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An experimental methodology for studying household financial governance and coping mechanisms in Goma, DRC

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ABSTRACT

This paper examines our experiences designing and implementing an experimental methodology to study households' socioeconomic coping mechanisms in insecure, unstable, or conflict-affected contexts. Our method combined longitudinal household diaries with social network research to collect data on how 24 households living in Goma, the Democratic Republic of the Congo, use their financial and social resources to overcome daily struggles and unexpected shocks like bereavement and theft. Before outlining how the methods complement one another in this study, we overview how each has been employed separately for similar aims. We then turn to the realities of combining them in Goma, reflecting on foreseen and unanticipated challenges and how we addressed them – both successfully and not. Money matters are generally sensitive subjects, and particularly so in such environments. The threads that run through this assessment are those of forging and maintaining trust; translating across languages and cultures; and navigating an insecure and fast-changing environment. To contextualise a discussion of how these factors may have affected the research, data collected, and our conclusions, we provide two vignettes of households that participated in the study. Throughout, we also explore the potential effects of a water provision programme implemented by Mercy Corps that benefited some of the studied households. We conclude with recommendations for those wishing to build upon our method and for development programmes keen to use it to complement their own monitoring, evaluation, and learning.

INTRODUCTION

This paper examines the design and implementation of an experimental methodology for studying household coping mechanisms in an insecure and conflict-affected urban context. The approach combined longitudinal financial diaries with social network research and ethnography to collect data on 24 households in Goma, the provincial capital of North Kivu, in the Democratic Republic of the Congo (DRC) between February 2019 and March 2020. The research aimed to nuance understandings of how households use their financial and social resources to overcome daily struggles and unexpected shocks like loss of employment, illness, bereavement, land disputes, and theft. It also sought to discern whether the stability of a consistently priced and available water supply – through Mercy Corps' Integrated Maji Infrastructure and Governance Initiative for eastern Democratic Republic of the Congo (IMAGINE) programme – had the potential to affect their strategies.

Interest in the coping strategies of people and households living in fragile and conflict-affected areas has grown in recent years. This has partly been a response to prolonged and intractable insecurity and violence in some contexts, and partly to projections that without action, 80 percent of the world's poor will live within them by 2030 (OECD, 2018). The humanitarian and development sectors concerned with this have been increasingly drawn to what people do to get by and respond to shocks, sometimes conceptualised as resilience. This interest acknowledges that most people do not weather conflicts because of the sectors' interventions and that limited budgets mean that they are unlikely ever to do so. It also supposes that greater knowledge of people's coping strategies can lead to supporting practices or the adaptation of interventions in ways that better support vulnerable populations.

Research has often examined responses to the rapid onset of conflict or conflict-related crises, such as famines or forced migrations. However, far less is known about how those caught in protracted situations of instability and violence cope over the long run. This is especially the case for urbanised areas that are inextricably entwined in what Kaldor (2012) termed 'war economies', where the political and economic drivers of seemingly intractable conflicts cannot be disentangled. In such places, people often find refuge from overt violence and some even prosper (Cramer, 2006). Yet, the vast majority remain subject to precarious livelihoods, insecurity, and multiple, sometimes contradictory, systems of governance (Kaldor and Sassen, 2020). To access vital public goods and services, residents must also negotiate with a range of public authorities, from customary and faith-based leaders to civic associations, non-governmental organisations, gangs, security personnel, and state representatives (Hoffmann and Kirk, 2013).

Operationalising an experimental method to study household coping mechanisms in such a context raised several challenges, some less anticipated than others. The paper explores them by (1) discussing our research design; (2) reflecting on the team's experiences collecting and analysing incoming data; and (3) providing two vignettes to illustrate insights garnered using this experimental method. Emerging themes include negotiating with public authorities to secure research clearance and access participants; creating and sustaining trust; leveraging additional methods like participant observation and cognitive interviews to increase data quality; and managing a diverse team in an insecure context. Each required concessions, humility, and adaptations as the team gradually learnt what worked and what did not. Nonetheless, we argue that the method has significant potential to reveal households' coping strategies and to inform outsiders' interventions in similar contexts, albeit with modifications and limitations that should be taken into account in future iterations.

The design and implementation of this experimental method necessitated collaboration as well as a division of labour. As co-authors, we aim to foreground the experiences of the research team members who regularly met with participating households, nurturing trust and understanding their coping strategies in their own terms. The challenges faced and the contributions made by non-Western researchers have been understated – if not completely unvoiced – too often and too long in academia (Baaz and Utas, 2018; Marchais et al., 2020; Mushagalusa Mudinga, 2016). Whilst drawing particular attention to these concerns, the paper seeks to explicitly discuss how power asymmetries within the research team framed and affected the project.

The next section provides an overview of how financial diaries and social network approaches have been employed separately to investigate similar research questions and presents our rationale for combining them in this study. We then turn to the realities of doing so in Goma, reflecting on the challenges and how we addressed them – whether successfully or not. Two household vignettes then further contextualise a discussion of how these factors may have affected the research, the data collected, and the conclusions that can be drawn from it. We conclude by appraising the adaptability of this experimental methodology to other settings and offering recommendations for those wishing to build upon it to investigate similar phenomena, be they associated with academic research or development programmes.

EXTANT APPROACHES TO STUDYING HOUSEHOLD COPING STRATEGIES AND RESILIENCE

The experimental methodology outlined in this paper combined the regular collection of households' financial diaries with the periodic mapping of their personal support networks and processes of accessing basic social services. Interpretations of incoming data were also verified through ongoing semi-structured interviews and participant observation. This approach built upon previous work whilst seeking to overcome the snapshot-like quality of quarterly or biannual surveys. Working with populations that have little reason to trust researchers and whose coping strategies may reveal themselves slowly or sporadically necessitated methods that could yield nuanced, contextualised data in real-time and over time. This section outlines the inspiration for the experimental method we eventually adopted, whilst the next discusses its operationalisation.

With growing interest in how people manage living with instability and conflict, academics and practitioners have re-examined the utility of methodologies deployed in less fractious contexts for research and programme evaluations (Khan et al., 2017; Cronin-Furman and Lake, 2018; Idris, 2019; Hoogeveen and Pape, 2020). Many argue that such contexts present unique challenges. They include the ethics of engaging research participants who may have experienced trauma, who are trying to survive in difficult circumstances, and who may not trust outsiders asking sensitive questions. They also encompass the risks of safely accessing research sites where little to no formal authorisation or protection can be secured, and where public authorities may be uninterested in maintaining order or even predatory. In remote areas with poor cellular coverage and dilapidated roads, they may also struggle to stay abreast of mercurial security dynamics. Even where fieldwork is possible, researchers can rarely benefit from the national census data or regular political economy analyses often available for more stable contexts.

The exigencies of such settings call for modifications to well-established approaches and new methodological innovations. Many emerging efforts rely on mixed methods research designs, employing a range of data collection approaches, instruments, and means of analysis to identify and account for noise, biases, and gaps in data. For example, a growing body of research explores people and households' resilience to conflict, including how outsiders' interventions can affect it (for overviews see:

Justino, 2012; Stiles and Bushby, 2017).¹ Emphasis is often placed on people's capacities to absorb, adapt, or transform in response to shocks (Béné et al., 2012). Much of this research has been based on large-N livelihood surveys, combined with 'expert' or 'key informant' interviews for context. Others have sought to map the social networks that people identify as helpful in weathering crises or self-evaluations of their own ability to withstand future shocks (Guarnacci, 2016; Brück et al., 2019).² Notable efforts also include longitudinal studies of the same conflict-affected populations, illuminating how resilience changes over time (Gafaro et al., 2014; Mallet and Slater, 2017).

Although it does not agree on definitions or measurements of coping strategies or resilience, this research has provided important insights. Among them are a recognition that people's abilities to convert assets to more immediate needs, diversify livelihoods, flee, or migrate, and to draw upon and invest in their social networks are crucial to their survival (Munas and Lokuge, 2016; Maxwell et al., 2016; Nwokolo, 2017). These and related findings have challenged humanitarian and development practitioners working in fragile and conflict-affected places to reassess common assumptions. They include whether households' levels of debt and livelihood diversification should be understood as negative or positive responses to shocks; how well-meaning interventions neglect, affect, or can benefit from social connections; and whether households' coping strategies are different in rural areas than urban ones with comparatively more overlapping authorities and livelihood opportunities (Maxwell et al., 2017; Jeeyon et al., 2020).

The financial lives of poor households living in more stable contexts have been the subject of widespread interest due to a combination of high-profile books, debates over micro-finance, and rise of the inequality and social mobility agendas (Banerjee and Duflo, 2011; Roodman, 2011). Studies using panel surveys of those living on a few dollars a day or less have declared the poor to be experts in managing fluctuating incomes and high levels of debt, and have shown why what often looks like short-term, irrational decision-making is actually a sign of debilitating poverty traps that stifle wealth accumulation and innovation. They have also revealed how the poor often spread risk by maintaining diverse social networks of friendship, family, and mutual obligations that double as safety nets when seemingly insurmountable shocks – such as loss of employment, illnesses, or deaths – occur.

Portfolios of the Poor added to this body of knowledge by following the financial lives of 250 poor families living in rural and urban parts of Bangladesh, India, and South Africa (Collins et al., 2009). Researchers from those countries interviewed households twice a month over the course of a year and collected financial diaries of their spending, savings, and borrowings. Trust built with participants revealed the informal mechanisms they use to cope with precarious livelihoods. For example, households push and pull their resources into no less than four financial instruments per year, such as

¹ There is also a critical literature that argues a focus on resilience diverts attention from the power, politics, and structural determinants of vulnerability; posits crises as the new normal; and makes individuals and households responsible for their own welfare (Levine et al., 2012; Hilhorst, 2018).

² Subjective resilience differs from other methods that use tangible indicators such as assets, income, savings, or consumption by focussing on research participants' own judgments of their vulnerability (Jones and Tanner, 2016).

interest-free loans from kin, disciplining community-based savings groups, or self-help associations that insure them against future shocks. Often this results in households' annual turnovers (money in and out) being many times greater than their end of year assets or liabilities, suggesting their financial lives are as, if not more, complex than those of wealthier households or those in the global north.

The diaries method demonstrated that to grasp poor households' coping mechanisms researchers may require longitudinal cash-flow analyses that capture important decisions and the frequent movement of resources, rather than one-off stock takes. The method made headway towards negotiating the gap between snapshot-like large-N surveys that struggle to provide empirical depth and fine-grained contextual understanding, and small, less generalisable, but rich and nuanced ethnographies of poor households. Although the researchers did not measure them or show how they are built and maintained, the study also indicated that households' social networks are key to enduring crises and to members' ability to seize emerging opportunities that require risky collective actions.

Other research has employed social network approaches explicitly to study household coping strategies and livelihoods. Drawing on Bourdieu (1986) and Putnam (1993, 1995), much of this work equates social capital with social networks (Durlauf and Fafchamps, 2004), positing that livelihood assets are accessed and distributed through relationships – social connections – that mediate changes in livelihood strategies and household asset portfolios (Bebbington, 1999; Ellis, 2000). This perspective stresses individual and household resilience whilst recognising the embeddedness of livelihoods in larger social structures (Collinson, 2003; Lautze and Raven-Roberts, 2006; Vlassenroot et al., 2006). Such analyses usually portray social capital as bonding (strong relationships between family, friends, community members); bridging (weaker ties across groups); and linking (connections to people or groups in positions of greater financial or political power) people and groups (Woolcock and Narayan, 2000; Woolcock, 2001). Linking social capital refers directly to Nan Lin's (1999, 2001) theory of social structure and action. Lin asserts that network members' social status is a determinant of the quality of resources conveyed by social relations, relating both to accessing social capital and garnering its returns. Other studies indicate that connections to those of higher socioeconomic strata may reinforce unequal exchange relations of domination and subordination (Cleaver, 2005; Lomnitz, 1988; Meagher, 2006).

This framework has been used in Burundi to assess community-based reconstruction interventions (Vervish, Titeca, and Vlassenroot, 2013) as well as the social capital portfolios of poor families (Vervisch, Vlassenroot, and Braeckman, 2013). The former study investigated the effects of the provision of different types of resources on livelihoods. The latter examined how protracted crises affect social capital portfolios, concluding that bonding social capital is weakened by distrust and decreasing levels of mutual help; bridging social capital is non-existent due to a historical lack of associational traditions; and that linking social capital becomes unresponsive as dependency on patrons and indebtedness increases. Both studies were based on focus groups and key informant (or expert) interviews across three hillsides in Burundi over two years.

Another important study employed this framework to explore the social networks of informal micro and small enterprise entrepreneurs in Bobo-Dioulasso, Burkina Faso, testing Lin's theory (Berrou and Combarnous, 2011). The authors also employed an 'egocentric' or 'personal' network approach that

investigates specific actors' connections with others (Wasserman and Faust, 1994; Wellman, 2007). Using a survey of a representative sample of entrepreneurs, collecting social network data on a subset, and conducting life history interviews on a portion of that subset, the authors demonstrated that connections to those of middle socioeconomic strata had a strong and significant positive impact on these entrepreneurs' economic outcomes. Ties to those of high socioeconomic strata, however, did not – contrary to expectations, and one of Lin's (1999, 2001) propositions. The authors propose that those of middle social status are more likely to turn a blind eye to noncompliance with formal regulations and accept delayed payments. In an informal economy, such connections are more beneficial than those to businesswomen or businessmen of higher social status who are stricter about rules.

The wider study of – and the methodological approaches to – the roles of social networks and personal relations in economic actions and outcomes, however, far predates the work referenced above (see Coleman, 1988; Freeman, 2004; Granovetter, 1985; Robins, 2015). Preceding and succeeding work employs social networks in a range from the metaphorical to the precise and restricted manner required in mathematical graph theory or formal (statistical) analysis (Mitchell 1969:1-50). Seminal studies in this latter category, relevant to our own research design, include Boswell's (1969) investigation of how social networks are mobilised in times of personal crises, specifically bereavement, in Lusaka, Zambia. Boswell used participant observation and unstructured and semi-structured interviews in this comparative analysis of three individuals' egocentric networks, each representing different socioeconomic strata. His results stress the importance of latent ties resuscitated in crises, bonds of kinship and ethnolinguistic belonging, and enduring childhood connections.

In a similar study in Broken Hill, Zambia, albeit principally employing participant observation, Kapferer (1969) examined the norms and manipulation of relationships amongst a group of miners. After a month of collecting data on numerous social exchanges (multiplex ties) and attributes including demographics like socioeconomic status, his focus turned to a dispute between two employees over work rate and how they mobilised – and competed over – colleagues' support in the conflict. Kapferer's analysis of this data led him to two conclusions. First, the amount of support someone receives in a situation depends on the structure and nature of their direct and indirect relationships. Second, these very relationships – between disputing parties and those whose support they are trying to secure – affect the process of individual and group action and its outcome as much as the worthiness or weight of the issues invoked in the conflict. Whilst accounting for livelihoods and status, both studies centred on how individuals use and mobilise social networks in times of crises and conflict, without explicitly addressing their economic outcomes.

Such social network approaches, as well as diaries methods, have recently been used to study governance in fragile and conflict-affected places (Themnér and Utas, 2016; Stys et al., 2019; Loureiro et al., 2020). Despite their differences, the methods employed in these studies share a focus on repeated interactions with the same individuals and households. Loureiro et al. (2020) argue that the diaries method facilitated trust-building with participants through the use of multiple ethnographic techniques during visits, echoing Bott's (1957) earlier reflections concerning the use of social networks approaches. Leveraging a range of inter-disciplinary field techniques over the course of research, Bott's exploratory

approach has been heralded as the methodological origins of Social Network Analysis (Jones, 2018). Others argue that such mixing of approaches – sequential interviewing, focus groups, life histories, anchoring vignettes, and participant observation – can be particularly crucial for exploratory research where uncertainty, insecurity, and violence have understandably made people fearful of outsiders (Sluka, 1990; Kovats-Bernat, 20002; Goldstein, 2014). Participant observation, loosely understood as researchers’ extensive exposure to, and physical and emotional involvement in, participants’ everyday lives, is especially suited to cultivating relationships that permit discussion of hidden practices and explorations of gaps or contradictions in collected data or its interpretation (Tedlock, 1991; Kawulich, 2005). The method also requires ongoing reflections on how researchers’ own emotions, biases, and positionalities may be affecting data collection and analysis; issues we explore in the following sections.

MARRYING FINANCIAL DIARIES AND SOCIAL NETWORK APPROACHES AND ADAPTING THEM TO GOMA’S CONTEXT

This section explains how we adapted and combined many of the approaches described above into our experimental methodology. It addresses the research design, setup and structure of the research team, and the real-time flow and analysis of data. Attention is paid to the conceptual and practical choices made to account for the demands of an unstable, conflict-affected context; the precedence of researchers and participants’ safety and security; and the risks of misinterpreting data through foreign understandings of social realities. Before beginning, it is necessary to briefly outline the context.

The study centred on Goma, the capital of the DRC’s eastern province of North Kivu. The city sits on the northern shore of Lake Kivu and its eastern neighbourhoods border Rwanda. Goma’s population rapidly increased from 172,573 residents in 1993 to around 1.5 million today (Büscher, 2011; Peyton, 2018), mainly driven by refugee influxes related to the 1994 Rwandan genocide and internal displacement associated with the DRC’s two civil wars (1996–1997 and 1998–2003) and ensuing conflicts. Having sought and found the relative safety of the city, many people stayed. Refugee settlements gradually became permanent neighbourhoods. Others joined these arrivals in search of opportunities as the city turned into a hub for surrounding areas’ mining operations, the humanitarian community, cross-border and international trade, state institutions and, periodically, rebel leaders (Büscher and Vlassenroot, 2012).

Such actors remain in constant competition and collusion over economic sway, political control, and their regulation in Goma, now much less conspicuous than during periods of open armed conflict (Hoffmann and Verweijen, 2019). These dynamics include the provision of basic social services. Yet, service provision has rarely been a priority for many of these actors, and most residents of Goma struggle to access public goods. The majority of roads within neighbourhoods are uneven lava rock, and electricity is sporadic outside cash power services which are becoming more popular. Despite the incredible financing and aid sector mobilisations for the Ebola and COVID-19 responses, routine health exams and hospitalisation remain unaffordable for most. A patchwork of actors provide water: informal bicycle vendors, trucks filling private tanks (large wooden structures lined with plastic sheeting), the parastatal company REGIDESO’s (*Régie de distribution d’eau* / Water Distribution Authority) private

connections and public tap stands, and those managed by Congo Maji. The latter was established in 2018 as part of Mercy Corps' aforementioned IMAGINE programme to provide stable and affordable water to combat rates of diarrhoea among children under five years of age.

The presence of so many businesses and humanitarian actors, and their rent and purchase of the city's most lucrative real estate, has inflated property prices, intensified land disputes, and exacerbated socioeconomic inequality (Peyton, 2018). Insecurity in Goma is also linked to conflict in surrounding areas, a neighbourhoods' proximity to them, and its residents' family ties. It is also related to the alleged presence of armed group members, national and provincial elections, and outrage over the responses (or lack thereof) to crises by humanitarian and state actors (Hendriks and Büscher, 2019). This includes the widespread perception that public authorities representing or linked to the state, such as the police and other security actors, profit from emergencies and organised crime. Indeed, many residents argue that they actively court humanitarian aid, and extort ordinary people for their own, and their superiors', personal gain (De Herdt and Titeca, 2019).

To traverse such complexity, the research team consisted of three European and five Congolese researchers. The Europeans comprised two post-doctoral research fellows (one woman and one man), and a male professor. The Congolese were senior researchers (two men) who have worked in academia since 2016, and junior researchers pursuing academic research for the first time (two men and one woman). Four of the Congolese researchers worked in pairs to collect data, taking notes and speaking with participants. The structure was intended to assure their security, comfort, and the completeness of information garnered. The fifth – designated as the Research Manager – was responsible for staying abreast of security and health developments and verifying the quality of incoming data. To do so, he interacted with a range of public authorities, from *Chefs d'avenue* and *Chefs de quartier* (street and neighbourhood leaders) to representatives of local citizens' groups and the security services. These interactions were crucial to accessing research sites and respondents. All Congolese researchers spoke relevant local languages and French and had limited knowledge of English.

Incoming data was passed to two of the Europeans, the research fellows, for as close to 'real-time' analysis as possible. Each worked with one field team to effectively share responsibilities. To facilitate this, the French-speaking European team leader resided in Goma throughout the 15-month project, collaborating closely with the Research Manager and field teams daily. The English-only speaking Europeans periodically visited for check-ins or to help adapt the research methods in response to feedback and unforeseen challenges. Real-time data analysis allowed for clarifications of nascent interpretations and adaptations of interview guides to address emerging areas of interest during subsequent visits with participants. Once transcribed, participants' identities were anonymised with the use of codes and the data encrypted.

Our research centred on man- and woman- headed households of low and middle socioeconomic strata (SES). These categories were defined through three group interviews with *Chefs de quartier* and two semi-structured interviews with their president. The conceptualisations were cross-checked in team discussions prior to research implementation. The 24 participating households were likewise identified in consultation with *Chefs de quartier* in Bujovu, Katoyi, and Kyeshero. This process avoided the

imposition of inappropriate socioeconomic benchmarks (SES and ‘head’ of household) and secured the authorities’ buy-in for the project. It also sought to assure a balanced sample of two man- and two-woman headed households of both low and middle SES per neighbourhood. The selection criteria precluded households with familial connections to *Chefs* at the neighbourhood and lower subdivision levels and those who did not consent to participation and commit to the nine-month duration of the study. Despite various replacements during the selection process and efforts to refine classifications, at the beginning of the study the sample did not align with the envisaged design.³ In practice, and elaborated below, household ‘heads’, composition, and SES all change over time.

The three studied neighbourhoods were chosen for their differing primary methods of water provision: Katoyi enjoys the presence of tap stands operated by Congo Maji; Kyeshero is dominated by REGIDESO; and water in Bujovu is mainly sourced from informal providers such as water trucks and sales from private tanks (Picard, 2019; consultations with Mercy Corps MEL Team). We hoped this typical case purposive sampling method and Most Similar Systems Design would allow us to identify any differences that a stable and consistently priced water supply, such as that provided through the IMAGINE programme, could make to households’ financial governance and socioeconomic coping strategies (Anckar, 2008; Etikan et al, 2016).

Goma’s households of low SES have mixed and irregular sources of income, working as day labourers, roving street vendors of fruit and vegetables, or in local alcohol production and sales from their homes. They earn about CF3,000-5,000/day (roughly US\$2-3/day). They tend to live in small, sparsely furnished structures of corrugated metal, wooden boards, and plastic sheeting. Toilets are outdoors and sometimes shared with neighbours. Living spaces double as kitchens or food is prepared outside. Middle SES residents can earn substantially more and often have larger parcels of land and houses of cement block, located close to main roads. Their livelihood strategies usually entail the importation and reselling of goods from Rwanda; trading at formal market stalls or small shops on their properties; and renting assets like motorcycles for taxi-men and -women. The majority of our participating households owned the small parcels on which they lived.

Before fieldwork began, research design workshops were held to ensure training in safety and security protocols, safeguarding, reporting mechanisms and ethics. These workshops were also used to verify and refine the appropriateness of methods and data collection instruments to the context, including their testing through roleplay and a subsequent pilot study. They revealed that our proposed approaches required revision and evidenced naïveté. For example, Congolese team members stressed that participants’ financial lives were likely to encompass exchanges of favours and obligations, which a simple accounting exercise would not capture. Accordingly, we added non-numeric items and non-monetary exchanges to our financial diaries’ questionnaire. Congolese colleagues also posited that

³ In March 2019, the sample comprised: three woman-headed low SES households in Bujovu, three in Katoyi, and two in Kyeshero; two woman-headed middle SES households in Bujovu, one in Katoyi; and three in Kyeshero; zero man-headed low SES households in Bujovu, one in Katoyi, and two in Kyeshero; and three man-headed middle SES households in Bujovu, three in Katoyi, and one in Kyeshero.

participants would not disclose their entire financial portfolios at a first, or even a twelfth, meeting, especially because their precarious livelihoods are entwined with the maintenance of supportive social networks. Accordingly, the importance of trust was foregrounded, and we decided to undertake less intrusive, hopefully rapport-building questions and activities with households before the collection of financial data, following Bott's (1957) approach. We underestimated, however, that social connections and contacts are just as sensitive as questions about money in this context; a finding explored further in the following section.⁴

With these issues in mind, the first four biweekly visits with households encompassed an introductory session with *Chefs de quartier* present, an interview to gather household demographics, and participatory mappings of social networks. We collected social network data using dry-erase markers, whiteboards, and Lego blocks which participants stacked to indicate actors' importance (Hogan et al., 2007; Schiffer and Hauck, 2010). The first exercise focused on which basic social services households anticipated, from whom, and which services they actually accessed and how. These processes, and the individuals and organisations entailed, were narrated and drawn on the whiteboard. We chose to map social service provision and access before collecting data on personal support networks because the team deemed the subject less intrusive.

The second exercise was very similar to the first, but focused on social support, defined as 'helpful functions performed for an individual' by other individuals (Thoits, 1985). We adopted Van der Poel's (1993) exchange approach to delineate personal support networks as its specificity minimises errors of cross-cultural translation, a conclusion supported by our earlier research (Stys et al., 2018). Social support was divided into three dimensions: instrumental (assistance securing employment, loans, or documents); companionship (engaging together in leisure); and emotional (giving advice or counsel). Team members' explanations of these exchanges in the Congolese context led us to add ties of anticipated reciprocity, such as expectations of receiving material or social resources in the future in return for given support. This refinement made our instrument more contextually appropriate (similar to Berrou and Combarrous [2011] in Burkina Faso). In neither mapping were interactions limited to a defined time period, or cited individuals capped at a specific number, in order to avoid potentially omitting individuals and relationships in which no recent supportive interactions have occurred. In both mappings data was collected on cited individuals' attributes, including sex, age, geographical location, income-generating activities, educational level, SES, duration of the relationship and its origins, and frequency of supportive interaction.

The fifth biweekly visit began the financial diaries with a stock-taking of households' assets and liabilities. These were captured through semi-structured interviews as researchers toured participants'

⁴ The validity of data is impacted by, amongst other factors, the mode of its collection as well as the complex processes of retrieval from long-term memory; social desirability (underreporting and overreporting); cognitive dissonance; and the reality that '[s]ome topics are deemed, by social consensus, to be too sensitive to discuss in 'polite' society. [...] most would agree that topics such as sexual practices, impotence, and bodily functions fall within this classification' (Bound et al., 2001:3746). Others also include questions concerning income in this category (c.f. Tourangeau et al., 2000).

homes and enquired about major purchases, construction, the use of gardens, land ownership, debts, and loans. It was only on the sixth visit that financial data concerning revenues, spending, and savings was collected. Initially, we believed data could be obtained by casually talking through households' incomings and outgoings whilst participating in their daily lives. It soon became apparent that this was tiresome to households and quotidian spending difficult to recall. Accordingly, field teams and participants decided to use notebooks so that each household recorded their own data between visits – literally writing their own financial diaries. It was also common for households to mention expenditures, savings, or debts from earlier periods during visits, or for researchers to note discrepancies that pointed to forgotten exchanges. Sometimes these were discovered during the analyses of digitised household balance sheets. This required constant communication between team members and meticulous note-keeping that reminded field researchers to return to identified issues.

Perhaps due to the numerous methods employed in the project and the difficulty of conveying and understanding their compatibility, participants required frequent reminders as to the purpose of the research and their right to not answer questions. It was also clear that many could not recall details of lives that often encompassed numerous upheavals, such as fleeing conflict, the breakdown of relationships, or periods recovering from illnesses and bereavements. Equally evident was that details of such events, past and present, were divulged in asynchronous layers of sensitivity as trust between researchers and respondents increased. Researchers actively cultivated this trust through scheduled and casual visits and phone calls to households. They also created relationships with other household members, ones described as 'confidential' and garnered supplementary data through these encounters.

The research team soon realised that the cultural appreciation of the head of the household – the eldest man and breadwinner or woman in the absence of a husband – discourages people from being honest concerning the realities of members' financial contributions, within and without the physical home. Revealing the financial contributions of others to household management puts in question the assumed independence and authority expected of the head of the household. Likewise, many married men have extramarital affairs and thus multiple families and financial obligations. For women, lovers are more likely to be sources of financial support. Such insights are rarely discussed but forced us to reconsider roles and sometimes recategorize households in terms of who was actually financially responsible for them in practice. This role and household composition, as the longitudinal study attests to, changes over time.

To assess such partial or missing data, we decided to repeat the social network mappings at the end of the project and to conclude it with cognitive interviews. Measuring social networks at two points in time, approximately one year apart, allowed us to gauge whether, how, and why their composition changed, and to explore if it was a result of actual changes in the networks or due to initially undisclosed members and connections. Data garnered through participant observation was crucial in this process. Cognitive interviews also provided households the opportunity to assess our experimental methodology by reflecting on their experiences of participating in it. In turn, they enabled us to cross-check interpretations and assumptions around incomplete data and sensitive topics by discussing them with participants. Households' appraisals, in addition to those of the team, provided suggestions for

improving and further refining this methodology. These were explored in more depth during a participant feedback workshop held in January 2021, including discussions of households' experiences with and views on water sourcing and provision.

Over the course of research, and regardless of which methods were being employed at the time, field teams had to carefully plan trips around Goma to avoid insecurity and assure to be home by nightfall when movement becomes more dangerous. Visits also had to fit around participating households' own schedules, with many seeking work outside their neighbourhoods and not having mobile phones to prearrange visits. The excitement and rigours of operationalizing a complex research project initially led the European researchers to, unintentionally, pressure their Congolese colleagues to remain in the field until late. Here, the power inequalities of a foreign-funded project and limited local knowledge of the non-Congolese team members led to heightened risks for their colleagues. Such issues have begun to be discussed in the wider literature examining field methods in insecure environments (Hoffman and Tarawalley, 2014; Gauthier et., 2020). In our case, some were resolved through the pivotal linking role played by the Research Manager, discussed further in the next section.

PRACTICALITIES OF IMPLEMENTING OUR EXPERIMENTAL MIXED METHODS

This section expounds on the practicalities of operationalising our experimental methodology. We identified five overlapping themes that emerged over the research period: negotiating access; managing a diverse team; power asymmetries and trust; developing ethnographic sensibilities; and prioritising safety. We outline the steps, adjustments, and compromises made to address their challenges. Our aim is to candidly describe the difficulties of trialling our experimental method so that others can draw from our experiences. Yet, we acknowledge that power inequalities between researchers in the project, and between researchers and participants, structure our narrative.

The instability and insecurity that characterises Goma propagates mistrust, compounded by a project whose foci are money and social connections – sensitive topics in any context. Accessing research sites and respondents thus entailed careful negotiation. Before teams could enter the field, access had to be negotiated with a range of public authorities who also identified households for the study that consented to participation and assured the safety of all parties.

This task largely fell to the Research Manager who leveraged his background working in the humanitarian sector and his broad range of contacts with state and neighbourhood authorities. Time was spent negotiating and drinking outside of 'office hours' with relevant gatekeepers. Much energy was also expended explaining the distinction between an academic project with potential latent policy impact and development projects from which authorities expect prompt tangible benefits. This was important as research related to or sponsored by the latter routinely compensates participants immediately. However, to avoid biasing the project's results we were unable to do so upfront and could not divulge that we would do so eventually. Creating expectations of gains or injecting revenue into participating households would have altered the very subject of our study; their finances and coping strategies. The team also decided that European researchers should not conduct household visits due to

similar concerns. Indeed, they risked being confused with aid workers to whom the desperation of livelihoods is amplified in anticipation of assistance.

The Manager also forged working relationships with leaders of local political groups and social movements. This was particularly important as the research began amidst presidential elections, which have historically exacerbated tensions among local groups vying for power, leading to violent protests. Furthermore, neighbourhoods like Bujovu are home to former Rwandan refugees and their descendants, internally displaced Congolese, and former or active members of armed groups. Such social markers have been linked to stigmatisation and thus residents are understandably wary of outsiders asking sensitive questions. These communities are also often led by what one of our team termed 'invisible authorities' that provide neighbourhood security and justice and decide local development projects. To ensure access and updates on security dynamics, our Research Manager kept in regular contact with such authorities in each of our research sites. One of the postdoctoral research fellows also triangulated this data with updates from other sources, including personal contacts in different state and humanitarian organisations and through colleagues' disparate regional networks.

The importance of making and maintaining such relationships was evidenced early on when *Chefs d'avenue* and *Chefs de quartier* queried why a project seemingly focussed on water provision entailed intimate questions concerning households' lives. This was a quick lesson in how the optics of a research project can be vital to sustaining access and participation. The issue stemmed from our teams' efforts to transparently communicate the identity and interests of one of the project's funders – Mercy Corps – whilst struggling to convey that the method required a holistic understanding of households' coping strategies, which encompassed their social networks. Field teams addressed the problem by patiently re-explaining the project, its methods, and the identities of its funders, whilst reminding households of their right to withdraw from the study at any time. The presence of other *Chefs de quartier* who substantiated researchers' explanations alleviated these concerns.

The Research Manager's other role, connecting European and Congolese team members vertically was also called upon early in the project. The former had many clarifying questions concerning households' assets and liabilities. Unlike for the majority of their careers, they could not participate in data collection and had none of their own experiences to draw on to understand it or the context. The Manager often provided this missing knowledge or explained local processes to render the data intelligible to his foreign colleagues. For example, seemingly quotidian objects like mattresses and jerry cans are important assets and retain greater values than they would in other more familiar contexts. Likewise, a bathroom valued at US\$45 was incomprehensible until explained to be an outdoor toilet of wooden planks and plastic sheeting. The Manager added such details to shared research notes as field teams became increasingly frustrated with European colleagues' requests for prices to be checked and rechecked. Indeed, it quickly became apparent that little could be taken for granted as the 'real-time' data was translated, literally and figuratively, from researcher to researcher and back again.

The Manager's linking role also required explaining everyday field challenges to European colleagues who verified and entered data with the field teams. Europeans' concern that data and clarifications were not always arriving as smoothly as anticipated, and not grasping why, exacerbated the growing

exasperation of those field teams. For example, household visits were often missed due to circumstances such as rain; security incidents; and household members being unavailable due to work, family emergencies, or illness. The regularity of such complications was initially difficult to understand for those not used to life in an unstable context such as Goma, with poor roads, limited healthcare, and a culture that places numerous obligations on heads of households (our primary respondents and the other identities of some team members).

The complications of daily life resulted in countless cumulative delays in data collection as household visits had to be rescheduled. Furthermore, the long duration of the project exacerbated respondent fatigue, with some households finding the regular visits increasingly tedious and actively avoiding them. Researchers were asked to either wait for a respondent who never returned or arrived to find no one home. These issues created additional delays, and drained project resources. Transport allowances and time was spent but data was not collected and office tasks like data entry, writing-up fieldnotes, and responding to requests for clarification were left unattended. During the project's latter third, we responded by narrowing our primary focus to 12 of the 24 households, retaining those that respected scheduled visits and affirmed their commitment to participation. The other households were followed less intensely, and others decided to withdraw completely from the study. Project leads decided this was the only feasible solution to address cumulative delays, respondent fatigue, and their impacts on our budget and project timelines.

This solution resulted in having diaries data and two measures of social networks for a subset of the initial sample. In this paper we can, therefore, only conduct analyses of financial data for all 24 households for the period of roughly 6 months, and only of the initial mappings of personal support networks and access to basic social services. The rich longitudinal data covering nine months and two network mappings is limited to 11 households, further restricting the generalisability of results and conclusions.⁵ The main purpose of the study, however, was to trial an experimental methodology and to garner granular insight into household financial governance and coping strategies, best achieved through small-N, ethnographic approaches.

The delays, complications, and related frustrations allude to power asymmetries in which team dynamics were enmeshed. These required much more time to be understood. They permeated the relationships between field teams across the designed labour division in Goma and with others in London. They manifested in myriad ways. First, despite efforts to use culturally and contextually relevant concepts and define categories in local idioms, the project was ultimately grounded in theory and methods developed in the global North. These were often new to our diverse team, who effectively 'learnt on the job'. Second, the flow of data through our project's organisational structure, from its collection to analysis, also clearly privileged European members, one of whom was mostly outside of the country and, thereby, often faceless. Third, language barriers – and efforts to mediate them through Google Translate and DeepL – combined with physical distance led some researchers to feel they and

⁵ One of the households moved to a neighbourhood which was outside those targeted in the study over the course of research.

their 'private lives were something studied under a magnifying glass', as opposed to viewing queries as a genuine desire to understand the realities of researchers and respondents' lives.

The hierarchical structure, with field teams collecting data and passing it upwards to the Research Manager to verify and 'translate' before sending to Europeans for analysis, was intended to ensure an efficient management and progression of the project. Unfortunately, it gradually incapacitated internal communication. The Research Manager's linking role between Congolese field teams and European project leads made him a broker and, simultaneously, a barrier between them (Burt, 1992). As much as Europeans relied on the Manager to interpret the full meaning of collected data, field teams also depended on him to shield them from what they called 'the hierarchy' and its frustrating barrage of queries. This organisational structure, and the way information flowed through it, reinforced field teams' fears of inadequacy vis-à-vis their European colleagues, rooted in the latter's privileges of scholarship, job security, and relative wealth. Some expressed feeling they did not merit direct access to project leads, in Goma or London, and relied on the Manager to convey messages upwards, entrenching the very power asymmetries those leads were hoping to counteract.

One field team member referred to resultant '*crises ya Bakubwa na communication*' (crises of bosses and communication), explaining that 'admitting you do not understand, need reminders, voicing uncertainty, reinforces your inferiority relative to others and threatens perceptions of your superiority and your position on the team'. 'Pretences of understanding', as another colleague recounted, precipitated flaws in data collection and entry which were discovered far too late in the project, instigating additional discouraging revisions and delays. These inevitably amplified worries of ineptitude and reproduced hierarchies. Research design adaptations, posited as suggestions by Europeans, were also too often understood as and translated into directives. 'It was too much top-down and not enough talk-through', in the words of one field team member.

The resulting misunderstandings also generated feelings of mistrust which negatively coloured communication. For example, frequent emailed requests for additional contextual clarification or elucidation of unexpected emerging patterns in the data during the project's first few months were viewed as expressions of doubt, exhausting and unwelcome, especially following long days in the field. Similarly, field-level innovations, such as the teams deciding with households that they record their own spending and saving, were not always communicated, leading the Europeans to question abrupt stylistic changes in the incoming data. We held patient dialogues and workshops to overcome these misreadings by discussing our experiences, tribulations, and expectations to find ways forward. Even these exchanges, however, were marred by the same dynamics that necessitated them. We never truly surmounted power asymmetries that hindered the collaboration, feedback, and iterative adaptation which exploratory and experimental methods require. As a result, datasets went through countless additional verifications and cross-checks to augment validity and contextual understanding, sometimes entailing recoding. This process however, long after the data collection, paradoxically improved overall team rapport and engendered the mutual understanding and collaboration often lacking during the implementation phase.

Field teams grappled with similar power asymmetries and issues of trust in their interactions with participating households. Suspicions about the project's aims were the undercurrent to many early visits. The collection of demographic data and household members' brief life-histories was particularly sensitive. Some respondents were hesitant to divulge previous memberships of the military or armed groups for fear that researchers would inform their neighbours, or that the project was connected to the state's intelligence services. Field teams also found that data collection was initially more akin to an exchange between strangers than an extractive undertaking, with many households requesting researchers' life histories before they felt confident to share their own (Wane, 1969). Field teams acquiesced to such demands with grace and respect. In some cases, building this trust required returning to sensitive questions later in the project or purposefully stretching the collection of such data across several visits (Bott, 1957). By withholding information or insisting on its more equal exchange, respondents demonstrated their own authority in terms of the project, despite being of lower socioeconomic strata than researchers.

Participatory methods, like the ones we employed to collect social network data, are designed to reduce the inherently unequal dynamics between respondents and researchers by ceding or sharing control of the interview (Stys, 2019). Field teams, however, determined that our approach had the reverse effect for illiterate participants. Many relied on researchers to draw their social networks for them, communicating shame at this affirmation of their educational deficits. Field teams sought to re-establish respondents' confidence and comfort through conversation and anecdotes. Prioritising participants' ownership of these activities also meant embracing their diverse understandings of the methods, yielding incongruent and non-standardised mappings which were difficult to later decipher.

Rigorous fieldnotes from these encounters highlighted the indispensability of blending narratives with created mappings to understand respondents' social networks. What was divulged as stories was often more meaningful than the drawings. They included additional information about the ties between network members, which had never been drawn on the mappings, or details about missing links in the processes of accessing social services, likewise uncaptured earlier. For example, not even respondents knew fully what their connections did, or whose support they leveraged, to effectively resolve issues like robbery or land conflicts. These challenges and the experimental nature of the research design necessitated considerable reworking of how collected social network data was coded.

As the project evolved, the field teams refined their 'ethnographic sensibilities' and progressively overcame the power disparities between themselves and study participants as they built rapport. They became more reflexive and aware of their own positionalities and developed a 'sensibility', implying flexibility in their immersion in research and 'particular attention to the perspectives of the people being studied' (Henderson, 2016:30). For example, they modified their language and dress to reduce class distinctions between themselves and respondents. They also began to spend time with participants outside their scheduled visits, attending their churches or participating in celebrations and funerals. This caused some to become emotionally involved as they learnt intimate details of respondents' lives and began to empathise with their struggles. Such intimacy occasionally resulted in painful episodes, as when respondents, who had become friends, asked for financial assistance to address a shock or

persisting problem, and researchers had to refuse. To avoid interfering in the very object of the study, which would bias results, they could only offer emotional support that was difficult to accept and far less helpful from the households' perspective.

The trust nurtured between teams and households augmented their safety. As elsewhere, strangers draw attention and suspicions of inimical intentions in many of Goma's neighbourhoods. Due to an under-resourced and unmotivated police force, residents often take security into their own hands, sometimes with violent results. Households routinely found themselves explaining the researchers' presence to concerned neighbours or having to warn field teams when tensions flared, and visits should be postponed. On one occasion, a field team was even hidden by a household when an angry mob began throwing stones at an Ebola response team accused of collecting the body of a resident who had died due to excessive drinking. The household feared the researchers, as outsiders, would be mistaken for the response team members and eventually helped them escape the area.

Through the familiarity gained through extended observation and participation in households' daily lives, researchers were able to identify and address gaps and inconsistencies in incoming data. This was imperative to deciphering financial diaries that often-depicted household spending as surpassing its revenues yet showed no additional loans or savings withdrawals. Researchers would visit respondents' enterprises, affording them the opportunity to observe transactions and ask additional questions to ensure they were capturing reliable financial data. It was not so much that households hid their income, but that they did not always grasp the granularity for which the project was aiming. Remarking on the frequent discussion of monetary matters, one participant declared at the end of the research: 'I will remember you [the field team] every time I have money coming into my pockets. Why? Because I know how to make the expenses. Your visits have been like a financial education for me.'

The amount of interaction between researchers and respondents over a year – in scheduled visits and through informal encounters – often revealed participants to have larger social networks than reported in initial mapping exercises. For instance, participants rarely disclosed connections to those of high SES, lovers, or others whose support threatened their role, authority, and independence as heads of their households. Poorer households avoided admitting they depend on neighbours for food. Those who engaged in transactional sex or traded in drugs did not quickly divulge these income-generating ventures. Such relationships revealed themselves over time during more casual exchanges or when researchers' visits coincided with those of such contacts. It was also only towards the end of the research that these topics could sometimes be further explored, after trust had been accrued over many months. Nonetheless, some data remains enigmatic, and researchers surmise that they ultimately did not gain a lucid understanding of several households' financial lives. These insights and admissions are testament to their intelligence, ingenuity, and innovation in the field.

To better understand collected and missing data, and further assess our experimental method, we concluded the project with cognitive interviews. We focused on respondents' experiences of the study and general opinions concerning the sensitivity of various topics and levels of disclosure. They unanimously disapproved of participation not being accompanied by compensation from the outset.

They felt such a lengthy study impinged on their social obligations, forcing them to cancel plans when they forgot appointments with researchers.

The majority also stressed that everyone is uncomfortable discussing money and related extramarital affairs. Men confided that revelations of sums spent on mistresses would erupt into marital conflict involving whole families. Women conveyed fears of being stigmatised as ‘whores’, especially if it was exposed that their children had various fathers. Both needed to uphold the veneer of being the wholly responsible head of the household, which data on contributions and revenues threatened to dismantle. Many, however, simultaneously portrayed themselves as (more) vulnerable in order to continue receiving such assistance – a tension only resolved by the same suppression of others’ aid.

Cognitive interviews also permitted researchers to ask households why respondents rarely disclosed expenses on public authorities, *tracasseries* (harassment or small annoyances) (Verweijen, 2019:51,62) or the provision of justice or security. Their responses elucidated that these services and their providers – police, army, courts, and lawyers – were viewed as predatory and expensive. People avoided them as much as possible, negotiated access to them through contacts who could reduce their costs, or opted for private alternatives like neighbourhood watches or inter-family meetings to resolve disputes. These echoes findings of others that have recently used a dairies-based methodology to investigate public authority in fragile and conflict affected places.⁶

As challenging as the project was, households’ assessments of participation were overall encouraging. Many continue to leave for the market with paper and pen, to track expenditures. Some likened the project to a ‘school of life’ as they now pay more attention to their financial decisions than they had before participating in the project. Others concluded that the study forced them to gauge progress towards future plans of land ownership or new business ventures, and to better prepare to realise them. Some respondents found mapping their social networks to be disempowering, but others stated the exercise made them strategically assess the individuals in their lives. Households’ initiative of recording transactions in notebooks was cited as ‘ownership’ of and ‘responsibility’ for the data that made them feel ‘valued’. Respondents, as well as researchers, expounded on how the study encouraged reflections on how socioeconomic status is a function of networks and financial governance, and how best to leverage both to not only survive but also to get ahead.

PRELIMINARY FINDINGS AND ILLUSTRATIVE VIGNETTES OF TWO HOUSEHOLDS

To preface a broader discussion of our experimental methodology, this section presents preliminary findings and two vignettes of participating households. They serve to illustrate how the challenges of this research design and its implementation reverberate through the collected data. They also highlight

⁶ See the emerging outputs of the ‘Governance at the Margins: Exploring Marginalised Groups’ Engagement with Public Authorities (A4EA)’ research programme based at Sussex University’s Institute for Development studies.

its potential to provide insights into household financial governance and socioeconomic coping strategies.

Before delving into the two household vignettes, we first contextualise them by exploring data from 11 of their cohort. The sample comprises households that the field teams had least difficulty meeting on a biweekly basis and with which they felt they had forged significant rapport. Yet, even for this sub-sample, we are not confident that we have captured all of the households' financial and related social activity. We, therefore, make no claims that our findings are generalisable beyond these cases; the purposive sampling design and sample size do not permit drawing inferences to the wider population. Our findings, however, are potentially indicative of wider patterns in Goma and differences between life in such insecure and conflict-affected cities and more stable ones.

For the subset of 11 participating households, the median annual income after business expenses of the 6 households considered to be of low SES was US\$1,787, or just under US\$5 per day. For the 5 households of middle SES it was respectively US\$1,824 and US\$5. However, these figures hide great fluctuations (Figures 1 and 2). Households of low SES were particularly liable to long periods without any income during which they relied on savings, contributions from members of their social networks, or converting assets into cash. A lack of work or the cessation of regular payments from relatives or employers was a common shock alongside illnesses and the need to pay – at least partially – for access to basic social services.

FIGURE 1: HOUSEHOLDS' MEDIAN INCOME OVER THE RESEARCH PERIOD. TOP PANEL: MEDIAN INCOME BY SOCIOECONOMIC STRATA (SES). BOTTOM PANEL: MEDIAN INCOME BY SES AND NEIGHBOURHOOD.

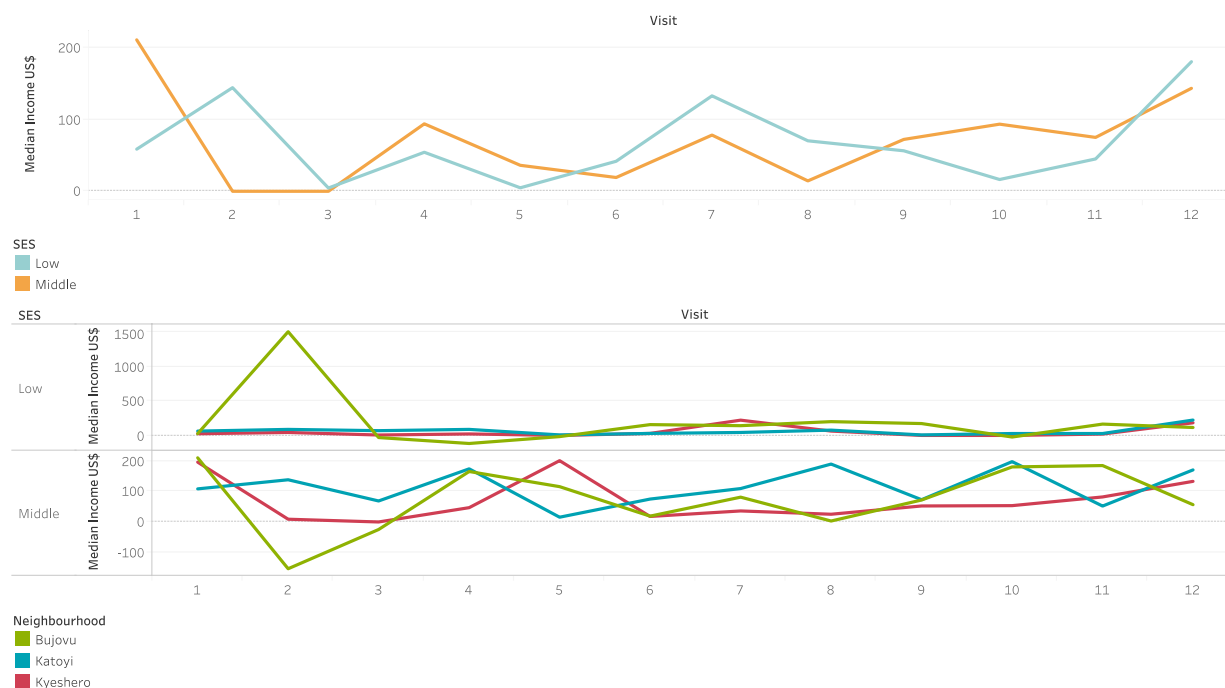


Figure 1 also attests to the similarity between households of middle and low SES. The top panel also demonstrates that, at times, households of low SES actually have higher median incomes than those of middle SES. In consideration of neighbourhoods, households of low SES in Katoyi seem to have more stable median incomes over time than those in Bujovu or Kyeshero. For households of middle SES, those of Katoyi have overall higher median incomes than households in the other two neighbourhoods (Figure 1, lower panel). As Figure 2 illustrates, however, the instability of income in all three neighbourhoods is even more jarring when examined per household over time.

FIGURE 2: HOUSEHOLDS' INCOME OVER THE RESEARCH PERIOD, DISAGGREGATED BY HOUSEHOLD, WITH BUJOVU RESIDENTS IN THE TOP PANEL, KATOYI IN THE MIDDLE, AND KYESHERO IN THE BOTTOM PANEL. THIN LINES CONNOTE HOUSEHOLDS (HH) OF LOW SOCIOECONOMIC STRATA (SES) AND THICKER LINES INDICATE HH OF MIDDLE SES.

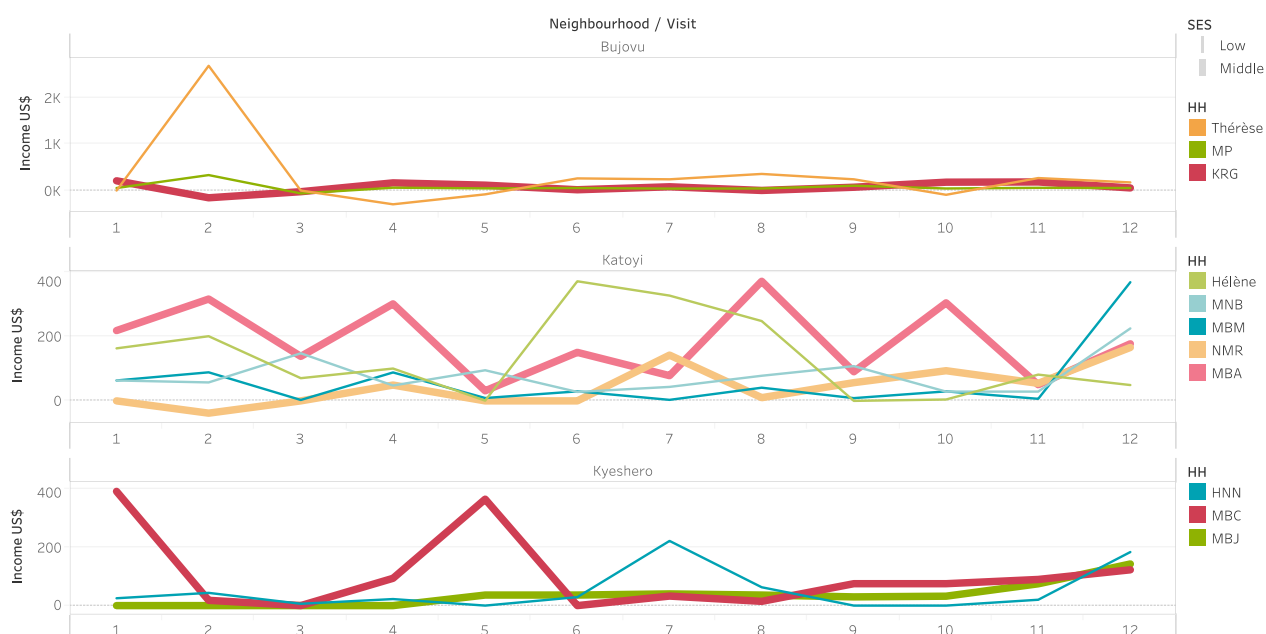


Figure 2 illustrates the drawbacks of such a small sample: some households experienced significant surges in income, which may or may not be typical in Goma. Such sudden increases in income are usually the result of selling properties or other valuable possessions – indicative not of prosperity but desperation in the face of costly shocks or future speculative investments in business ventures. Likewise, the small sample makes it difficult to attribute the differences noted in Katoyi solely to the presence of a relatively stable and consistent water provider. Whilst this facilitates financial planning and day-to-day scheduling of household activities, other factors like household assets and available resources may also contribute to these differences and warrant further research.

All but one of the 11 households claimed to own land, either within Goma, beyond it, or both. Households of low SES owned land with a median value of US\$4,675 and those of middle SES a value of US\$35,000. Yet, claims to ownership, especially in areas that have transitioned from refugee settlements to permanent neighbourhoods, are difficult to prove and even when households have documentation, property rights remain heavily contested (Peyton, 2018). Furthermore, much of the land the households claimed outside of Goma was in areas under the influence of armed groups. Thus, few productively used it and reselling plots is further complicated due to disputed ownership and the cultural obligation of its inheritance to descendants. These realities suggest land cannot be easily considered a fungible asset, ready to be repurposed in response to shocks.

Turning to the households' non-business-related expenditures, our methodology provides a clear indication that most of their income is spent on food, phone credit and transport, which often means motorcycle taxis and minibuses (Figure 3). The next most consistent expenditure is water, with all households' devoting between 5-15 percent of their income to this public good, with seasonal variations. As discussed further below, however, households in Katoyi have little fluctuation in the amount they spend on water over the research period.

FIGURE 3: HOUSEHOLDS' MEDIAN EXPENDITURES OVER THE RESEARCH PERIOD, DISAGGREGATED BY TYPE OF EXPENDITURE.

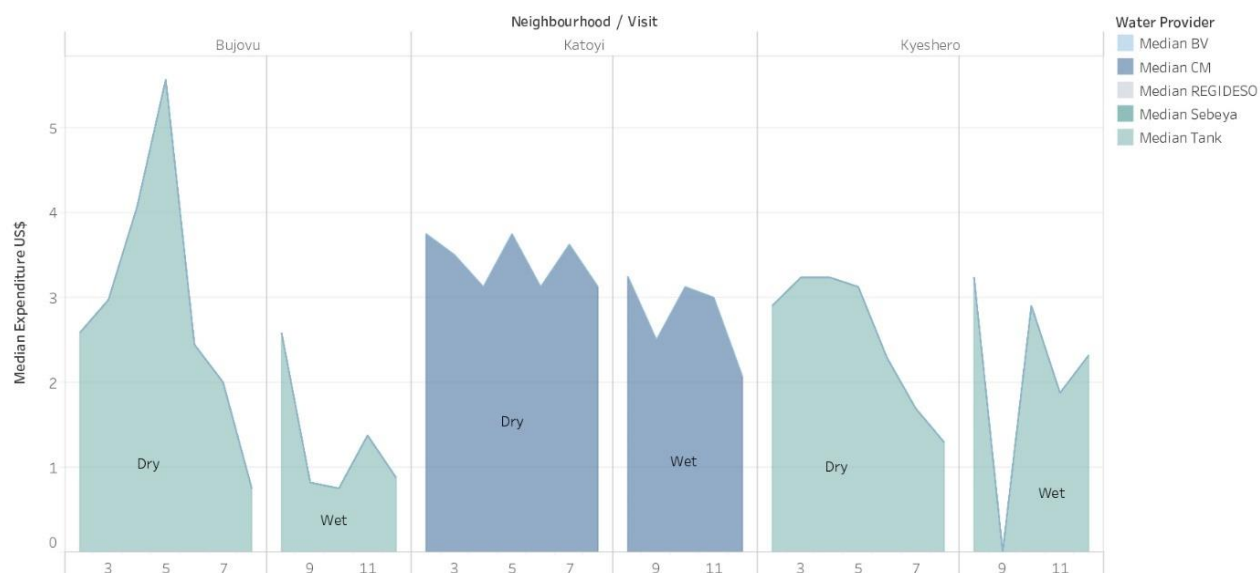


This stands in contrast to spending on health and education, with the former being spent as required and the latter a periodic expense that can be addressed through delayed or partial payments negotiated with schools through directors or religious leaders. Back-to-school expenses are a major expense within most households' financial portfolios. The research team also anticipated that the households would spend a significant amount on negotiating authorities within Goma, such as paying for bribes or

providing inducement to get things done. In reality, however, our sample had few contacts with the city's appointed or elected authorities and, when they did, it was often through mediators whose purpose was to overcome the need to pay such fees – kith and kin obliged to intervene without anticipations of (financial) gain.

Looking further into median spending on water, we find that households in Katoyi primarily source their water from Congo Maji tapstands, whilst those in Kyeshero and Bujovu rely predominantly on tanks (Figure 4).⁷ During the dry season, Katoyi households' biweekly water-related expenses fluctuate by less than US\$1. Since these households predominantly source their water from Congo Maji tap stands, the expenditure likely reflects the stability of this provider – in terms of provision and price.

FIGURE 4: MEDIAN WATER EXPENDITURE OVER THE RESEARCH PERIOD, DISAGGREGATED BY NEIGHBOURHOOD, SEASON, AND WATER SOURCE OR PROVIDER.⁸



In contrast, median biweekly expenditure on water in Bujovu and Kyeshero during the dry season ranges between US\$0.75-US\$5.5 and US\$1.25-US\$3.25, respectively. The fluctuations in expenditure are

⁷ The majority of households rely on a combination of water providers, listed in the legend. Median water expenditure thus illustrates only the most prominent providers for residents across the three neighbourhoods.

⁸ The majority of households rely on a combination of water providers, listed in the legend. Median water expenditure thus illustrates only the most prominent providers for residents across the three neighbourhoods. Visits 2-8 occurred during the dry season, whilst visit 1 and 9-12 took place in the wet season. The segments of the figure for the wet season thus show data from visits 1 and then 9-12.

unlikely to reflect less usage. Rather, they may be the result of unstable availability and price of this source of water. Indeed, study participants lamented water shortages in the dry season, as well as elevated prices of water from tanks, which can double to CF200 (US\$0.13) for a 20L jerry can. Considering that some households use up to 10 jerrycans daily, the increased expenditure and inability to plan for it likely exacerbates the instability of their already precarious financial situations.

What Figure 4 obscures, however, is that some households use free water from Lake Kivu; all households use rainwater in the wet season; and the vast majority combine providers, particularly during times of shortages. Furthermore, during the wet season, households in all three neighbourhoods spend less on water, yet, according to participants, they actually use more water during the wet season during which rainwater is used for most household activities aside from cooking and drinking. The poorest of households use rainwater as well as that from Lake Kivu even for cooking and drinking, when they cannot source it free of cost from charitable neighbours.

Notably, it is only the households in Katoyi which use Congo Maji tap stands that do not drastically reduce their water-related expenses during the wet season; in interviews, they conveyed the trusted quality of this water and its necessity for cooking and drinking. The stability of the expenditure may also facilitate financial governance, versus having to manage unpredictable, fluctuating prices of this basic need. Water provision from tanks might also be decreasing as providers make less profit during the wet season, possibly also reflecting the interplay between supply and demand. Households in Kyeshero and Bujovu instead stressed that the tanks and trucks that fill them are often poorly maintained and dirty, leading to water-borne illnesses like cholera and diarrhoea. Even when such health problems do not incur medical expenses, periods of illness keep struggling household members from working and seeking revenue-generating opportunities, negatively impacting household incomes.

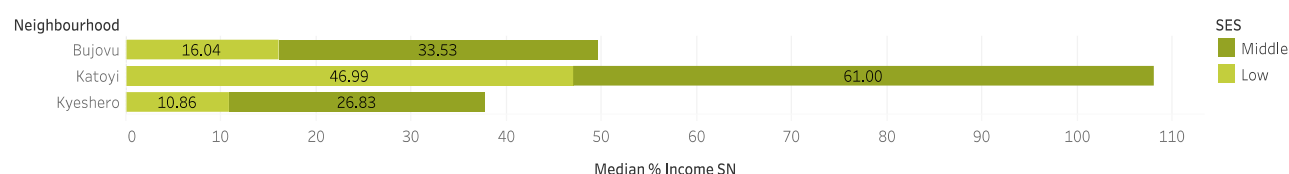
The insecurity of the context and the precarity of these incomes, illustrated in Figures 1 and 2, are also reflected in participating households' financial activities. Compared to households from the relatively stable country-contexts studied in *Portfolios of the Poor*, our *Gomatrancien* households engaged in fewer financial activities (Collins et al., 2009). This is captured by the average 'cash flow intensity of income': the sum of all resources borrowed, lent, paid back, recovered, withdrawn, deposited or put simply, pushed or pulled into formal or informal financial instruments, divided by households' total incomes. *Portfolios'* Indian households, for example, shifted an average of 1.25 times their income through financial instruments, the vast majority taking the form of informal mechanisms like savings groups, moneyguards⁹, or insurance clubs. For our 11 households, the figure was 0.24 times their income, with some not reporting the use of any financial instruments at all.

Although this finding may indicate that our households in Goma live a comparatively more 'hand to mouth' existence, we also found that a median of 42 percent of their income was pushed or pulled through, and spent on, friends, family, or neighbours, arguably regular members of their social

⁹ Individuals who hold money for others to avoid the latter, or their relatives, spending it on unplanned expenses.

networks. These activities encompass sharing food or gifts; related moral debt and social obligations; donations to churches; and upholding payments to savings clubs.¹⁰ Even when the households' median income fluctuated considerably (Figures 1 and 2), they still channelled far more of that income through their social networks than through financial instruments (Figure 5). The exceptions were households of low SES in Kyeshero and Bujovu. However, overall, they pushed and pulled a higher percentage of their median incomes through social networks relative to the median cash flow intensity of their incomes. This suggests that the maintenance of social networks is a major financial undertaking for *Gomatrancien* households, with monetary and non-monetary reciprocity playing a much more prominent role in their livelihoods and coping strategies than the financial diaries of those in more stable contexts.

FIGURE 5: HOUSEHOLDS' MEDIAN PERCENT OF INCOME CHANNELLED THROUGH THEIR SOCIAL NETWORKS (SN), DISAGGREGATED BY NEIGHBOURHOOD AND SOCIOECONOMIC STRATA (SES).



Households of middle SES across all neighbourhoods transferred a greater percentage of their median incomes through their social networks than those of low SES. Strikingly, however, it was households in Katoyi – of both low and middle SES – which pushed and pulled the greatest percentage of their median incomes through their social networks. Arguably, they were investing in these networks, accruing future social obligations they could presumably then call on in times of need. This may be indicative of social networks functions as financial coping instruments – investments of financial capital into social capital to be leveraged or exchanged later – in unstable contexts such as Goma.

The relative importance of these networks to financial instruments can be further elucidated through concrete examples of *Gomatrancien* households' coping mechanisms in the face of plummeting incomes: stretches of unemployment or delayed salary payments or remuneration. For example, we found that during such periods two of our households were deriving a median of over 90 percent of their incoming money from their social networks. They both solely relied on donations from friends and relatives for a six-week period, with one also taking an interest-free loan from a relative during another difficult stretch and the other turning to withdrawals from a savings cooperative. The other households in the sample also often appeared to prioritise expenditures that involved their social networks even when they were making little to no income. The church and contributions to family events, such as funerals or weddings, were common, as were keeping up regular payments in savings groups. One enterprising household was

¹⁰ These activities overlap with those included in *Portfolios'* measure of 'cash flow intensity of income' but go further by including donations, and money spent on social and spiritual obligations which we argue can also be understood as financial instruments.

even a member of three similar savings groups to ensure they could make payments on time; each of which they were introduced to, and vouched for, by other members of their social networks.

Yet, the mappings conducted with households of low SES found them to have smaller personal support networks than their middle SES counterparts. They are predominantly composed of family members from the same ethno-linguistic community and SES, demonstrating the prevalence of bonding social capital. Families are bound by social obligations of assistance, where anticipations of reciprocity are severely diminished or effaced altogether, decreasing the transactional cost of asking for support (Woolcock and Narayan, 2000; Woolcock, 2001). These observations generally apply to all heads of households, regardless of their sex. However, some woman-headed households, whose livelihoods predominantly depend on contributions from non-relatives and rarely acknowledged multiple romantic partners, have relatively larger and more diverse personal support networks. Anticipations and pressures to reciprocate received assistance are managed by spreading them across a number of individuals.

The personal support networks of households of middle SES tend to have more members, likely because they have the financial and social means to fulfil obligations of reciprocity. Their networks also include those of high SES, to whom they are closer in terms of social structure, as well as those of low SES. Households of middle SES thus benefit from bonding, bridging, and linking social capital. Arguably, they have more resources to address daily struggles as well as shocks. Man-headed households have more high SES members than woman-headed ones, as the latter usually leverage their husbands' or lovers' connections for instrumental support like securing official documents, taking loans, or finding employment. For all households associated with a religious institution, the church functions as an auxiliary source of linking and bridging social capital, binding those of disparate SES vertically and members of different communities horizontally in mutual social obligation.

Contacts and connections are crucial to accessing basic social services. Interviews revealed that our man-headed households expect healthcare, education, security, justice, and water – and believe they should be provided by the state. In contrast, women rarely cited security or justice, explaining it was men's responsibility to address matters related to these services even though they are, in reality, the only services actually furnished by the state. In Goma, as in much of the DRC, other services are funded by aid organisations and religious institutions. Households of middle SES reported accessing these services directly by paying for them, aside from security and justice which are accessed indirectly through more influential contacts in return for future favours or monetary contributions. However, the majority of households of low SES have no access to justice or security, lacking well-placed contacts to facilitate it and the resources to pay for them. Yet, they do access education and healthcare through mediators capable of arranging partial or delayed payments thanks to their own leverage with service providers. The only service these households access directly is water, paying immediately, on credit, or in increments to the provider. The poorest, deemed 'vulnerable' in their neighbourhoods, receive water for free from benevolent neighbours.

These preliminary findings attest to the importance of social networks for participating households' coping strategies. We remain circumspect, however, of the data on which they are based, and cognisant

of its limitations. Social network data was collected at the beginning and end of the project, about a year apart, and overall, the first measurements conveyed much smaller networks relative to the second ones. These differences are most likely due to initially undisclosed contacts and connections rather than actual changes in network composition over time. At the first measure, incipient trust between researchers and respondents compounded deficiencies in understanding the mappings and misgivings about them, yielding rather censored – and thus partial – depictions of their social worlds.

By the time of the second network mapping, respondents were familiar and comfortable with the exercises and rapport had been established between them and researchers. Many disclosed numerous additional members of their personal support networks and delineated multiple ties between them. They also expounded on the processes through which they access various social services, contextualising them with examples. The contacts routinely withheld were those of high SES and/or lovers. The former are crucial resources and the latter precipitate social stigmatisation. Likewise, proficiency in navigating complex mechanisms of accessing security or justice is an invaluable asset in such a precarious context, easily monetised or exchanged for other services. Since it entails an array of contacts, steps, and transactions – vehemently guarded by all concerned – even respondents willing to divulge these details are not privy to them past a certain point in the process. The chains of accessing certain services abound in missing links. Information gathered through participant observation and cognitive interviews addressed some of this missing data.

The vignettes that follow instantiate these preliminary findings through tangible case studies of two participating households, illuminating how methodological challenges (and innovations) affected the data collected.

VIGNETTE 1: THÉRÈSE IN BUJOVU

At the beginning of the research period, 25-year-old Thérèse¹¹ lived in a sheet metal house subdivided into two bedrooms and living area built on a small, 9-by-8 metre parcel in Bujovu with 6 other occupants: her 3 children, her mother, and her brother and his child. Thérèse sometimes worked alongside her mother as a porter in Birere, Goma’s commercial district, carrying sacks of charcoal and other goods bought wholesale. Usually she stayed home, taking care of the children. Her brother, a pastor, rarely contributed to household expenses. Thérèse described him as a ‘vagabond’. Nine months later, she was running a small restaurant in Birere, cooking under a staircase and delivering meals to neighbouring shops. Her revenues increased the household’s financial portfolio by US\$1,246, to US\$3,715 (Figure 6). In the process she had converted the household’s parcel into capital (see HH ‘Thérèse’ in the top panel of Figure 2, Visit 2) and used her mother’s social connections to further diversify their livelihoods, described in detail below. Although Thérèse’s story evokes entrepreneurial case studies championed by the development sector, the gaps in collected data and researchers’ challenges engaging her household illustrate the difficulty and potential of our experimental

¹¹ Pseudonym adopted to preserve anonymity.

methodology for understanding the actual coping strategies of woman-headed households in similar contexts.

Thérèse and her two eldest children previously lived with her husband in neighbouring Majengo. After their divorce in 2013, she moved in with her mother and shortly thereafter became pregnant following a transactional encounter with a passer-by. She confided she had no way of contacting the father to inform him of his daughter or ask for support. During this period, Thérèse had started reselling fruit and vegetables she bought in Rwanda on the roadside and in front of their home. This provided a modest livelihood for the household. However, about a year before research began, she had a motorcycle taxi accident during which all her produce and money were stolen. Unable to fund trips to Rwanda, she started occasionally working with her mother once she had recovered.

FIGURE 6: SUMMARY OF THÉRÈSE'S HOUSEHOLD PORTFOLIO AT THE END OF THE RESEARCH PERIOD.

	Closing Balance	Turnover
ASSETS		
Belongings		
Property owned (land and buildings)	2,200.00	2600
Cooker / mbabula / gas	30.00	
Furniture	64.00	
Computer & Phone	210.00	
Cash In Hand	1,156.06	
Sub total	3,660.06	2,600.00
Savings		
Co-operative savings	90.32	409.03
Sub total	90.32	409.03
Money owed to household		
From relatives / friends / others without interest	96.77	96.77
Sub total	96.77	96.77
LIABILITIES		
Borrowing with no interest		
Borrowing from friends / acquaintances	35.00	
Sub total	35.00	0.00
FINANCIAL NET WORTH	3,812.15	
TOTAL TURNOVER		3,105.81

Although Thérèse was still convalescent and the household reported no income for the first two months of our team's visits, they still recounted purchasing food and her mother's regular contributions of roughly US\$4.5 per week to a women's savings club comprised of other small traders. For this interval, the 55-year old's earnings as a porter, which she occasionally supplemented by selling sweet potatoes in the market, were clearly the main source of income. Yet, both Thérèse and her mother insisted that the former was the head of the household and would not disclose the older woman's earnings. This

portrayal persisted throughout the study and included the withholding of details concerning a second savings club to which Thérèse's mother introduced her as their fortunes gradually changed.

At the same time, Thérèse was trying to sell their parcel. She and her mother reasoned that the earnings would finance their relocation and relaunching of Thérèse's business. Her other brother, a *Chef de quartier*, introduced them to a potential buyer offering US\$3,000 on the condition of paying the second half at an unspecified later date. The proposition would have delayed their plans and the household settled to sell the parcel for US\$2,600 in cash, US\$370 more than the original purchase price. The *Chef de quartier* superintended the transaction, with witnesses present and without recourse to expensive litigation that requires documentation they could not provide and the involvement of additional authorities (and thus costs). Informal convention holds that if the buyer quickly builds on the parcel, the sale will be recognised by the district without further paperwork. After paying US\$100 to an agent who facilitated the sale, Thérèse and her mother were able to buy a new plot in Bujovu for US\$2,200 from a neighbour. They combined the remaining earnings with a US\$168 payout from Thérèse's mothers' savings club and a further US\$200 gained from selling the materials used to construct their old house. This allowed them to rent a space in Birere for US\$90 to start a restaurant and to purchase the necessary pots, fuel, and produce. They also gave US\$390 to Thérèse's brother for a computer to launch a music downloading business in the market.

The restaurant quickly prospered. Thérèse sold simple meals of beans and potatoes and earned most on Mondays and Tuesdays when bulk-buyers came to Goma to purchase goods for the week ahead. As before, she obtained produce from Rwanda, only this time she was selling it cooked and from a static location. After paying for produce and two drums of water per day, the business was making just under US\$500 per month. The household's other expenses fluctuated between US\$100-200 per month, leaving a substantial surplus. The household also consumed the food that was not sold in the restaurant. This frugality and increased income enabled Thérèse to join a savings club through her mother's introduction, requiring a contribution of just under US\$2 per day.

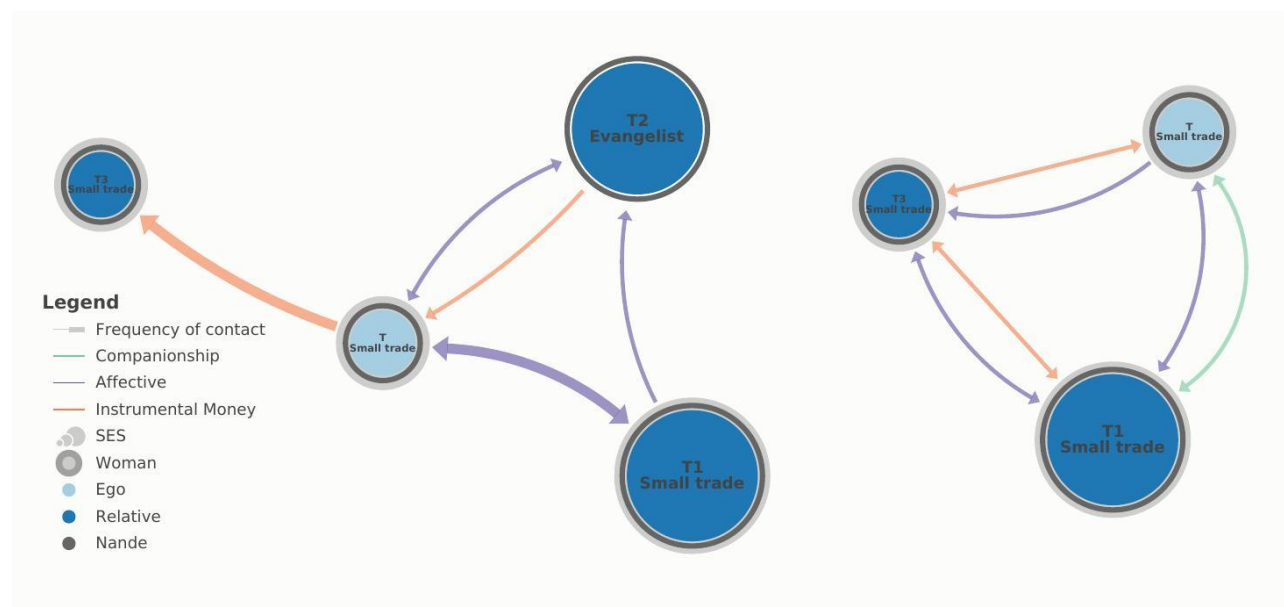
This good fortune continued until the last month of our research when rains reduced circulation and clientele. Thérèse confided that the restaurant's landlord, who she declared was too fond of beer, had begun pressuring her for sex. She felt powerless to reject his advances indefinitely and thus passed more time at home and attending church where she taught choir for free. The president of her savings club was also refusing to pay the money she was due to collect, just under US\$11. The president lamented that other members had not repaid their loans and offered Thérèse around US\$5 of meat from her butcher's shop as partial compensation. Aggravating these complications, her brother's business was yet to turn a profit, and neither he nor her mother were contributing to the households' general expenses.

Thérèse's long-term plan was to start selling meals again, outside her home to day labourers. It was evident this venture would be less lucrative as her neighbours were not as wealthy as Birere's traders. She also indicated a fondness for one of our researchers and had convinced her youngest daughter that he was her returned father, even using his presence to ward off the landlord. Our colleague suspected this was part of a stratagem to bring them closer and engineer a love affair – with its inherent financial obligations on his part. Thérèse may have been aiming to increase and diversify her coping strategies

and stabilise her precarious livelihood. The household's portfolio, however, evinced a substantial sum that could sustain them for some months despite current setbacks. She had also developed a rapport of trust and respect with our colleague over the course of the study and continues to message him daily. This suggests her advances were not drastic measures of desperation but efforts to establish a durable relationship after much heartache.

Thérèse's personal support network (Figure 7) substantiates the absence of such relationships in her life. It reflects the importance of her mother (T3 in Figure 7) and the dynamics of her rapport with her brother (T2), richly narrated above from data collected through the diaries method.

FIGURE 7: THÉRÈSE'S PERSONAL SUPPORT NETWORK IN MARCH 2019 (LEFT PANEL) AND MARCH 2020 (RIGHT PANEL). WIDTH OF TIES CONVEYS FREQUENCY OF CONTACT. THE SIZE OF NODES REPRESENTS SOCIOECONOMIC STRATA (SES); WOMEN ARE ENCIRCLED IN GREY; COLOURS INDICATE HOW THE RESPONDENT (EGO) IDENTIFIES NETWORK MEMBERS; PRIMARY LIVELIHOODS ARE TEXT WITHIN THE NODES. FLAGS OR BORDERS OF NODES CORRESPOND TO ETHNO-LINGUISTIC COMMUNITIES. TIES ARE DIRECTED AND COLOURED BY TYPE OF PERSONAL SUPPORT.



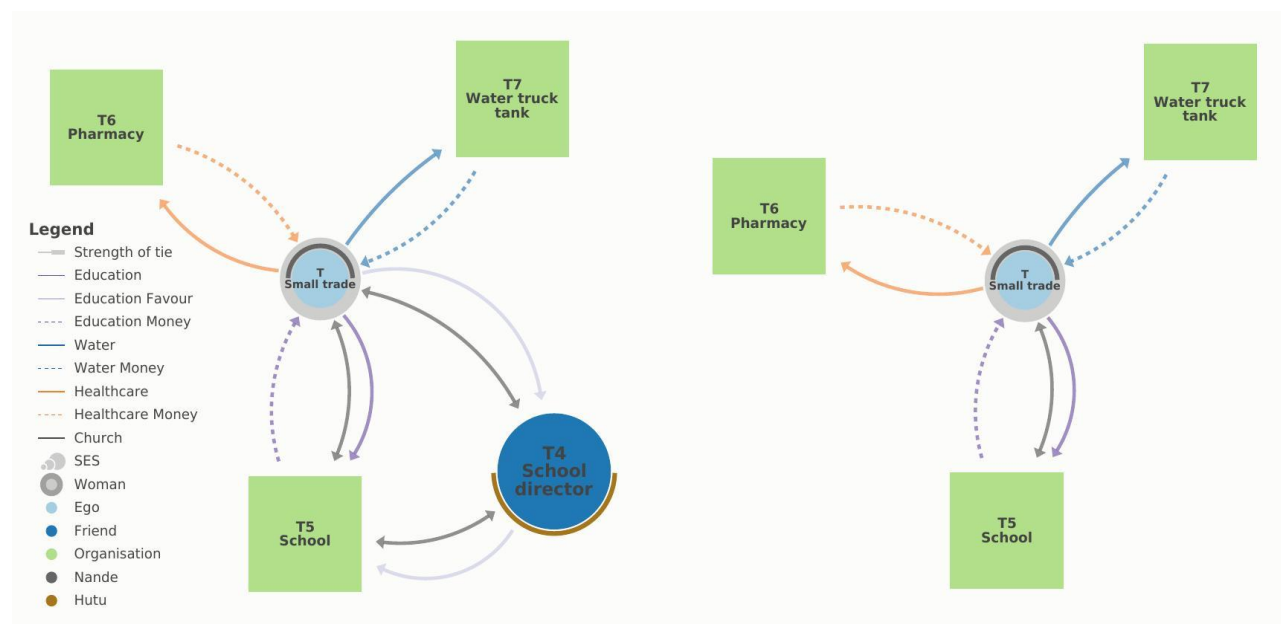
At the beginning of the project (left panel of Figure 7), Thérèse (T) illustrated her relationship with her mother as purely instrumental, a source of financial support, whilst it was her brother with whom she shared counsel despite his requests for money even when she was struggling to establish her business. Her personal support network, however, also includes her older sister (T1), who trades in diverse articles and skilfully navigates different authorities to avoid taxes. She is considered to be of middle SES. Both women endured failed marriages and lead lives as single mothers. After her divorce, Thérèse first lived with her sister, and the two advise one another on personal and business matters. These dynamics, however, are absent from the life events recounted above.

At the end of the project, when social networks were measured again, Thérèse's brother was no longer noted as a source of personal support. She explained that his lack of contribution to the household, and

consumption of its resources, negated their relationship. At the same time, she delineated multiple, complex, and much more reciprocal ties between herself, her mother, and her sister – bonding social capital. This nuance may be related to an initial lack of disclosure or it may evidence the fortification of ties already bound by family obligation. In either case, Thérèse’s personal support network remained very limited and exclusively composed of women family members.

Despite the complexity of transactions and actors involved in resuscitating her business ventures or selling and buying land, Thérèse described her access to social services in simplistic terms (Figure 8).

FIGURE 8: THÉRÈSE’S ACCESS TO BASIC SOCIAL SERVICES IN MARCH 2019 (LEFT PANEL) AND MARCH 2020 (RIGHT PANEL). WIDTH OF TIES CONVEYS THE RESPONDENT-ASCRIBED IMPORTANCE OF NETWORK MEMBERS (PROPORTION OF LEGOS). THE SIZE OF NODES REPRESENTS SOCIOECONOMIC STRATA (SES); WOMEN ARE ENCIRCLED IN GREY; COLOURS INDICATE HOW THE RESPONDENT (EGO) IDENTIFIES NETWORK MEMBERS; PRIMARY LIVELIHOODS ARE TEXT WITHIN THE NODES. FLAGS OR BORDERS OF NODES CORRESPOND TO ETHNO-LINGUISTIC COMMUNITIES. TIES ARE DIRECTED AND COLOURED BY TYPE. ORGANISATIONS ARE DENOTED IN GREEN SQUARES.



She lacks the financial and social resources to address healthcare apart from purchasing basic drugs from the pharmacy, and likewise pays for water directly at the tank. Her household usually sources about 25 jerry cans weekly, at roughly CF150-200 each. During the wet season, they collect and use approximately 35 jerry cans of rainwater each week, substituting completely water usually bought from the tank aside from 2 jerry cans used for drinking. In emergencies – shortages, droughts, and financial problems – the household sources its water from Lake Kivu, a six-kilometre round trip. She concluded during an interview: ‘Rain helps a lot in my household because we no longer spend a lot of money on water. The cost of water is high, and we need a lot daily. If we had several providers in the neighbourhood, the population would benefit because they would decrease prices.’

The household's access to education is sometimes moderated by the school's director (T4 in Figure 8) who negotiates delayed or partial payments. Expectations of reciprocity are disregarded because the school is funded by their church, and thus the director has a social obligation to assist a fellow member of his congregation. By the end of the research (right panel, Figure 8), when Thérèse's household was more financially stable (Figure 2), she no longer needed the director to intervene on her behalf concerning school fees.

Notably, Thérèse related that she does not access security or justice because she avoids needing these services; they are costly and unreliable. These explanations contradict the vital role played by the *Chef de quartier*, her brother, in her land sale and purchase. He was never mentioned during the first or second mappings of her personal support network or access to social services – being the sister of the *Chef de quartier* actually made her ineligible to participate in the study. Our selection criteria precluded local leaders' relatives to avoid favouritism, and their relationship had not been disclosed at the beginning of the study. It was unwittingly revealed when the household recounted the land transactions. Such influential contacts, of higher SES and government employment, are also guarded because they represent bridging and linking social capital, in this case fortified by familial ties (bonding capital). The importance of Thérèse's brother for the household's coping strategies is evident. Its suppression points to the partiality of the social world she disclosed, and the crucial role of networks in unstable contexts marked by institutional ineffectiveness.

VIGNETTE 2: HÉLÈNE IN KATOYI

The past and present circumstances and composition of Hélène's¹² household bear much similarity to those of Thérèse, but they also exhibit striking differences in financial portfolios and coping mechanisms. In terms of our experimental methodology, this vignette illustrates the value of measuring social networks at multiple time points during the study. It also highlights the importance of building trust and leveraging participant observation to provide additional data and cross-check that which has already been collected.

Hélène is a 46-year-old widow who moved from Idjwi to Goma's Katoyi neighbourhood in 2012 in search of a better life. She rents a small, wooden house. Its walls are riddled with holes and rooms are separated only by curtains. There are no chairs, and the sole electronics comprise an outmoded Nokia mobile. The household also owns a parcel in Turunga and plans to relocate there. At the beginning of the research period, the household's financial net worth was US\$1,800 – just under US\$20 less than at the end of the study (Figure 9).

Hélène lives with her teenage son; seven-year-old daughter; two adult daughters; and the four young children of her divorced daughter. Hélène is a *relais communautaire* (health awareness-raising campaigner) and thus a member of the *Cellule de paix et de développement des quartier* (CPDQ / Neighbourhood Peace and Development Unit). Per diems received for participating in training

¹² Pseudonym adopted to preserve anonymity.

workshops for healthcare and the CPDQ supplement her monthly US\$150 salary from the Healthcare Zone. Hélène was able to secure a similar position for her divorced daughter. Her unmarried daughter has a university degree and works as a collector at *Direction générale de recettes de Nord Kivu* (the provincial tax office). Hélène also founded a savings club with 3 colleagues, to which each contributes US\$100 per month.

FIGURE 9: SUMMARY OF HÉLÈNE'S HOUSEHOLD PORTFOLIO AT THE END OF THE RESEARCH PERIOD.

	Closing Balance	Turnover
ASSETS		
Belongings		
Land (fields)	2000.00	
Cooker / mbabula / gas	25.00	
Furniture	295.00	
Computer & Phone	30.00	
Cash In Hand	77.69	
Sub total	2427.69	0.00
Savings		
Co-operative savings	0.00	600.00
Moneyguard (savings with friends / acquaintances)	100.00	100.00
Sub total	100.00	700.00
Money owed to household		
From relatives / friends / others without interest	50.00	0.00
Sub total	50.00	0.00
LIABILITIES		
Borrowing with no interest		
Borrowing from family	200.00	160.00
Borrowing from friends / acquaintances	560.00	60.00
Sub total	760.00	220.00
FINANCIAL NET WORTH	1817.69	
TOTAL TURNOVER		920.00

Over the course of the research period, the household's financial net worth varied between US\$1,470-2,190, with a total turnover of only US\$920 (Figure 9). The seeming stability of household members' employment belies the financial precarity caused by irregular payments, particularly when they coincide with deadlines for rent and school fees. The middle panel of Figure 2 (HH Hélène) illustrates how the household's income steadily decreased from Visit 1 through 5, then surged when she received her salary arrears (US\$300) in Visit 6 and collected her disbursement from her savings club (US\$300) in Visit 7. It then again decreased as back-to-school expenses for the six children coincided with rent instalments and delays in salary payments.

Concomitantly, the household's cash balance fluctuated sharply between biweekly visits, dropping from approximately US\$43 in Visit 4 to US\$2 two weeks later, then climbing to over US\$600 by Visit 7. Hélène's household finances also relied heavily on donations from friends, relatives, her daughters, and her grandchildren's father – most of whom were as unreliable and intermittent as their employers. Such

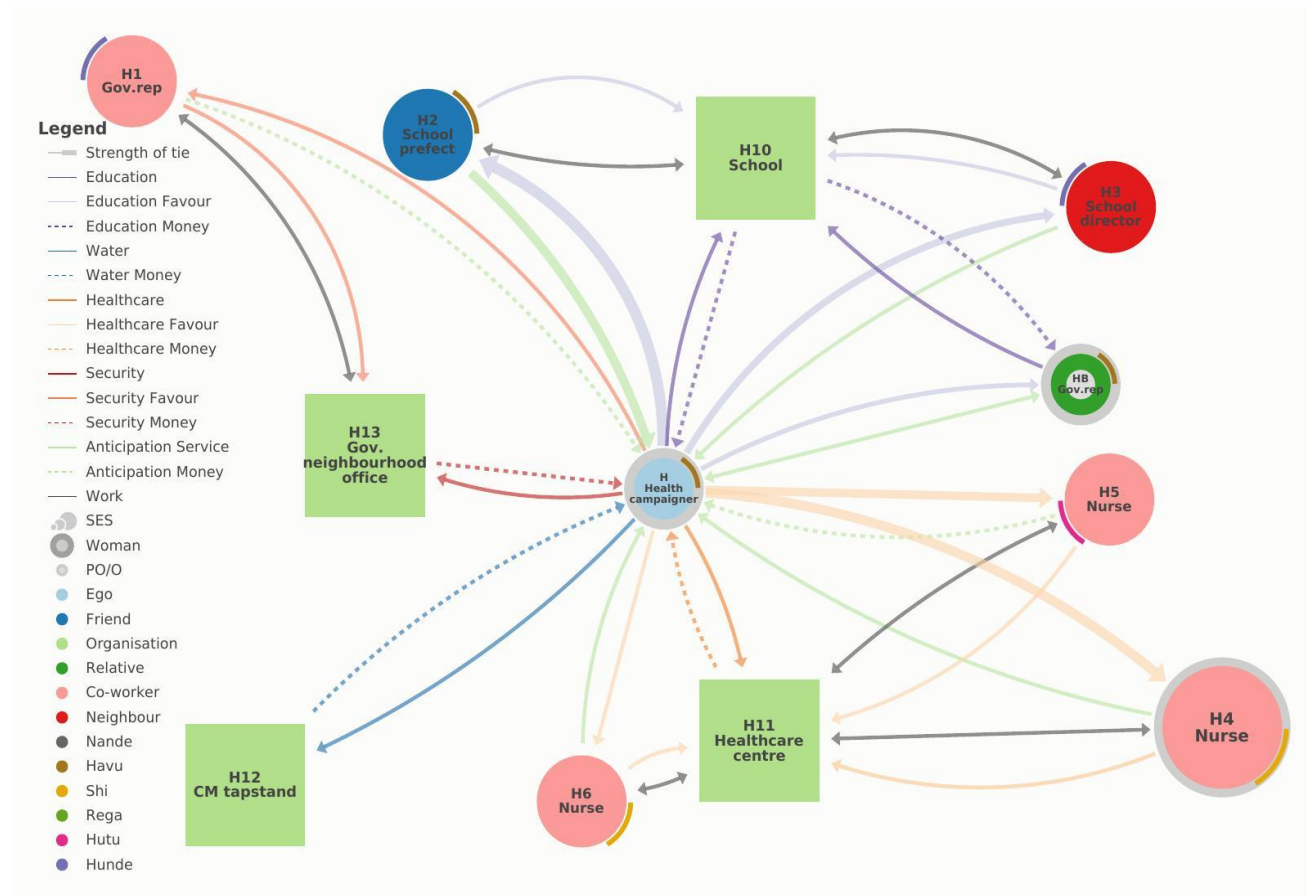
Furthermore, divulging her wealth of support – and having it publicised – would jeopardise perceptions of her vulnerability and grounds for warranting socioeconomic assistance. Accordingly, Héléne included only relatives in the first rendition of her personal support network: her unmarried daughter (HB) who asks for advice and loans and borrows money; her brother (H11) who works in customs; and her other brother (H10), a farmer in Idjwi. With her brothers, Héléne shares advice and asks for financial support. In return, the farmer expects her to manage his affairs in Goma and arrange shipments of salt and vegetable oil.

Following a year of visits and having established rapport, Héléne revealed a much richer, complex social world. She noted co-workers with whom she shares companionship as well as mutual advice and loans; friends from church who reciprocate counsel and pastors who lend and borrow money; and the multiple exchanges and expectations of support that bind them. Nonetheless, there were sources of personal support she never exposed. They were all men of high SES – the only pastor from whom she borrowed money but never lent (H19) and two lovers, a large-scale trader in minerals (H15) and an army Major (H20). The latter two provide financial assistance, accompanied by anticipations of intercourse, but Héléne's rapport with them is also characterised by mutual emotional support, exchanges of advice on intimate, consequential matters.

These network members were gleaned from participant observation and accidental encounters. For example, whilst showing researchers photographs of her children's first day at school, she happened on one of the aforementioned army Major. During another visit, the trader's sibling arrived unexpectedly to deliver money sent by his brother. The pastor, at a different time, surprised the household by bringing lavish gifts of meat, plantains, and alcohol. The team returned to these events during later visits, carefully broaching questions over a series of interviews. Resultant insights rendered Héléne's personal support network much more complete; yet despite disclosure and discovery, many facets of it presumably remained obscured.

Discussing her access to social services, even at the beginning of the project, Héléne was much more forthcoming. The top panel of Figure 11 illustrates that the only service she secures directly in exchange for payment to the provider, in this case Congo Maji, is water.

FIGURE 11: HÉLÈNE'S ACCESS TO BASIC SOCIAL SERVICES IN MARCH 2019 (TOP PANEL) AND MARCH 2020 (BOTTOM PANEL). WIDTH OF TIES CONVEYS THE RESPONDENT-ASCRIBED IMPORTANCE OF NETWORK MEMBERS (PROPORTION OF LEGOS). THE SIZE OF NODES REPRESENTS SOCIOECONOMIC STRATA (SES); WOMEN ARE ENCIRCLED IN GREY; COLOURS INDICATE HOW THE RESPONDENT (EGO) IDENTIFIES NETWORK MEMBERS; PRIMARY LIVELIHOODS ARE TEXT WITHIN THE NODES. BULLSEYE DENOTE NETWORK MEMBERS IDENTIFIED THROUGH PARTICIPANT OBSERVATION OR OTHER VISITS (PO/O). FLAGS OR BORDERS OF NODES CORRESPOND TO ETHNO-LINGUISTIC COMMUNITIES. TIES ARE DIRECTED AND COLOURED BY TYPE. ORGANISATIONS ARE DENOTED IN GREEN SQUARES.



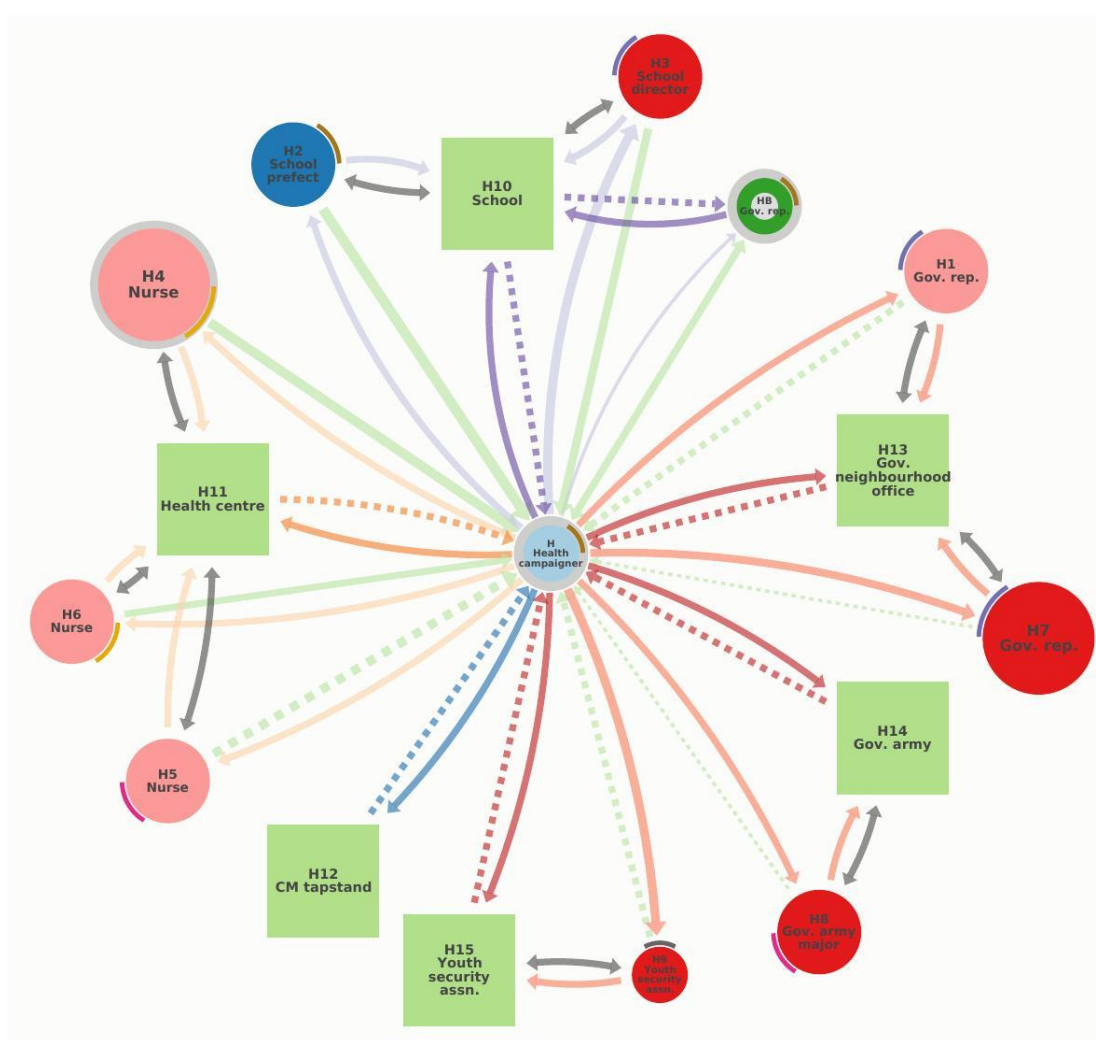


FIGURE 11B

The household buys about 21 jerry cans of water from Congo Maji weekly, always paying 100FC per jerry can. During a visit, H       explained:

I trust the potability of water from the tap stand. In case of failure, I will not draw water from the tank because as a health awareness-raising campaigner I know that water is not drinkable and contains germs. If there is no water at the tap stand, I call my brother who has a private REGIDESO connection in Himbi [a neighbourhood] and he brings me 5 jerry cans of 20L by car.

She told researchers that such tap stand failures were related to electricity problems and an increase in fuel prices that prevented REGIDESO from operating their generators. In October 2019, H       communicated that the water shortages, persistent for 3 months, were due to a ‘management problem within Congo Maji’. She also recounted that such shortages were linked to REGIDESO’s efforts to force

Katoyi's population to buy water from the tanks, whose owners are also REGIDESO agents. The situation left residents with no other option beside sourcing water from Lake Kivu. She went on:

All this influences the use of water, which has already changed in almost all households in Katoyi, because the price from tanks is not the same as from tap stands. The population prefers to buy less water and not waste it.

Katoyi's representatives planned to bring the case to REGIDESO and Mercy Corps, according to Héléne, as they feared 'new cholera cases in the neighbourhood due to the consumption of water from the tanks and lake' as well as 'cases of drowning' and increased violence against women and youth 'as had happened before the installation of tap stands in the neighbourhood'. During the dry season, such shortages also impact household activities like laundry, which is water-intensive and especially so when many household members are children. During the wet season, Héléne's household, like Thérèse's, substitutes rainwater for all activities aside from drinking and cooking. Accessing a stable supply of water at a consistent price, however, remains problematic.

To access education, healthcare, and security Héléne leverages contacts – in higher positions of authority and/or SES – and connections to reduce or delay payment or invoke response. For example, Héléne calls upon her colleagues, the healthcare centre director (H4), head nurse (H5), and acting head nurse (H6), and pays at most half of her bill, sometimes late or not at all. In the event of robbery, she contacts the *Chef de quartier* (H1) who alerts his office and prompts the police to respond. She is not privy to the steps and individuals entailed in this process, from the *Chef* to a resolution.

Conducted about a year later, the second mapping (Figure 11, bottom panel) demonstrated that Héléne predominantly accessed the same social services in the same manner. But over the research period increasing incidents of robberies and police harassment in Katoyi were allegedly being committed. Yet, the neighbourhood's *Chefs d'avenue* and *quartier* refused to act in cases of police involvement in crime. In response, youth from Katoyi founded the neighbourhood security organisation 'Rwisoma'. Residents raise money on Saturdays to pay for torches, batteries, hot drinks, and to compensate members for patrolling the streets at night. Héléne diversified her security providers to include Rwisoma (H15) and the national army (H14), which she accesses through her neighbours, Rwisoma's president (H9) and a Major (H8). Another neighbour, a fellow CPDQ member of higher SES, now facilitates her contact with the neighbourhood office – and the obscure processes that occur beyond it – since the *Chef* (H1) has become less responsive to incidents of crime.

These individuals' proclivity to accept her requests for assistance is bound to overlapping childhood friendships (such as with the School prefect, H2); neighbourly ones (School director, H3, and security actors); and co-worker relationships (like the *Chef de quartier* and fellow CPDQ member, H1, or the nurses). These favours engender moral debt, expectations of reciprocity, and social obligations. Their importance in reducing costs of services and navigating access to them substantiates diaries data that emphasise the crucial role of contributions in the household's financial portfolio – both are based on social networks imperative to livelihoods and coping strategies.

DISCUSSION

Our preliminary findings illustrate the importance and complexity of coping strategies of urban households in unstable, insecure contexts – and the challenges of studying them. This concluding section offers suggestions for how our experimental methodology can be built upon by academics and development practitioners.

The challenges of operationalizing our approach, our preliminary results, and the two vignettes raise several considerations for future research projects and programmes. With respect to research, they include understanding coping strategies as at once material and social; the importance of trust at all levels of a project; and the need to address power asymmetries. For programmes, they include the complementary role of longitudinal and ethnographic research; the possibilities of identifying and capitalizing on their impact; and the benefits of participatory approaches. We explore each of these suggestions with the caveat that our findings are tentative and further research would be needed to confirm or refute them.

RESEARCH

Households' coping strategies should be understood and investigated as at once material and social

Although our purposive sampling design and size render our experimental methodologies' results unrepresentative of the wider population, the typical case approach suggests that the coping strategies of *Gomatracien* households may be significantly different to those studied in more stable contexts. Most notably, our households used far fewer financial instruments and pushed and pulled a far smaller percentage of their portfolios through them, compared to the contexts analysed by *Portfolios of the Poor*.

We tentatively hypothesize that this is due to a scarcity of the trust needed to sustain the comparatively elaborate financial lives of poor households in more secure contexts. Indeed, the small, often predominantly family-based, personal support networks of many of our households, was a distinctive feature. Furthermore, they often fearfully guarded and withheld detailed information about these networks even though their portfolios revealed they invested substantial amounts of money on maintaining social ties and activities that involved them.

Mappings of households' ways of accessing basic social services indicated that negotiating these processes entails numerous contacts and steps, and that they are laden with social obligations and expectations of reciprocity. The wealth of transactions is primarily non-monetary, thus the majority of capital pushed and pulled is not financial. The importance of contacts from higher SES and those crossing disparate groups is evident in these processes, representing linking and bridging social capital. Its absence in many personal support networks may be due to its fiercely guarded nature, testament of the invaluable assets that such contacts and connections embody in terms of coping mechanisms and livelihood strategies.

Our experimental methodology – a longitudinal approach combining social network research, financial diaries, participant observation, and cognitive interviews – offers potential advances in this vein. The

specific marriage of social network research with financial diaries broadens the focus from monetary transactions and instruments to include non-monetary ones, forcing us to consider the exchanges between them, what makes them possible, and what the expectations of reciprocity entail in context. Together, these methods permit the exploration of how various types of social and financial capital are transformed from one form into another and exchanged. In fragile and conflict-affected settings, where most households have meagre financial resources, the majority of capital that is pushed and pulled is social, and it is transferred through networks as opposed to financial instruments. To understand how these processes underpin coping strategies we need methods capable of detecting and measuring them – which neither the diaries nor social network approaches can do alone.

Trust enables the collection of data that overcomes biases and blind spots common to other methods

Turning to the order of our experimental method, it was clear that the collection of sensitive biographical data at the project's start was not always well received. Our assumption was that early discussions of participants' life-histories would help the field teams build rapport before enquiring after their social networks and financial portfolios. We were mistaken. Households were especially apprehensive about questions concerning their pasts that may have involved military service, significant trauma, or illegal activities. Indeed, Goma is in some respects a city that people flee or escape to, with many eager or forced to begin 'new' lives in an insecure context where their backgrounds are best forgotten or may even be used against them. Instead, it may be better to weave biographical questions across the research period, beginning with those that are less sensitive and needed to better understand households' current SES.

To further enable field teams to build trust, future research should reconsider the value of collecting precise data on everyday spending and saving. Instead, abbreviated financial diaries that exclude or provide ballpark figures for major categories of spending, such as food, fuel, and clothes, could be used. This approach would address the frequent complaint of households that they were bored by the repetitive questions and permit a focus on episodes or events that capture response to shocks, such as when Thérèse and her mother successfully sold their parcel and used the money to kick-start a new business. These stories tended to provide far more insight into how households combine their social and financial resources to cope with problems than fluctuations in their already-limited everyday spending.

Participatory methods could also be combined with the elicitation of narratives of important events and shocks to gain granular understandings of how money and connections are used and exchanged to manage daily struggles and life-altering crises – and how these mechanisms differ across contexts. Participatory methods also empower respondents as they actively take part in research design and implementation. This independence may decrease interview duration or frequency, facilitating researcher-respondent rapport that is 'close but not too close' in terms of privacy and intimacy. Data quality hinges on trust but it may be negatively affected when that trust enables demands for – and refusals of – financial assistance in times of need.

Necessarily exploratory and experimental, our frequent methodological refinement and adaptation calls for collaboration between and amongst researchers and respondents. Surmounting, or at least diminishing, the crippling effects of power asymmetries that can define research projects in challenging

contexts such as Goma will be crucial to the success of such joint enterprises. Yet, without understanding what makes people anxious or bored, and how transactions of material and social resources function, we will never grasp the coping strategies essential to life and livelihoods in precarious circumstances. We need to find ways to more comfortably broach sensitive topics or even social taboos; we need to learn how to talk about money and sex.

Power asymmetries are not just an issue in the field

Our discussion would not be complete without acknowledging how power asymmetries permeated the organisational structure of the research project and operationalisation of our experimental methodology. These dynamics are arguably present in most development programmes and team structures and should be carefully considered.

Our field teams took risks to collect data that was largely analysed in as close to as possible real-time by their European desk-based colleagues. This process often entailed the literal and figurative translation of findings into forms intelligible to the analysts, who had limited prior understanding of the daily lives of Goma's households. Sometimes this would benefit the project, as when the analysts spotted emerging patterns or inconsistencies that field teams could then correct or investigate further in subsequent visits. But it was also onerous, requiring many lengthy conversations to address misunderstandings, which augmented field teams' workloads and impaired their ability to build rapport with households. The crucial linking role of the Research Manager between European team members and Congolese field teams shielded the latter from the incessant barrage of clarification requested by the former. Unfortunately, it also enforced feelings of inadequacy vis-à-vis the privileged status of the former, reifying the very power asymmetries we sought to counter.

Such issues could be partially overcome by training field teams to analyse the data they collect, thereby placing those closer to the studied phenomenon in the project's driving seat. This would, of course, upend established ways of structuring academic research projects in fragile and conflict-affected contexts within which to borrow from a Congolese researcher on another project; 'The data is gold, and we are the gold-diggers' (Marchais et al., 2020). It would also accord with the localisation agenda in development research and programming that privileges local knowledge and analysis. Such an undertaking could add to the down-stream capacity of field researchers, enabling them to turn data into outputs at the end of the project, and freeing them to spend more time building rapport with households. It would also give field teams a more holistic view of households' evolving financial portfolios that could further contextualise the qualitative data and emerging stories they follow in the field.

In the same manner, European researchers need to learn to accept expertise which is different from and may at times challenge their own. Learning goes both ways. European researchers need to learn how to ask questions and request clarification in manners that are not perceived as derogatory, and they must foster the trust between themselves and national colleagues that they envisage between field teams and respondents. Questions of clarification are appreciated and welcomed as such only to a certain point, beyond which they can be perceived as mistrust, doubt, and reestablishment of the Western-dominated power asymmetries we should seek to dismantle.

Countering this trend requires increased accessibility – organisational and conceptual – between team members. It also entails regular all-team meetings and efforts to encourage challenges to extant approaches and theorisations of inevitably privileged white expatriate staff by national colleagues. A greater parity in roles and capacities would facilitate dialogue between team members, leading to more nuanced and contextually relevant approaches and understandings.

None of this can be realised overnight. It entails time- and resource-intensive commitments which are maintained throughout an extensive period of years. They must likewise account for unavoidable delays due to the uncertainty and exigencies of the context. These foreseeable unforeseen challenges must be budgeted in advance. Structural impediments linked to the context pose additional challenges, such as the instability of employment and lack of career structures for DRC-based researchers. The only way to begin changing these realities may be through general requirements in development and academia for capacity-building and organisational structures that privilege nationals and their expertise.

PROGRAMMES

Longitudinal and ethnographic methods can complement more traditional evaluations

Our experimental methodology could be used by development programmes to better understand their intended and unintended impacts. Service provision programmes such as IMAGINE usually begin with a baseline and seek to measure changes over time, such as access to a service, perceptions of a provider, or rates of health. Some also include periodic deep dives to explore specific outcomes or gather impact case stories. Our experimental method could be applied alongside these activities with a subset of the beneficiary population, and a control group(s), to ensure programmes have fine-grained longitudinal and as close to ‘real-time’ ethnographic data on how their interventions are affecting people’s lives. It could be used to triangulate more traditional methods by spotting deviations from their findings or explaining causal mechanisms underpinning them, and it would provide programmes with a reserve of case studies to be drawn upon as needed.

In support of this, our findings suggest that household data collected through surveys or other one-shot methods may be inaccurate, especially if they concern financial information or seek to understand the networks people rely upon to cope in challenging circumstances. Reporting biases have long been known to affect programme evaluations where populations expect certain outcomes from engaging with data collectors or are fatigued by frequent requests for information. Moreover, there are numerous difficulties with ensuring methodologies are contextually appropriate and understood by participants, many of whom may be fearful of who or what may be done with the information they provide.

The improvements in the quality of data over our research period also shows that longitudinal data collection with the same researchers visiting the same respondents builds trust that can provide deeper insights. The trailed methodology hinged on the diversity and variety in expertise of our research team. Some of us are methodologists, others students and practitioners in development, and others still Congo specialists – from different backgrounds and at different career levels. Most notably, the design and implementation of this methodology would have been impossible without skilled field researchers

familiar with, and able to operate in, Goma. Supported by a Research Manager that used his own network to foresee risks and negotiate access, they were able to visit participating households for the project's year-long duration. Moreover, they often went beyond the methods' original formulation in an effort to build their ethnographic sensibilities and delicately gain an intimate understanding of respondents' lives.

Programmes that understand their broader social impacts could capitalise upon them

Our findings tentatively suggest that there may be knock-on or secondary effects from IMAGINE's provision of stable, clean, and consistently priced water. Specifically, we found that households in Katoyi – where tap stands operated by Congo Maji dominated water provision – pushed and pulled the greatest percentage of their median incomes through their social networks, including at family and religious events, and within savings clubs. Following the literature on networks and coping strategies, they were likely meeting pre-existing obligations and accruing future obligations that they could then call upon in times of need. This, we suggest, may be indicative of social networks' functions as financial coping instruments in unstable contexts such as Goma.

Further research would be needed to establish whether this is a generalisable pattern for households that have a measure of stability through improved service provision or other mechanisms. If such secondary effects could be confirmed, innovative programmes could design activities to multiply them. For example, IMAGINE was already bolstering citizens' abilities to hold local water providers to account through supporting development associations at the neighbourhood level across Goma. It could replicate these structures at street level among tap stand users, with members asked to contribute financially to their maintenance or security, and to represent their areas in higher level participatory meetings.

Such activities might actively foster ties between households of differing SES or create organisations that promote mutual social obligations between different groups, diversifying members' support networks and fostering their social capital. Our findings suggest this is important for households' abilities to access a range of services, and that the maintenance of social networks is a primary expenditure even in challenging times. Such groups may also go some way towards giving those accessing services ownership over their tap stands. Although any attempt to support localised structures must remain flexible and allow for variations or adaptations as participants turn them to their own needs.

Participatory research can secure buy-in, identify emerging issues, and impart new skills

The benefits of participatory research and evaluations have long been championed by development practitioners. Aside from securing buy-in for the interventions of outsiders, methods that enable beneficiary communities to have a say in how their lives are understood accords a measure of agency to participants, helping to identify emerging problems and improve programmes by spotting innovations in the 'field' with the potential for scaling up.

Our experimental methodology was initially received by participating households as intrusive, onerous and, in some cases, irrelevant to their daily lives. However, as the field teams gained the households'

trust and found how best to gather data, the method became increasingly participatory. This led to innovations such as households keeping records of their own financial lives in-between visits, thereby, cutting down on the time needed for visits and missed transactions. It also gradually revealed the complexity of their financial lives and extent of their social networks as households felt confident to share their coping strategies, worries, and hopes with the teams.

A dissemination workshop to discuss the initial research findings with households further revealed aspects of the method they found difficult or intrusive, such as the early mapping of their networks and the need to regularly find time for visits. Nonetheless, some households also reported that they had learnt to carefully manage their finances over the course of the research and now record their incomings and outgoings to better budget. One had even instituted the practice in the savings groups they belong to. This suggests that research can be a two-way learning process, as researchers and participants come to understand one another's goals and struggles. Programmers may also wish to claim such innovations as capacity-building or unintended positive outcomes and explore the possibility of scaling them up through new programme components.

Our field teams' interactions with the households also gradually told a story about the IMAGINE programme and how it was perceived by its intended beneficiaries. Although many households were initially confused as to why we took such a keen interest in their access to water, it soon became apparent that those living in Katoyi where IMAGINE was supporting tap stands run by Congo Maji had diverse understandings of the political economy of water provision. For example, many attributed poor supply to contests between the newer programme supported provider and the older parastatal REGIDESO. Some even incorrectly argued that Congo Maji (a Congolese company) is really Mercy Corps (an INGO) so issues should be taken directly to them. These misperceptions point to the opacity of an extremely complex system. Confusion between the roles and responsibilities of REGIDESO, Mercy Corps, and Congo Maji risk exacerbating challenges of mistrust and accountability, and ought to be addressed continually throughout the lifecycles of such intricate programmes. Doing so would help to build mutual understandings and gain buy-in whilst countering animosities felt by some towards public goods providers.

Such nuanced information, garnered through participatory research methods, could be invaluable to programmes that seek local legitimacy and ownership for their interventions. It may also forewarn them of potential problems before they become insurmountable issues, giving programmes the time to address them in their infancy.

CONCLUSION

This paper explored the design and implementation of an experimental methodology to study households' socioeconomic coping mechanisms in insecure, unstable, or conflict-affected contexts. The method combined longitudinal household diaries with social network research. The practicalities of operationalizing it in Goma were discussed with attention to the need to build trust with participating households, balance emotional proximity and distance, and to endeavour to counter (or hold to

account) the power asymmetries that structure all levels of research projects. Our initial research findings were outlined, with differences between our households and those studied in more stable contexts highlighted. We also focussed on how IMAGINE's water provision may have impacted household coping strategies, with caveats given our small sample size and the challenges to data collection. To further contextualise our findings, we provided two vignettes of households that participated in the study. We concluded by offering recommendations for those wishing to build upon our method and for programmes keen to use it to complement their own monitoring, evaluation, and learning strategies.

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