-value	0.431	0.023	0.008	0.003	0.557	0.493
Education	− 0.090	− 0.090	− 0.216	− 0.216 *	− 0.151	− 0.151
std error	(0.165)	(0.155)	(0.150)	(0.092)	(0.264)	(0.366)
p-value	0.584	0.561	0.149	0.019	0.569	0.681
Std of living	0.463	0.463	− 0.325	− 0.325	0.201	0.201
std error	(0.417)	(0.345)	(0.443)	(0.280)	(0.491)	(0.360)
p-value	0.267	0.179	0.463	0.245	0.682	0.576
SEs clustered by village		Yes		Yes		Yes
Ethnic FE	Yes	Yes	Yes	Yes	Yes	Yes
Religious FE	Yes	Yes	Yes	Yes	Yes	Yes
N	202	202	205	205	205	205

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$. Logistic regressions with robust standard errors. Dependent variable: "Have you contacted _____ within the last two months to help you solve a problem?" Ethnic groups are Builsa, Frafra, Kusasi, Mamprusi, and Other. Religious groups are Catholic, Muslim, Traditional, Protestant, and None/Other

Reliance on Family and Community

Regarding ideal family size, the difference between residents of the flooded sites and non-flooded sites is noteworthy: as Fig. 2a illustrates, in Sandema and Garu (the flooded sites), the mean response for *ideal number of children* was 7.03, versus a mean response of 5.81 children in the non-flooded sites ($p < 0.01$). The difference is particularly notable between the larger towns of Sandema and Bolgatanga.

Similarly, as the difference-in-means tests illustrated in Fig. 2b indicate, respondents subjected to the floods seem to prioritize community to a greater degree than those not affected by the floods: 71.7% of respondents in the two flooded sites combined, versus 57.6% of those in the unaffected sites, stated that they would make the long trip to the funeral ($p = 0.035$).[10] Measuring actual appeals made from one community member to another during a time of disruption and widespread covariate

---

[10] Responses of "definitely" and "probably" coded 1; all other responses coded 0.
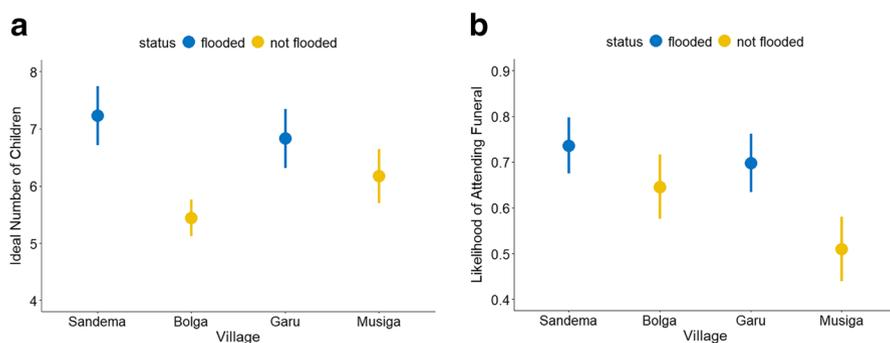
Fig. 2 Reliance on family and the community. **a** Ideal number of children per resident. **b** Likelihood of attending funeral

loss would be infeasible as a measure of safety-first priorities. Instead, this approach measured the general importance that residents place on their community ties, and the results indicate that in times of crisis, that importance is magnified.

Table 3 presents the results of regression analyses for investment in family and the community. Columns 1 and 2 report OLS results using *ideal number of children* as the dependent variable and the same explanatory factors outlined above, again using robust standard errors and standard errors clustered at the village level, respectively. The multivariate results confirm the tabular results: controlling for a host of demographic characteristics, simply living in one of the villages that was flooded makes northern Ghanaians favor significantly larger family sizes. Men also express a desire for more children than do their female counterparts.

Substantively, holding other factors at their means, the results suggest that a woman with a secondary school education living in a non-flooded northern Ghanaian environment would prefer a family of four or five children (mean = 4.60). However, that same individual living in the post-crisis context of a flooded village would prefer a family of almost six children (mean = 5.74). Similarly, a man with no formal education living in a non-flooded environment prefers families with not quite seven children (mean = 6.88), but that same individual placed in a crisis environment would say that an ideal family has eight or more children (mean = 8.08).

Columns 3 and 4 of Table 3 report the results of logistic regressions using *willingness to attend the funeral in Kumasi* as the dependent variable. The results confirm a significantly greater willingness among respondents in the flooded locations to travel a notable distance to attend the funeral of a community member. Marginal effects analysis adds substantive meaning to the findings. Recall that respondents affected by flooding were statistically more likely to reach out only to their religious leaders, among the various types of patrons; the marginal effects coefficients reported in Table A.2 in the appendix indicate that exposure to the floods is associated with a 7.2% increase in the likelihood of contacting one's religious leader. Meanwhile, the marginal effects indicate that living in a flooded location increases the likelihood of attending the hypothetical funeral by 15.3%, more than twice the increased investment in any patron type.

While the hypothetical funeral location was selected to be a significant distance from all survey locations, respondents' capacity to travel that distance may

Table 3 Determinants of prioritizing family and the community

	Ideal number of children		Willingness to attend funeral	
	(1)	(2)	(3)	(4)
Flooded	1.199 *	1.199 †	0.780 *	0.780 ***
std error	(0.547)	(0.685)	(0.405)	(0.154)
p-value	0.030	0.082	0.054	0.000
Large town	−0.318	−0.318	−0.054	−0.054
std error	(1.075)	(0.717)	(0.633)	(0.622)
p-value	0.768	0.658	0.932	0.930
Female	−1.370 *	−1.370 *	0.186	0.186
std error	(0.557)	(0.676)	(0.403)	(0.366)
p-value	0.015	0.044	0.645	0.611
Age	0.002	0.002	−0.029 *	−0.029 ***
std error	(0.021)	(0.028)	(0.012)	(0.007)
p-value	0.908	0.932	0.018	0.000
Education	−0.242	−0.242	−0.116	−0.116
std error	(0.165)	(0.382)	(0.116)	(0.075)
p-value	0.145	0.528	0.321	0.121
Std of living	−0.035	−0.035	1.209 ***	1.209 ***
std error	(0.484)	(0.487)	(0.367)	(0.326)
p-value	0.943	0.943	0.001	0.000
SE clustered by village		Yes		Yes
Ethnic FE	Yes	Yes	Yes	Yes
Religious FE	Yes	Yes	Yes	Yes
N	186	186	205	205

$^{***}p \leq .001$, $^{**}p \leq .01$, $^{*}p \leq .05$, $^{†}p \leq .10$. OLS regressions with robust standard errors in columns 1 and 2; logistic regressions in columns 3 and 4. See Table 3 for additional details

also affect the outcome. On average, residents of the larger towns, which are also modestly closer to Kumasi, are more likely to express a willingness to travel to the funeral, though residents of the small, flooded village of Garu support the proposition at rates rivaling or surpassing those in the larger towns. Furthermore, in analyses subset to only the larger towns of Sandema and Bolgatanga, respondents from the flooded location of Sandema are still more likely to attend the funeral (73.6% vs. 64.6%, $p = 0.104$; see Appendix Table A.3). Those with higher standards of living also express greater willingness to attend the funeral, as do younger respondents.

Alternative Explanations and Robustness Tests

As noted in the theoretical discussion, patronage is political: elected big men typically provide resources in exchange for votes. The tempered embrace of political patrons in the aftermath of the flooding in Ghana might thus be explained by

patterns in electoral timing and preference. National elections did not occur until late 2008, more than a year after the floods in Upper East, so respondents in both flooded and non-flooded locations may have understood politicians to have fewer resources available and little incentive to expend them at that time. On the other hand, the research from Paller (2019), Rizzo (2015), and others suggests that incentives still exist to take care of clients in need during electoral off-seasons.

Second, if the flooded locations of Sandema and Garu did not support the incumbent party at the time, residents may not have anticipated post-crisis resources from political big men. At the time of the crisis, the New Patriotic Party (NPP) held the presidency, and while the northern regions in Ghana are historically associated with National Democratic Congress (NDC) support (Kelly 2005), Upper East is politically diverse: the district in which Bolgatanga lies was represented in Parliament by the People's National Convention (PNC), Sandema's district was represented by the NPP, and the districts of Musiga and Garu elected NDC representatives, presenting different allegiances among politicians, brokers, and voters.[11] If incumbency support is a criterion for receiving patronage, one would expect that residents of Sandema would have been particularly likely to reach out to political big men, but they were no more likely to do so than their counterparts in the other three locations (13.5% vs. 14.0%).[12] Further, Table A.4 adds political party support as an additional control variable; the results indicate that respondents do not differentially contact patrons based on their party preferences.[13]

Third, the crises may have countervailing effects in larger towns and small villages. In particular, town dwellers may rely on programmatic assistance from political leaders as village dwellers turn primarily to family and community in post-crisis contexts. In addition to the town-village fixed effects included in the main models, Tables A.3 and A.5 present the disaggregated results for the larger towns and small villages, respectively. While the small sample sizes limit the ability to detect statistically significant outcomes, the findings are instructive. Residence in flooded Sandema, among the larger towns, correlates with greater emphasis on family and to some extent community. If anything, those respondents are somewhat less inclined to reach out to political patrons. In the small villages, those exposed to floods (in Garu) also appear more likely to rely on community and family than do their counterparts in Musiga, while appeals to patrons remain ambiguous.

A fourth potential concern is that some residents of the flooded locations may have left the community as a result of the crisis and that those who remained may differ in systematic ways. If those who remained behind did so because they have no family or friends with whom to settle elsewhere, we might characterize those individuals as generally less reliant on family and the community rather than more, which would

---

[11] District-level results reported in the absence of polling station data. For district-level data, see "Ghana: Results of the Parliamentary Elections, 2004". Friedrich Ebert Stiftung report. http://library.fes.de/pdf-files/bueros/ghana/02987.pdf.

[12] Residents of Sandema were somewhat more likely to contact political big men than were their counterparts in Bolgatanga (13.5% vs. 10.5%), though the difference is not statistically significant.

[13] Using the question "to which party do you feel closest, if any?" 42% reported NDC, comparable to Afrobarometer 2005–2006 polls, in which 33% selected NDC. The region voted 56.1% NDC in the 2008 presidential election.

bias against the findings. Furthermore, standards of living across the non-flooded and flooded locations are nearly identical.[14] Unless socioeconomic status differed across the two contexts prior to the floods, which is unlikely given pre-event equivalence along a number of livelihood-related dimensions, those who remained in the flooded villages would have standards of living comparable on average to the standards of living of those who may have left, in addition to those in non-flooded locations. Reports from respondents and observers also indicated that only small numbers of residents left the flooded locations, given that alternative housing was made available, and the research team located residents of nearly all selected households.[15]

Table A.6 presents results with outliers removed (Column 1) and using a Poisson model (Column 2) to evaluate the ideal number of children. Extreme values in flooded villages may be a function of the crisis experience; one survey participant calculated how much more quickly he could rebuild if he had more family members around to help him.[16] Nevertheless, with outliers removed, the flood effect remains positive, and the *p*-value is 0.055. The direction and level of significance also remain unchanged using the Poisson model.

Finally, coarsened exact matching (CEM) generates matched treatment and control units (based on exposure to the flooding) along relevant covariates, in this case town size, gender, age, education, and standard of living (see Iacus et al. 2012). CEM in this context represents a conservative strategy to address potential bias or model dependence in the event that the differences between those in flooded and non-flooded locations are particularly large (Ho et al. 2007). As the results reported in Table A.7 indicate, the average treatment effect (ATE) for *ideal number of children* is 1.351 ($p = .050$). The ATE for *funeral attendance* is also in the anticipated, positive direction, though, given a matched sample size of just 97, it does not reach conventional levels of statistical significance.

Conclusion

In poor settings, individuals exposed to crisis prioritize reliable forms of protection against threats to their future subsistence. This study demonstrates that in those contexts, their inclination is not to instinctively expect more of their patrons, political or otherwise. Instead, the evidence following floods in northern Ghana indicates that constituents in conditions of crisis complement patronage ties with family and community investments, as a means of putting "safety first." Investing in the family allows members to have greater control over their insurance, while investments in the broader community generate numerous potential insurers in addition to comfort from the shared experience. Patron-client relationships are likely beneficial at the local level for individuals seeking regular material assistance, or perhaps in the

---

[14] The asset scale included bicycle, radio, mobile phone, livestock, and motorized transportation: Bolgatanga = 3.25, Sandema = 3.09, Musiga = 2.02, Garu = 2. 08. Village-level means for the three-point SOL scale are as follows: Bolgatanga = 1.88, Sandema = 1.91, Musiga = 1.75, Garu = 1.79.

[15] Enumerators gathered information from neighbors if a residence was damaged and unoccupied. Individuals from 92% of selected households were locatable.

[16] FG-04–01-2007.

immediate aftermath of a crisis, but as clients contemplate their sources of support thereafter, they appear to look beyond conventional patron-client exchanges.

The study has both theoretical and empirical implications. From a theoretical standpoint, it casts doubt on the reflexive reliance on patronage that often characterizes poor communities in Africa. Additionally, the framing of the study around a major natural disaster provides new insight into the sources of support that appeal most to communities under crisis, thus moving our understanding of informal insurance and patronage beyond the context of stable exchanges. Finally, the results represent a call to more fully consider risk and reward calculations among the poor, and to note that under threats to livelihood, sources from which individuals generate greater control and comfort, such as family and community ties, become increasingly valued.

Empirically, the research design relies on an unanticipated, exogenous shock that flooded some villages, but not otherwise similar, nearby villages in northern Ghana. The identification strategy highlights the spectrum that exists between purely observational and naturally experimental designs and suggests that quasi-experimental designs—particularly those exploiting a naturally occurring shock—can provide greater design-based control over unobservables that might otherwise threaten the inferences drawn from a purely observational study. Conducted in close temporal proximity to the exogenous shock, the study further demonstrates that even a small sample size can generate valuable insights regarding shifting preferences in the aftermath of crisis.

The design and results open up numerous avenues for future research. The study did not include aid agencies and non-governmental organizations as potential sources of informal support, as they exist largely outside of the local network. Nevertheless, future research might explore the role that such actors play as alternatives to patron-client networks. Studies might also build on this one to examine how shifts in individual-level priorities affect the political status of incumbent leaders. Finally, future research might apply a design similar to the one used here to evaluate outcomes in other localities affected by crisis as climate-related natural disasters increase.

References

Adzawla W, Kudadze S, Mohammed AR, Ibrahim II. Climate perceptions, farmers' willingness-to-insure farms and resilience to climate change in Northern region, Ghana. Environ Dev. 2019;32:100466.

Akuoko KO. Traditional values, socio-cultural factors and human resource management practices in public sector organisations in Ghana. J Sci Technol. 2008;28(3):58–69.

Arino O, Ramos Perez JJ, Kalogirou V, Bontemps S, Defourny P, Van Bogaert E. Global land cover map for 2009 (GlobCover 2009). European space agency (ESA) & Université catholique de Louvain (UCL), PANGAEA; 2012.

Attanasio O, Meghir C, Mommaerts C. Insurance in extended family networks. Nat Bur Econ Res, Working paper 21059; 2015.

Arriola LR. Patronage and political stability in Africa. Comp Polit Stud. 2009;42(10):1339–62.

Ayifah E, Aylit TR, Kollamparambil U, Vosti S. Effect of religion on the risk behaviour of rural Ghanaian women: evidence from a controlled field experiment. Rev Soc Econ. 2020:1–34.

Baarsch F, Granadillos JR, Hare W, Knaus M, Krapp M, Schaeffer M, Lotze-Campen H. The impact of climate change on incomes and convergence in Africa. World Dev. 2020;126:104699.

Baldwin K. Why vote with the chief? Political connections and public goods provision in Zambia. Am J Polit Sci. 2013;57(4):794–809.

Baldwin K. The paradox of traditional chiefs in democratic Africa. New York: Cambridge University Press; 2016.

Banerjee A, Duflo E. The economic lives of the poor. J Econ Perspect. 2007;21(1):141–68.

Bayart JF. The state in Africa: the politics of the belly. London: Longman Press; 1993.

Bempeh SA, Oyhus AO. The role of social perception in disaster risk reduction: beliefs, perception, and attitudes regarding flood disasters in communities along the Volta river, Ghana. Int J Disast Risk Re. 2017;23:104–8.

Block P. Community: The structure of belonging. Oakland: Berrett-Koehler Publishers; 2018.

Bobonis GJ, Gertler P, Gonzalez-Navarro M, Nichter S. Vulnerability and clientelism. National Bureau of Economic Research; 2017 Jul 13. Nat Bur Econ Res, Working Paper 23589; 2017.

Booth WJ. On the idea of the moral economy. Am Pol Sci Rev. 1994;88(3):653–67.

Brierley S. Combining patronage and merit in public sector recruitment. J Polit. 2021;83(1):000–000.

Briggs RC. Electrifying the base? Aid and incumbent advantage in Ghana. J Mod Afr Stud. 2012;50(4):603–24.

Carlson E. Distribution or diversion? Distribution of local public goods in the presence of clientelist brokers. Pol Res Q. 2020. https://doi.org/10.1177/1065912920903800.

Carney CP. International patron-client relationships: a conceptual framework. Stud Comp Int Dev. 1989;24(2):42–55.

Center for International Earth Science Information Network - CIESIN - Columbia University. Poverty mapping project: global subnational prevalence of child malnutrition. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC); 2005.

Coate S, Ravallion M. Reciprocity without commitment: characterization and performance of informal insurance agreements. In: Mookherjee D, Ray D, editors. Readings in the Theory of Economic Development. Oxford: Blackwell; 2001. p. 365–85.

Cruz C, Labonne J, Querubin P. Politician family networks and electoral outcomes: Evidence from the Philippines. Am Econ Rev. 2017;107(10):3006–7.

Darkwah AK, Mavis DG. Hedging against vulnerability: associational life as a social insurance strategy by the poor in the central region of Ghana. In: Non-State Social Protection Actors and Services in Africa. New York: Routledge; 2017. p. 115–131.

Eifert B, Miguel E, Posner DN. Political competition and ethnic identification in Africa. Am J Polit Sci. 2010;54(2):494–510.

Fafchamps M. Solidarity networks in pre-industrialised societies: rational peasants with a moral economy. Econ Dev Cult Change. 1992;41(1):147–74.

Fan Y, van den Dool H. A global monthly land surface air temperature analysis for 1948–present. J Geophy Res-Atmos. 2008; 113 (no. D1).

Ford N, Mills EJ, Zachariah R, Upshur R. Ethics of conducting research in conflict settings. Confl Health. 2009;3(1):7.

Ghanaian Times. Minister condemns lavish spending on funerals, marriages. 2008; April 29.

Green EE. Patronage, district creation, and reform in Uganda. Stud Comp Int Dev. 2010;45(1):83–103.

Grundy E, Read S. Social contacts and receipt of help among older people in England: are there benefits of having more children? J Gerontol B-Psychol. 2012;67(6):742–54.

Healy A, Malhotra N. Random events, economic losses, and retrospective voting: implications for democratic competence. Q J Polit Sci. 2010;5(2):193–208.

Ho DE, Imai K, King G, Stuart EA. Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference. Polit Anal. 2007;15(3):199–236.

Hyden G. African politics in comparative perspective. Cambridge: Cambridge University Press; 2006.

Iacus SM, King G, Porro G. Causal inference without balance checking: coarsened exact matching. Polit Anal. 2012;1:1–24.

Ichino N, Nathan NL. Crossing the line: local ethnic geography and voting in Ghana. Am Polit Sci Rev. 2013;107(2):344–61.

Ishiyama J. Explaining ethnic bloc voting in Africa. Democratization. 2012;19(4):761–88.

Israel AO. Nature, the built environment and perennial flooding in Lagos, Nigeria: the 2012 flood as a case study. Urb Clim. 2017;21:218–31.

Jack JKA, Amoah EKS, Hope E. Estimating the financial costs of funeral celebrations in Ghana a case study of greater Accra Central and Ashanti regions. Int J Bus Soc Res. 2020;10(2):1–17.

Jamison RN, Virts KL. The influence of family support on chronic pain. Behav Res Ther. 1990;28(4):283–7.

Johnson M. Popular movements and primordial loyalties in Beirut. In: The Middle East. London: Palgrave. 1983; 178–194.

Joseph R. Democracy and prebendal politics in Nigeria. Cambridge: Cambridge University Press; 1987.

Kelly B. The 2004 elections in northern Ghana. Rev Afr Polit Econ. 2005;32(104/105):455–61.

Kissileff B, Lidji ES, editors. Bound in the bond of life: Pittsburgh writers reflect on the tree of life tragedy. Pittsburgh: University of Pittsburgh Press; 2020.

Kitschelt H, Wilkinson S. Citizen-politician linkages: an introduction. In: Kitschelt H, Wilkinson S, editors. Patrons, clients, and policies: patterns of democratic accountability and political competition. Cambridge: Cambridge University Press; 2007.

Kramon E. Electoral handouts as information explaining unmonitored vote buying. World Polit. 2016;68:454.

Lanjouw P, Ravillion M. Poverty and household size. Econ J. 1995;105(433):1415–34.

Lawson C, Greene KF. Making clientelism work: how norms of reciprocity increase voter compliance. Comp Polit. 2014;47(1):61–77.

Levitsky SR, Way LA. Beyond patronage: violent struggle, ruling party cohesion, and authoritarian durability. Perspect Polit. 2012;10(4):869–89.

Lindberg SI. Have the cake and eat it: the rational voter in Africa. Party Polit. 2013;19(6):945–61.

Luna J. Political financing in developing countries: a case from Ghana. New York: Routledge; 2019.

Martin-Canavate R, Custodio E, Yusuf A, Molla D, Fasbender D, Kayitakire F. Malnutrition and morbidity trends in Somalia between 2007 and 2016: results from 291 cross-sectional surveys. BMJ open. 2020;10(2):e033148.

McCauley JF. Africa's new big man rule? Pentecostalism and patronage in Ghana. Afr Affairs. 2013;112(446):1–21.

McCauley JF. Pentecostalism as an informal political institution: experimental evidence from Ghana. Polit Relig. 2014;7(4):761–87.

McCauley JF. The logic of ethnic and religious conflict in Africa. New York: Cambridge University Press; 2017.

Mogues T. Social networks near and far: the role of bonding and bridging social capital for assets of the rural poor. Rev Dev Econ. 2019;23(1):189–210.

Mwakikagile G. The people of Ghana: ethnic diversity and national unity. Cape Town: New Africa Press; 2017.

Nichter S. Votes for survival: Relational clientelism in Latin America. New York: Cambridge University Press; 2018.

Norris P, Inglehart R. Sacred and secular: religion and politics worldwide. Cambridge: Cambridge University Press; 2004.

Ostrom E. Crossing the great divide: coproduction, synergy, and development. World Dev. 1996;24(6):1073–87.

Overstreet S, Dempsey M. Availability of family support as a moderator of exposure to community violence. J Clin Child Psychol. 1999;28(2):151–9.

Paller JW. Democracy in Ghana: everyday politics in urban Africa. New York: Cambridge University Press; 2019.

Patrick SL, Cormier HC. Are our lives the experiment? COVID-19 lessons during a chaotic natural experiment—a commentary. Health Behav Proc Rev. 2020;7(2):165–9.

Pepinsky T. Autocracy, elections, and fiscal policy: evidence from Malaysia. Stud Comp Intl Dev. 2007;42(1–2):136–63.

Polanyi K. The livelihood of man. New York: Academic Press; 1977.

Pörtner CC. Children as insurance. J Pop Econ. 2001;14(1):119–36.

Rizzo, T. Motivated Brokers. MIT Political Science Department Research Paper No. 2015–16. 2015.

Rosenzweig LR. Community carrots and social sticks: why the poor vote in a dominant-party system. Doctoral dissertation, Massachusetts Institute of Technology. Cambridge, MA: MIT Libraries. 2018. https://dspace-mit-edu.proxy-um.researchport.umd.edu/handle/1721.1/118219.

Sachs JD. The end of poverty: economic possibilities for our time. New York: Penguin; 2006.

Samimi C, Fink AH, Paeth H. The 2007 flood in the Sahel: causes, characteristics and its presentation in the media and FEWS NET. Nat Hazards Earth Syst Sci. 2012;12:313–25.

Schneider U, Ziese M, Meyer-Christoffer A, Finger P, Rustemeier E, Becker A. The new portfolio of global precipitation data products of the Global Precipitation Climatology Centre suitable to assess and quantify the global water cycle and resources. P Int Ass Hydrol Sci. 2016;374:29.

Scott JC. The moral economy of the peasant: rebellion and subsistence in southeast Asia. New Haven: Yale University Press; 1976.

Scott JC. Patron-client politics and political change in southeast Asia. Am Polit Sci Rev. 1972;66(1):91–113.

Sives A. Changing patrons, from politician to drug don: clientelism in downtown Kingston. Jamaica Latin American Perspectives. 2002;29(5):66–89.

U.N. Office for the Coordination of Humanitarian Affairs. Ghana: nearly 275,000 affected by floods in little-known disaster. Humanitarian News and Analysis. 2007. 13 Sept. http://www.irinnews.org/report.aspx?ReportID=74278.

Veenendaal W, Corbett J. Clientelism in small states: how smallness influences patron–client networks in the Caribbean and the Pacific. Democratization. 2020;27(1):61–80.

Vicente-Serrano SM, Beguería S, López-Moreno JI. A multiscalar drought index sensitive to global warming: the standardized precipitation evapotranspiration index.". J Climate. 2010;23(7):1696–718.

John F. McCauley is Associate Professor of Government and Politics at the University of Maryland. His research interests include informal institutions, ethnic and religious conflict, and the political economy of development in sub-Saharan Africa.