Social transitions in the Savannah

The decline and fall of social risk management amongst Fulani in the subhumid zone of Nigeria

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Abstract

Purpose – The purpose of this paper is twofold: first, to explore social risk management strategies amongst Fulani in the subhumid zone of Nigeria; and second, to determine current status and nature of reciprocal exchange networks, risk pooling and social support for pastoral livelihoods in North-Central Nigeria.
Design/methodology/approach – Surveys of cattle productivity and pastoral livelihoods were carried out amongst Fulani pastoralists on the Jos Plateau: between 2008 and 2013 using participatory epidemiology methods and the sustainable livelihoods framework. Qualitative and quantitative data on livelihood activities, knowledge, attitudes and practices of animal husbandry and disease control, wealth grouping, herd entries and exits was gathered to determine the current state of cattle productivity and pastoral livelihoods in the study area.
Findings – Results show that reciprocal exchange networks for risk management have mostly disintegrated and patron-client relationships have become an important social risk management strategy.
Practical implications – This research has significant implications for sustainability of Fulani livelihoods and communities: decreased social risk-management strategies and increased self-reliance means that the most vulnerable households will find it more difficult to withstand shocks and climb out of poverty. Wealthier households may cope better with high incidence/low severity shocks like but are more vulnerable to low incidence/high severity shocks. Likewise, decreased social cohesion reduces the ability of communities to mobilise and act collectively in the face of community-level shocks. This is very important for engagement with the state – a crucial process, given current levels of acrimony and conflict.
Originality/value – Given the high levels of farmer-herder conflict and civil unrest in this region over the past 15 years this research is valuable in providing insights into economic drivers of conflict, current dynamics of pastoral livelihoods and social cohesion within and between communities.

Keywords Livelihood diversification, Social networks, Conflict, Reciprocity, Fulani, Risk-pooling
Paper type Research paper

1. Introduction

Gifts and exchanges are a widespread form of human cooperation across cultures. They are important for enhancing survival in marginal environments, e.g. central place food sharing among foragers and stock friendships among pastoralists (Hao *et al.*, 2015; Mauss, 1990). They serve as risk transfer/pooling mechanisms to spread risk across households. This decreases the severity of losses and leads to higher rates of herd survival under volatile ecological conditions (Aktipis *et al.*, 2011; Barr and Genicot, 2008). When practiced at community-level, traditional social networks of exchange and reciprocity are critical components of household security, disaster relief, and social well-being. Ultimately, these networks serve to manage risk and reduce vulnerability within communities (Baird and Gray, 2014). They become part and parcel of the culture, an important avenue of social interaction within the pastoral community and of social integration of pastoralists with neighbouring groups. They also support social cohesion, group identity and the capacity for collective action (Adger, 2003; Bollig, 1998).

However, the nature of social risk-management strategies (SRMS) and level of investment in such networks varies depending on the level of risk exposure (Moritz *et al.*, 2011) and in response to changes in risk exposure (Baird and Gray, 2014). Two major patterns of social risk management are described amongst pastoralists: reciprocal exchange networks, found mostly

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in Africa and hierarchical patron-client relationships, found mostly in the Near East (Moritz *et al.*, 2011). The level of risk exposure is directly proportional to level of investment in SRMS, while the type of SRMS is determined by the covariance of risk: reciprocal exchange networks dominate where risks are randomly distributed and roles may be reversed each year. Where risks are less randomly distributed and some households become consistently less vulnerable than others, there is reduced investment in exchange networks as wealthier households opt out and patron-client relationships evolve (Roe *et al.*, 1998; Templer *et al.*, 1993).

Exchange networks are therefore negatively associated with increased livelihood diversification, economic differentiation and market integration, all of which reduce risk, exposure to risk and covariance of risk. Exchange networks are also negatively associated with decreased political autonomy and social cohesion amongst pastoralists (Salzman, 2004) – a stronger pastoral identity encourages higher investment in these networks. Many pastoral societies today have lost their political autonomy, becoming encapsulated tribes at the mercy of controlling interests of the State and/or host communities (Salzman, 2004). This is particularly true of the cattle-keeping Fulani in Nigeria who lack the unity of group political action and of collective ownership of major resources such as land. They live mostly amongst indigenous host communities, their social relations are increasingly fragmented and community solidarity and support face stiff competition from the struggle for limited resources. This is in direct contrast to the "town Fulani who exited pastoralism over a century ago with a long history of wealth and influence. They are well represented amongst the cultural and political aristocracy of Northern Nigeria and have produced two presidents within the past 15 years of democratic rule. The cultural links between both groups have diminished over the years as interests diverged and "cattle Fulani" now rarely benefit from the association (Blench *et al.*, 2006; Stenning, 1957). For all of these reasons there is strong evidence of pervasive decline of reciprocal exchange networks as more pastoralists pursue individualised, diversified portfolios of economic activity (Baird and Gray, 2014).

1.1 Gift-giving and exchange amongst Fulani in Nigeria

There are various forms of gift-giving and exchange practiced amongst the Fulani. These may take the form of milk, meat, crops, clothes, cash, small stock and most importantly, cattle. Gifts and exchanges may be divided into three main categories.

The first is gifts to family and clan members on social, cultural and religious occasions (births, deaths, marriages, Eid, etc.). The purpose of such gifts is mostly social, to show affection, joy, solidarity, to foster social cohesion and kinship ties and to increase the prestige/social standing of both parties (Moritz, 2013). However, it is also an important source of support as one moves through the stages of life: gifts of animals to children build responsibility and experience of caring for livestock, bride-wealth helps to establish the family herd of a new couple, pre-inheritance enables sons to marry and support their families. The second category is gifts given to those outside the clan/Fulani community, particularly the host farmers amongst whom they live, cattle owners who they work for and traditional/political leaders. These gifts promote social integration of Fulani with host communities, and are a sort of payment or tax for the enjoyment of favours from these groups – permission to camp and graze on their land, provision of employment and subsistence, security and governance (Moritz, 2010; Njeuma, 2012; Waters-Bayer and Bayer, 1994; Nwabara, 1963; Stenning, 1959). The third is gifts given to support poor/unfortunate members of the Fulani community, e.g. those who have lost their own cattle to disease, drought, or other catastrophes. This takes two forms – redistribution and reciprocity.

Redistribution of wealth is mostly a feature of Islam – the obligatory zakat (fixed proportion of income/assets) and voluntary gifts of alms to the less privileged and clergy. Zakat is sometimes collected by authorities as "tax" and distributed to the needy. There is

no expectation of reciprocity with these gifts – they are given in fulfilment of the religious obligation to support the poor. In effect it is a social support mechanism governed by rules laid down in the Koran (Njeuma, 2012; Nwabara, 1963; Stenning, 1959).

The Fulani concept of reciprocity (inuf–mutual help, sharing) is practiced mostly amongst clan members, binding them in a social network of exchange and reciprocity in addition to kinship ties. Households in need may be given outright gifts of food/money/clothes/livestock in expectation of eventual reciprocation. However, cattle are the most important gift as they provide milk for food as well as the opportunity to reproduce and grow the herd. Cattle and the rights to their milk and/or offspring may be given as an outright gift, or loaned/exchanged under various arrangements (e.g. gift of a lactating cow which may not be slaughtered or sold without the giver's permission; loan of a cow until it calves, such that the calf is retained and the cow returned to owner) (Brokensha *et al.*, 1980; Loftsdóttir, 2001; Moritz *et al.*, 2011; Pedersen and Benjaminsen, 2008; Stenning, 1959) stresses the importance of this support to the persistence of Fulani communities, describing it as the "normal process of gift, exchange and loan which allow for herd owners to recoup losses".

However, these reciprocal exchange networks are more flexible than those found in other pastoral communities (e.g. osotua amongst the Maasai and iribu amongst the Afar) where social interactions, status, prestige and perceptions of wealth are based on reciprocal exchange networks which are obligatory and strictly enforced (Aktipis *et al.*, 2011; Davies and Bennett, 2007; Hao *et al.*, 2015). Fulani who escape misfortune may help the less fortunate, but if they do not, such people seek employment as hired herders or farm labourers until they earn enough to purchase cattle and re-enter pastoralism (De St Croix, 1945). So support is optional and there are mechanisms to cope with lack of support. The Habana'i system of the Woodabe subgroup seems to be the strictest manifestation of Fulani reciprocity – supporting others is viewed as a serious obligation, with social pressure to participate and the threat of social and supernatural consequences for non-compliance (Loftsdóttir, 2001).

2. Study area and survey design

The Jos Plateau in North-Central Nigeria is an area of 8,000 km^2 with an average altitude of 1,280 m. The Plateau shows high ethno-linguistic diversity, with many small indigenous tribes. In addition there are significant populations of Nigerians from other tribes, who form the majority in urban centres and a minority (mostly Fulani) in rural areas. The high concentration of Fulani makes this an important cattle producing area with ~ 7 per cent of the national herd. The diversity of the population has led to tensions along ethnic, religious and political lines, erupting in widespread violence in 2001. Since that time there have been repeated riots, bombings and violent incidents across the Plateau (Majekodunmi *et al.*, 2014).

Two surveys of cattle health and production and rural livelihoods were carried out amongst Fulani pastoralists on the Jos Plateau: a longitudinal survey of trypanosomiasis in 30 villages across the Jos Plateau in 2008 (Majekodunmi *et al.*, 2013); a longitudinal investigation of epidemiology and control of bovine endemic disease in six villages in Bokkos and Pankshin Local Government Areas in 2012-2013 (Majekodunmi *et al.*, 2017). Both surveys included a significant socio-economic component using participatory methods. Participatory questionnaires covering the past one year were conducted at household level in both cases and updated monthly over 18 months in the latter study. Qualitative and quantitative data on livelihood activities, knowledge, attitudes and practices of animal husbandry and disease control, wealth grouping, herd entries and exits was gathered to determine the current state of cattle productivity and pastoral livelihoods in the study area. In 2008, 66 households were surveyed and in 2012-2013, 36 households.

3. Results and discussion

No instances of gifts or exchanges of cattle to support community members were recorded, either as zakat or inuf. This does not indicate a total disintegration of reciprocal exchange networks – they persist but the nature of the gifts/loans/exchanges has changed with changing needs and lifestyle. Cultivation and increasing engagement with the cash economy means that exchanges of farm produce are now common and loans are mostly made in cash, to enable households to pay school fees or hospital bills, or start a trade. As cash, crops and other products (clothes, household items) gain importance as exchange commodities, the status of cattle is also changing. The availability of alterative currencies for transactions has increased the socio-cultural importance of cattle which are now reserved for only the most important social functions – bride-wealth, inheritance, slaughter at weddings and "big sallah" (Eid al Adha). Small ruminants, cash and crops are now mostly used for gifts, reciprocal exchange and slaughter at births, naming ceremonies and "small sallah" (Eid al Fitr). Perhaps the best illustration of the increased socio-cultural importance of cattle is given by one of the respondents who recently started to trade in cattle: no animals from the family herd were involved; instead he paid cash for a new, smaller "trade herd". The reason he gave was that the family herd was his inheritance and his identity, and could not be used for business.

Exchange of farm produce continues the trend of risk transfer, as households which have a bountiful harvest this year can share their surplus with less fortunate neighbours, with the expectation that they will also receive help if the tables are turned next year. However, cash loans to pay school fees or start a trade are a departure from the conventional remit of SRMS – these loans are made to enable households capture opportunities, rather than to cope with risks (Baird and Gray, 2014).

Gifts to host farmers/authorities have also declined and are now quite rare. Only 4 out of 36 households paid any "tax" and all payments were in cash. The interdependence and reciprocal exchange systems that existed between herders and farmers have broken down as milk and manure provided by pastoralists to farmers have been replaced by inorganic fertiliser and powdered/evaporated milk (Awogbade, 1983; Blench *et al.*, 2006). Relationships are now characterised by competition and tolerance rather than cooperation. The increasing importance of formal state governance over informal customary authorities has also played a part: people now tend to claim rights from the state rather than favours from individuals or traditional rulers.

On the Jos Plateau, one of the "gifts" extended to host farmers in the past was to accept their sons as herd-boys, train them in livestock husbandry, and pay them with a heifer after a stipulated period of service. This exchange of knowledge and livestock for labour and access rights enabled many indigenous farmers to acquire cattle and strengthened the bonds between the two communities. However, this practice was not observed during this study and seems to have ended a generation ago. All the indigenous farmers we came across who had lived with Fulani as herd-boys were over 50 years old and all hired herders observed were Fulani employed by fellow Fulani. One practice which does persists is the gift of manure. This is not sold despite the fact that it is a valued commodity. The nearest farming neighbours are allowed to collect it from cattle enclosures during the planting season.

3.1 Hired herders

The majority of households (88 per cent) used hired herdsmen, who were paid at the annual rate of one heifer valued at ~$308 (65 per cent) or $150 cash (23 per cent) annually (Majekodunmi *et al.*, 2016). The use of hired herders is not new amongst Fulani in Nigeria. It is a long-standing institution but was limited to the margins of society: only the wealthiest households needed the additional labour, and only the poorest or unluckiest households needed the employment. Average figures for Fulani communities lead us to expect 10 per cent poor,

80 per cent in the middle group and 10 per cent better off (FEWSNET, 2004). This means that 10 – 20 per cent of the population would be actively engaged in hired herding. The high proportion of households using hired herders here shows that the practice has risen dramatically in importance. This is linked to the changed distribution of wealth groups as seen in the next section, but is mostly in response to natural resource conflict, insecurity and uptake of alternative livelihood strategies.

Higher population densities of people and livestock as well as increasing encroachment of farms on erstwhile grazing lands have led to competition and conflict over natural resources in rural areas. Cattle must now be herded by older, more experienced hands to avoid damage to crops and subsequent conflict with farmers, important than ever given the recent ethno-religious conflicts in North-Central Nigeria (Higazi, 2011). Fulani have extensified their cattle management as a consequence of restricted access to natural resources which forces them to move their animals in the wet season in addition to the customary dry season transhumance in search of adequate pasture and water (Majekodunmi *et al.*, 2013, 2014). Armed robbery and cattle rustling by organised gangs are also increasingly common in Plateau state, as economies of conflict are established in the wake of violence and insecurity (Higazi, 2013, 2016) such that it is no longer safe for young boys to herd cattle and adult herdsmen are required. Livelihood diversification amongst Fulani is also rising as more youth participate in education, paid employment and trade. This has reduced the availability of family labour for herding, especially long distance transhumance which is disruptive to other pursuits. Taken together, restricted access to natural resources, insecurity and diversification have significantly increased demand for experienced herders and given rise to the patron-client dynamic as an important feature of social structure and interaction.

3.2 Wealth grouping and income diversity

Using the pastoral wealth ranking criteria developed by the Famine Early Warning Systems Network (FEWSNET, 2004), wealth grouping by cattle herds showed that 43.9 per cent of Fulani households on the Jos Plateau were "better off", 50 per cent were in the "middle" group and only 6.1 per cent were "poor". The proportion of better off herders is higher than average figures for pastoralists quoted above. This pastoral population is relatively wealthy, with very few poor households and therefore limited need for inuf.

Income diversity was high at 66 per cent. In total, 39 per cent of households supplemented their income with crops, 14 per cent with off-farm activities such as petty trade and commercial driving and 16 per cent with both crops and off-farm activities. Income diversity has had significant effects on annual income levels: households with diversified incomes made significantly more than those relying on livestock alone (Majekodunmi *et al.*, 2017).

3.3 Trends in risk and resilience

Majekodunmi *et al.* (2014) compared cattle productivity on the Jos Plateau between 2008 and 1975 (Pullan and Grindle, 1980), identifying several important trends in risk and resilience:

- mean herd size has increased and is more variable showing increased wealth in the system and increased economic differentiation;
- variability in annual change in herd size, reproductive performance, natural herd growth (potential offtake) and actual offtake has decreased, indicating increased stability in cattle productivity; and
- variability in purchase and sale prices has decreased and on average, herders earn $120 more per animal sold (after adjusting for inflation), indicating increased market integration and stability and their positive effect on income.

Taken together, these factors indicate that the overall livestock enterprise is more stable and pastoralists have developed their livestock assets and levels of market integration over the years, leading to reduced demand for SRMS.

The established risks of disease and poor nutrition (Pullan, 1980a, b) have decreased over the years, mitigated by increased access to drugs and increased mobility. Pastoralists face the "new" risks of increased natural resource conflict and insecurity (Majekodunmi *et al.*, 2013) which differ from the "old" risks in two ways.

First, there is a fundamental difference in the covariance of these risks. Rather than affecting one household this year and another the next, all households are affected simultaneously. Therefore social risk management strategies designed to share risk between affected and unaffected households are not quite fit for purpose (Galvin, 2008; Gray *et al.*, 2003).

Second, these risks do not lead to a catastrophic loss of animals as do drought or disease. Instead they affect productivity, management, production costs and margins in the cattle enterprise. As income from cattle is most vulnerable to these risks they will have more severe effects on households which rely solely on cattle for their livelihood. Income diversity reduces vulnerability to risks and households with alternative income streams are more resilient. This demonstrates the increased importance of livelihood diversification in moderating covariance of risk: these risks affect everybody but vulnerability and resilience vary widely between households.

The ultimate goal of both livelihood diversification and reciprocal exchange networks is to manage risk and uncertainty, with the additional benefit of building social capital with the latter. Reciprocal exchange can be viewed as a traditional means to this end, while livelihood diversification is an emerging strategy (Baird and Gray, 2014). Both serve the same functions and participation is motivated by similar incentives and constraints. So how do both systems affect each other when found together? Where livelihood diversity is prevalent do social exchange networks become functionally redundant? In their investigation of the effects of livelihood diversification on social networks of exchange, (Baird and Gray, 2014) found that increasing levels of livelihood diversification lead to the modification and decline of reciprocal exchange. The results of this study confirm this trend, showing clearly that the high levels of livelihood diversification amongst Plateau Fulani and the wealth and resilience it brings have both altered the nature and reduced the need for SRMS within these communities.

Conflict and insecurity. Increasing competition and conflict over natural resources is probably the single biggest trend affecting vulnerability and pastoral livelihoods in Africa today (Mwiturubani and van Wyk, 2010; Young and Goldman, 2015; Reda, 2015; Human-Rights-Watch, 2006). It has affected all aspects of life for Plateau Fulani, reducing security of land tenure and forcing pastoralists to extensify their cattle production to maintain their herds. Extensification has been a successful adaptation so far, allowing cattle to maintain good productivity levels. However it is not without cost as herd splitting makes management more difficult, reduces milk available for household consumption and sale by women, increases security risks and labour costs and reduces the ability to invest in further intensification and crop-livestock integration measures such as pasture improvement.

A few weeks after the final field studies were completed, a violent clash in the long-running conflict in Riyom and Barkin Ladi LGAs spread into Bokkos LGA which had been free of religious and inter-tribal violence until then. After two days of fighting, 18 Ron-Kulere indigenes and 24 Fulani were killed, over a hundred houses torched and hundreds of Fulani were driven out of the area – taking refuge in neighbouring Bauchi and Kaduna states. The Southern Kaduna Peoples Union promptly called for their expulsion by the state government (Viewpoint, 2013; Daily_Trust, 2013). Bokkos LGA has now joined the number of conflict prone areas in Plateau state with uneasy relations between Fulani

and Indigenes. The murder of the Saf Ron-Kulere, paramount traditional ruler of the area in 2016 by "suspected herdsmen" has worsened an already tense situation (Viewpoint, 2016). These are just two examples of the high insecurity in the rural Middle Belt of Nigeria, caused by criminal activities and natural resource conflict. The frequency of these attacks is rising, with 60 recorded throughout 2015 and the same number in the first half of 2016 (Burton, 2016).

Cattle rustling has risen to alarming levels in Nigeria over the last two decades due to several factors: opportunities for crime created by civil conflicts; access to semi-automatic weapons; increasing demand for beef; ready markets for quick disposal of stolen cattle; easy long distance communication and transport links. All of these factors made it a very attractive economic venture for organised crime cartels and terrorist groups (primarily Boko Haram) who now run it as a well organised, profit-focussed enterprise, with frightening levels of violence(Alemika, 2013; Kwaja, 2014). Such cattle rustling operations are active in 8 of the 17 LGAs of Plateau state (including Bokkos) and the Joint Task Force set up by the Federal Government to ensure peace in the state recorded 160 attacks, 2,500 cattle stolen and 260 deaths within their first few months of operation (Azeez and Yahaya, 2016). During the time of this study, at least three of the study households suffered cattle thefts. The thieves were immediately pursued and cattle recovered in all cases, without involving the police or Joint Task Force. It was common knowledge that several local youths, both Fulani and indigenes were involved with criminal gangs responsible for cattle rustling and armed robbery.

Most violent incidents in rural areas of Nigeria are now heedlessly attributed to "Fulani herdsmen" and labelled terrorist attacks, so much so that the Institute for Economics and Peace (2015) listed "Fulani herdsmen […] operating in Nigeria's middle belt and the Central African Republic" as the fourth most deadly terrorist group of 2014, ahead of Al Shabaab and the Taliban. Undoubtedly, Fulani are responsible for many of these incidents, motivated by revenge for loss of lives and cattle in previous clashes and disputes over land and grazing rights. However, many are simply crimes for economic gain. And very little is said about violence against the Fulani, often viewed as justified reprisal attacks rather than terrorist activities. Thousands of Fulani have lost their lives and property in such attacks and many more have been displaced. The Kachia grazing reserve received 1,200 internally displaced Fulani from Southern Kaduna and Plateau states in 2011 alone (Ducrotoy, 2015). The IDP camp in Bauchi state to which Fulani from Bokkos fled in 2013 already housed 48,000 people, mostly from previous conflicts in Plateau state (Daily_Trust, 2013). The Buhari administration has done little to address this rural violence, either in terms of increased security or dialogue.

These criminal activities and the continuing political, religious and tribal polarisation of Nigerian society have aggravated and eclipsed the natural resource competition/conflicts such that it will be very difficult for Fulani to acquire grazing rights in new areas within the humid and sub-humid zone by peaceful means. The ill-advised Grazing Reserve Bill (Federal Republic of Nigeria National Assembly, 2011), which sought to forcibly acquire grazing land for Fulani in all 36 states of the Federation, provoked a furious backlash from private citizens, civil society groups and state governments alike and many areas of potential transhumance/settlement are now closed to Fulani. Extensification, which has been successful so far, may therefore prove to be an unsustainable adaptation. The greatest grievance of other ethnic groups against the Fulani is their expectation of grazing rights free of charge as a fundamental right, while everyone else must pay for land and inputs for their livelihoods. A shift to more intensive production would reduce the requirement for large areas of natural pasture. Reducing herd sizes and greater investment and diversification into off-farm enterprises would have the same effect. Majekodunmi *et al.* (2017) have shown

that this livelihood strategy produces the best outcomes as households with smaller herds and higher cash incomes from diverse sources were the most successful and had the greatest prospects for sustainability.

3.4 Social cohesion and political autonomy

Political autonomy is weak amongst the Fulani on the Jos Plateau as pastoralists still have very poor representation in and engagement with state authorities (Okello *et al.*, 2014). The situation is particularly poor in Plateau as the state government is controlled by Berom elites who are hostile to Fulani (Higazi, 2013). Fulani leadership structure on the Plateau is very democratic and individual households tend to be quite independent of the Ardo (chief). Apart from its effects on representation and engagement with state authorities, this leadership mechanism does not encourage strong social cohesion and cannot enforce sanctions for not participating in social institutions. Again, many Plateau Fulani belong to the Izala sect of Islam which places more emphasis on personal responsibility and individual endeavour than on collective rites and hierarchies (Higazi, 2013; Moddibbo, 2012). Indigenous communities control natural resources and Fulani depend on their goodwill for access to these resources. Resources are preferentially allocated to cultivation such that there is competition rather than cooperation amongst pastoralists as well as between pastoralists and indigenes. This has been the root cause of the most protracted violence recorded on the Jos Plateau, in Riyom and Barkin Ladi LGAs, where displaced Fulani from many areas have congregated, displaced the indigenous Berom and taken over the land for their own settlements, farming and grazing (Higazi, 2013; Taft and Haken, 2015).

And so the nature of social cohesion and political autonomy has been altered by conflict and insecurity. Social cohesion is now often informed by feelings of isolation from and defence against non-Fulani, as well as more benign motivations of shared identity. Political autonomy is often asserted by aggression, violence and vengeance for grievances. For Fulani households who have lost cattle due to violence or theft, the accepted solution to rebuilding the herd is pursuit and recovery of their cattle in the case of theft (which is often successful) or raiding the cattle of indigenous farmers.

4. Conclusion

This research shows a marked decline amounting to a virtual cessation of the exchange of cattle for social support and the rise of patron-client relationships as a social risk management strategy. There were several reasons for this: high proportion of better-off households: increasing economic differentiation; reduced risk and increased resilience and market integration in cattle production; high rates of livelihood diversification, with strong effect on covariance of risk; rising demand for experienced herders, low political autonomy and reduced social cohesion due to the hardships of natural resource conflict, violence and insecurity. Essentially, people are richer, more resilient and more selfish. All of these have served to erode reciprocal exchange networks and promote patron-client relationships as the main social risk management strategy. The lack of social support through reciprocal exchange networks is mitigated by opportunities for employment, leading to the ongoing evolution of patron-client relationships. Thus social risk management options are still available to poor pastoralists. When compared to reciprocal exchange networks however, patron-client relationships achieve lower redistribution of wealth and maintain social differentiation within the society. They do not offer the opportunity to rapidly rebuild one's herd and regain independence and self-esteem in the way that reciprocal exchange of cattle does (Basset, 1994).

These results point to the emergence of a more individual lifestyle, as observed in pastoral societies across Africa (Baird *et al.*, 2009; Little, 2003, McCabe *et al.*, 2010).

Reciprocal exchange as a social risk management strategy is proven to increase herd survival and the sustainability of pastoral communities (Hao *et al.*, 2015; Moritz *et al.*, 2011). However, risks to pastoralists have changed in recent decades and the growing restriction in access to natural resources may now be the greatest challenge faced by Africa's pastoral populations (Davies and Bennett, 2007; McKune and Silva, 2013; Nori *et al.*, 2008). Reduced investment in social risk management strategies and increasing social differentiation at a time of insecurity as well as constrained access to natural resources may have serious implications for the sustainability of Fulani pastoralism in North-Central Nigeria. These natural resource issues and associated conflicts have different effects on pastoral societies across the continent. In some societies, such as the purely pastoral Afar in Ethiopia, it reinforces SRMS as the bonding social capital conferred by SRMS is increasingly valuable. In others, it is accompanied by a decline and shift in gift-giving as is commonly found amongst Maasai (Baird and Gray, 2014; Coast, 2002; Homewood *et al.*, 2009; McCabe 2003) and has been seen in the Fulani in this study, who are primarily agro-pastoralists.

This should be viewed as evolution of the culture, rather than as a loss. It is a natural part of the adaptation of the Fulani's livelihood strategies to cope with changing conditions. As part of this process we see extensification, market integration and diversification of livelihood strategies amongst the Plateau Fulani (Majekodunmi *et al.*, 2017).There is a notable absence of efforts to intensify production as successfully done by pastoralists elsewhere in Africa (Bencherifa and Johnson, 1990; Boutrais, 1996; Buhl, 1999; BurnSilver, 2007; Demirag, 2004; Homewood *et al.*, 2009; Moritz, 2003, 2012; Moritz *et al.*, 2009; Ramisch, 1998; Requier-Desjardins, 2001); Extensification here has also not led to specialisation as seen elsewhere (Adriansen, 2006; Manderscheid *et al.*, 2002; Sikana *et al.*, 1993). They remain agro-pastoralists without achieving truly integrated mixed farming, and so must maintain two fronts, pursuing cultivation and off-farm activities at home and managing their cattle in remote locations for most of the year. This is becoming increasingly difficult and may not be sustainable in the long-term.

These livelihood adaptations are accompanied by shifts in the social structure as Fulani society becomes more inward looking and closed off from non-Fulani, but within the community, society is less cohesive and the lifestyle is becoming less communal and more individual. Thus there is a decrease in both bonding (intra-community) and bridging (inter-community) social capital. Increases in education and livelihood diversity represent efforts to develop bridging social capital but the current situation is a far cry from the heyday of farmer-herder interdependence. This flux of inter- and intra-community relations will be an important determinant of conflict resolution and lasting peace and security in Nigeria's diverse middle belt. It is impossible to predict the outcomes but it is clear that long-term solutions and adaptations are required.

This research has significant implications for sustainability of Fulani livelihoods and communities: decreased SRMS and increased self-reliance means that the most vulnerable households will find it more difficult to withstand shocks and climb out of poverty. Wealthier households may cope better with high incidence/low severity shocks like illness or temporary restrictions in mobility but are more vulnerable to low incidence/high severity shocks such as extended droughts or loss of mobility as a livelihood strategy. Likewise, decreased social cohesion reduces the ability of communities to mobilise and act collectively in the face of community-level shocks. This is very important to improve farmer – herder relations and for engagement with the State – a crucial process, given current levels of acrimony and conflict and decline in traditional conflict resolution mechanisms which have left the state as the only viable mediator for lasting change. These findings can be consolidated by future research into reciprocal exchange of other commodities amongst and studies in other Fulani communities across Nigeria.

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References

Adger, W.N. (2003), "Social capital, collective action, and adaptation to climate change", *Economic Geography*, Vol. 79 No. 4, pp. 387-404.

Adriansen, H.K. (2006), "Continuity and change in Pastoral livelihoods of Senegalese Fulani", *Agriculture and Human Values*, Vol. 23 No. 2, pp. 215-229, doi: 10.1007/s10460-005-6108-3.

Aktipis, C.A., Cronk, L. and De Aguiar, R. (2011), "Risk-pooling and herd survival: an agent-based model of a Maasai gift-giving system", *Human Ecology*, Vol. 39 No. 2, pp. 131-140.

Alemika, E. (2013), *The Impact of Organized Crime on Governance in West Africa*, Friedrich-Ebert-Stiftung, Abuja.

Awogbade, M.O. (1983), *Fulani Pastoralism: Jos Case Study*, ABU Press, Zaria.

Azeez, O. and Yahaya, A. (2016), "Cows, bandits, and violent conflicts: understanding cattle rustling in Northern Nigeria", *Africa Spectrum*, Vol. 51 No. 1, pp. 93-105.

Baird, T.D. and Gray, C.L. (2014), "Livelihood diversification and shifting social networks of exchange: a social network transition?", *World Development*, Vol. 60, pp. 14-30.

Baird, T.D., Leslie, P.W. and McCabe, J.T. (2009), "The effect of wildlife conservation on local perceptions of risk and behavioral response", *Human Ecology*, Vol. 37 No. 4, pp. 463-474.

Barr, A. and Genicot, G. (2008), "Risk sharing, commitment, and information: an experimental analysis", *Journal of the European Economic Association*, Vol. 6 No. 6, pp. 1151-1185.

Basset, T. (1994), "Hired herders and herd management in Fulani Pastoralism (Northern Côte d'Ivoire)", *Cahiers d'études africaines*, Vol. 34 Nos 133-135, pp. 147-173.

Bencherifa, A. and Johnson, D.L. (1990), "Adaptation and intensification in the pastoral systems of Morocco", in Galaty, J.G. and Johnson, D.L. (Eds), *The World of Pastoralism: Herding Systems in Comparative Perspective*, Guilford, New York, NY, pp. 394-416.

Blench, R., Longtau, S., Hassan, U. and Walsh., M. (2006), "The role of traditional rulers in conflict prevention and mediation in Nigeria", Department for International Development (DFID), London.

Bollig, M. (1998), "Moral economy and self-interest. Kinship, friendship, and exchange among the Pokot (N.W. Kenya)", in Schweizer, T. and White, D. (Eds), *Kinship, Networks, and Exchange*, Cambridge University Press, Cambridge, pp. 137-157.

Boutrais, J. (1996), *Hautes terres d'élevage au Cameroun*, Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM), Paris.

Brokensha, D., Warren, D. and Werner, O. (1980), *Indigenous Knowledge Systems and Development*, University Press of America, New York, NY.

Buhl, S. (1999), "Milk, millet, and mannerisms: gendered production among pastoral and agropastoral Fulbe households in northern Burkina Faso", PhD, University College London, London.

BurnSilver, S.B. (2007), "Pathways of continuity and change: diversification, intensification and mobility in Maasailand, Kenya", PhD, Colorado State University, Colorado.

Burton, G. (2016), "Fulani Herdsmen", CYMA, Abuja.

Coast, E. (2002), "Maasai socioeconomic conditions: a cross-border comparison", *Human Ecology*, Vol. 30 No. 1, pp. 79-105.

Daily_Trust (2013), "Nigeria: Bauchi Council Hosts 48,475 Internally Displaced Persons", *Daily Trust*, available at: http://allafrica.com/stories/201304230256.html

Davies, J. and Bennett, R. (2007), "Livelihood adaptation to risk: constraints and opportunities for pastoral development in Ethiopia's Afar region", *Journal of Development Studies*, Vol. 43 No. 3, pp. 490-511.

De St Croix, F. (1945), *The Fulani of Northern Nigeria: Some General Notes*, Government Printer, Lagos.

Demirag, U. (2004), *Handlungsräume agropastoraler Fulbe in Nordostnigeria: eine vergleichende Studie in den Bundesstaaten Adamawa und Gombe*, Institut für Afrika-Kunde, Hamburg.

Ducrotoy, M.J. (2015), "Livelihoods of Fulani pastoralists and burden of bacterial zoonoses in the Kachia grazing reserve, Nigeria", PhD, School of Biomedical Sciences, University of Edinburg, Edinburgh.

Federal Republic of Nigeria National Assembly (2011), "The National Grazing Routes and Reserves Act Bill HB.11.10.130".

FEWSNET (2004), "Famine early warning system: national livelihood profiles".

Galvin, K. (2008), "Responses of pastoralists to land fragmentation: social capital, connectivity and resilience", in Galvin, K.A., Reid, R.S., Behnke, R.H. Jr and Hobbs, N.T. (Eds), *Fragmentation in Semi-Arid and Arid Landscapes: Consequences for Human and Natural Systems*, Springer, Dordrecht, pp. 369-389.

Gray, S., Sundal, M., Wiebusch, B., Little, M.A., Leslie, P.W. and Pike, I.L. (2003), "Cattle raiding, cultural survival, and adaptability of East African pastoralists", *Current Anthropology*, Vol. 44 No. S5, pp. S3-S30.

Hao, Y., Armbruster, D., Cronk, L. and Aktipis, C. (2015), "Need-based transfers on a network: a model of risk-pooling in ecologically volatile environments", *Evolution and Human Behavior*, Vol. 36 No. 4, pp. 265-273.

Higazi, A. (2011), "The Jos crisis: a recurrent Nigerian tragedy", Friedrich Ebert Stiftung Discussion Paper No. 2, Friedrich Ebert Stiftung, Abuja.

Higazi, A. (2013), "Rural insecurity on the Jos Plateau, Nigeria: livelihoods, land, and religious reform among the Berom, Fulani, and Hausa", Nigerian Research Network Working Paper No. 11, University of Oxford, Oxford.

Higazi, A. (2016), "Farmer-pastoralist conflicts on the Jos Plateau, central Nigeria: security responses of local vigilantes and the Nigerian state", *Conflict, Security & Development*, Vol. 16 No. 4, pp. 365-385, doi: 10.1080/14678802.2016.1200314.

Homewood, K., Kristjanson, P. and Trench, P.C. (2009), *Staying Maasai: Livelihoods, Conservation and Development in East African Rangelands*, Springer, New York, NY.

Human-Rights-Watch (2006), "'They do not own this place' government discrimination against 'Non-Indigenes' in Nigeria", *Human Rights Watch*, Vol. 18 No. 3, pp. 1-68.

Institute for Economics and Peace (2015), "Global Terrorism Index", Institute for Economics and Peace, Sydney, pp. 1-111.

Kwaja, C. (2014), "Blood, cattle, and cash: cattle rustling and Nigeria's Bourgeoning underground economy", *West African Insight*, Vol. 4 No. 3, pp. 1-6.

Little, P.D. (2003), *Somalia: Economy Without a State*, Indiana University Press, Bloomington, IN.

Loftsdóttir, K. (2001), "Birds of the bush: wodaabe distinctions of society and nature", *Nordic Journal of African Studies*, Vol. 10 No. 3, pp. 280-298.

McCabe, J.T. (2003), "Sustainability and livelihood diversification among the Maasai of Northern Tanzania", *Human Organization*, Vol. 62 No. 2, pp. 100-111.

McCabe, J.T., Leslie, P. and DeLuca, L. (2010), "Adopting cultivation to remain pastoralists: the diversification of Maasai livelihoods in Northern Tanzania", *Human Ecology*, Vol. 38 No. 3, pp. 321-334.

McKune, S.L. and Silva, J.A. (2013), "Pastoralists under pressure: double exposure to economic and environmental change in Niger", *The Journal of Development Studies*, Vol. 49 No. 12, pp. 1711-1727.

Majekodunmi, A.O., Dongkum, C., Tok, L.D., Shaw, A. and Welburn, S.C. (2017), "Shifting livelihood strategies in Northern Nigeria – extensified production and livelihood diversification amongst Fulani pastoralists", *Pastoralism: Research, Policy and Practice*, Vol. 7 No. 9, pp. 1-13.

Majekodunmi, A.O., Dongkum, C., Tok, L.D., Shaw, A.P.M. and Welburn, S.C. (2016), "Improved productivity and sustainable pastoral systems in an era of insecurity – Fulani herds of the southern Jos Plateau, North-Central Nigeria", *Tropical Animal Health and Production*, Vol. 48 No. 8, pp. 1719-1728.

Majekodunmi, A.O., Fajinmi, A., Dongkum, C., Shaw, A.P.M. and Welburn, S.C. (2014), "Pastoral livelihoods of the Fulani on the Jos Plateau", *Pastoralism: Research, Policy and Practice*, Vol. 4 No. 20, pp. 1-16, doi: 10.1186/s13570-014-0020-7.

Majekodunmi, A.O., Fajinmi, A., Dongkum, C., Picozzi, K., Thrusfield, M.V. and Welburn, S.C. (2013), "A longitudinal survey of African animal trypanosomiasis in domestic cattle on the Jos Plateau, Nigeria: prevalence, distribution and risk factors", *Parasit Vectors*, Vol. 6 No. 239, pp. 1-10, doi: 10.1186/1756-3305-6-239.

Majekodunmi, A.O., Fajinmi, A., Dongkum, C., Picozzi, K., MacLeod, E., Thrusfield, M.V., Shaw, A.P.M. and Welburn, S.C. (2013), "Social factors affecting seasonal variation in bovine trypanosomiasis on the Jos Plateau, Nigeria", *Parasites & Vectors*, Vol. 6 No. 1, pp. 1-9, doi: 10.1186/1756-3305-6-293.

Manderscheid, A., Naukkarinen, A., Ning, W. and Colpaert, A. (2002), "From subsistence to market economy: responses of Tibetan pastoralists to new economic realities", *Rangifer*, Vol. 15 No. 4, pp. 29-37.

Mauss, M. (1990), *The Gift: The Form and Reason for Exchange in Archaic Societies*, Routledge, London.

Moddibbo, M.S.A. (2012), "Survey of Muslim groups in plateau state of Nigeria", Background Working Paper No. 4 Nigeria Research Network, Oxford.

Moritz, M. (2003), " Commoditization and the pursuit of piety: the transformation of an African pastoral system", PhD, University of California, Los Angeles, CA.

Moritz, M. (2010), "Understanding herder-farmer conflicts in West Africa: outline of a processual approach", *Human Organization*, Vol. 69 No. 2, pp. 138-148.

Moritz, M. (2012), "Pastoral intensification in West Africa: implications for sustainability", *Journal of the Royal Anthropological Institute*, Vol. 18 No. 2, pp. 418-438.

Moritz, M. (2013), "Livestock transfers, risk management, and human careers in a West African pastoral system", *Human Ecology*, Vol. 41 No. 2, pp. 205-219.

Moritz, M., Britney, R.K., Nolan, K.C., Patrick, S., Shaffer, M.F. and Thampy, G. (2009), "Too many people and too few livestock in West Africa? An evaluation of Sandford's thesis", *The Journal of Development Studies*, Vol. 45 No. 7, pp. 1113-1133, doi: 10.1080/00220380902811058.

Moritz, M., Giblin, J., Ciccone, M., Davis, A., Fuhrman, J., Kimiaie, M., Madzsar, S., Olson, K. and Senn, M. (2011), "Social risk-management strategies in Pastoral systems: a qualitative comparative analysis", *Cross-Cultural Research*, Vol. 45 No. 3, pp. 286-317.

Mwiturubani, D.A. and van Wyk, J.-A. (2010), "Climate change and natural resources conflicts in Africa", *Institute for Security Studies Monograph 170*, Institute for Security Studies, Pretoria.

Njeuma, M. (2012), *Fulani Hegemony in Yola (Old Adamawa)*, African Books Collective, Oxford, pp. 1809-1902.

Nori, M., Taylor, M. and Sensi, A. (2008), "Browsing on fences: Pastoral land rights, livelihoods and adaptation", Dryland Issue Paper No. 47, International Institute for Environment and Development, London.

Nwabara, S.N. (1963), "The Fulani conquest and rule of the Hausa Kingdom of Northern Nigeria (1804-1900)", *Journal de la Société des Africanistes*, Vol. 33 No. 2, pp. 231-242.

Okello, A.L., Majekodunmi, A.O., Malala, A., Welburn, S.C. and Smith, J. (2014), "Identifying motivators for state-pastoralist dialogue: exploring the relationships between livestock services, self-organisation and conflict in Nigeria's pastoralist Fulani", *Pastoralism: Research, Policy and Practice*, doi: 10.1186/s13570-014-0012-7.

Pedersen, J. and Benjaminsen, T.A. (2008), "One leg or two? Food security and Pastoralism in the Northern Sahel", *Human Ecology*, Vol. 36 No. 1, pp. 43-57.

Pullan, N.B. (1980a), "Productivity of White Fulani cattle on the Jos plateau, Nigeria. III: Disease and management factors", *Tropical Animal Health and Production*, Vol. 12, pp. 77-84.

Pullan, N.B. (1980b), "Productivity of White Fulani cattle on the Jos plateau, Nigeria. II: Nutritional factors", *Tropical Animal Health and Production*, Vol. 12, pp. 17-24.

Pullan, N.B. and Grindle, R.J. (1980), "Productivity of White Fulani cattle on the Jos plateau, Nigeria. IV: economic factors", *Tropical Animal Health and Production*, Vol. 12 No. 3, pp. 161-170.

Ramisch, J. (1998), "Cattle, carts and cotton: livestock and agricultural intensification in southern Mali", PhD, University of East Anglia, Norwich.

Reda, K.T. (2015), "Natural resource degradation and conflict in the East African pastoral drylands", *African Security Review*, Vol. 24 No. 3, pp. 270-278, doi: 10.1080/10246029.2015.1059350.

Requier-Desjardins, M. (2001), "Elevages et transhumance à l'extreme-nord du Cameroun: une étude des contrats d'acces aux paturages communs, enquêtes en mileu pastoral et essai de modélisation contractuelle", PhD, Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), Paris.

Roe, E., Huntsinger, L. and Labnow, K. (1998), "High reliability pastoralism", *Journal of Arid Environments*, Vol. 39 No. 1, pp. 39-55.

Salzman, P.C. (2004), *Pastoralists: Equality, Hierarchy, and the State*, Westview, Boulder, CO.

Sikana, P.M., Kerven, C. and Behnke, R.H. (1993), "From subsistence to specialized commodity production: commercialisation and pastoral dairying in Africa", Pastoral Development Network Paper No. 34D Overseas Development Institute (ODI), London.

Stenning, D. (1959), *Savannah Nomads*, International Africa Institute, London.

Stenning, D.J. (1957), "Transhumance, migratory drift, migration; patterns of Patoral Fulani Nomadism", *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, Vol. 87 No. 1, pp. 57-73.

Taft, P. and Haken, N. (2015), *Violence in Nigeria, Patterns and Trends*, Springer International Publishing, New York, NY.

Templer, G., Swift, J. and Payne, P. (1993), "The changing significance of risk in the Mongolian pastoral economy", *Nomadic Peoples*, Vol. 33, pp. 105-122.

Viewpoint (2013), "Fulanis flee Plateau after reprisal attacks", Viewpoint Nigeria, available at: http://viewpointnigeria.com/fulani-flee-plateau-after-reprisal-attacks/ (accessed 30 July 2016).

Viewpoint (2016), "Saf Ron/Kulere ambushed and gruesomely murdered by suspected herdsmen", Viewpoint Nigeria, available at: http://viewpointnigeria.com/breaking-news-saf-ron-kulere-ambushed-gruesomely-murdered-suspected-herdsmen/ (accessed 30 July 2016).

Waters-Bayer, A. and Bayer, W. (1994), "Coming to Terms: interactions between immigrant Fulani cattle-keepers and indigenous farmers in Nigeria's subhumid zone", *Cahiers d'études africaines*, Vol. 34 Nos 133-135, pp. 213-229.

Young, H. and Goldman, L. (2015), *Livelihoods, Natural Resources, and Post-Conflict Peacebuilding*, Routledge, Oxford.

Further reading

The National Grazing Routes and Reserves Act Bill (2011), HB.11.10.130.

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