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Article

Non-governmental organizations' motivation to diversify: self-interest or operation-related? Evidence from Uganda

Canh Thien Dang[1,*] and Trudy Owens[2]

[1]London School of Economics, King's College London, London, UK
[2]University of Nottingham, Nottingham, UK
*Corresponding author: canh.dang@kcl.ac.uk

Abstract

Understanding the mechanisms that guide non-governmental organizations' (NGOs) managerial decisions is a key to effective development policies. One fundamentally strategic decision is the number of activities an NGO offers. We provide a conceptual framework based on the agency theory to study the motivations underlying strategic decisions of development NGOs in Uganda. We test whether diversifying into many activities is driven by operational reasons or by personal gains of NGO managers. Following a historic flood in 2007, NGOs that rely more on contractual income offer fewer activities than their counterparts in less affected areas. The results support theoretical explanations that operational motives such as risk-reduction or cost complementarity dominate personal and for-profit-like motives. Our article contributes to the debates around the ethical and governmental foundation of the non-profit sector, highlighting the different roles of personal and operational aspects in the decision-making process.

1. Introduction

Non-governmental organizations (NGOs) play a prominent role in channelling development funding. Yet, the existing literature on the managerial and ethical motivations behind the decisions of NGOs remains inconclusive. Most of the literature on the incentives of prosocial behaviours focuses on donors (Saxton and Neely, 2019; Amin and Harris, 2020) or individuals (Shehu *et al.*, 2016). With a lack of downwards accountability and often lack of observability of NGOs actions, a recurring concern is that NGOs may not necessarily operate with prosocial behaviour in mind but with the possibility of rent extraction (Aldashev and Navarra, 2018). While many non-profits commence as single mission organizations, over time they tend to introduce more diverse activities to accommodate a wider range of social demands.[1] Evaluations of diversification in the business ethics and finance literature mainly focus on large, established, and for-profit firms (Aggarwal and Samwick, 2003); little has been done in management strategy and social organization research on activity diversification of NGOs. Diversification is often seen as an expansion strategy which is

[1] We refer to activities broadly as categorizations of projects that reflect a charitable objective and commonly reported by the NGOs. For example, the most popular NGO activities in Uganda include Education and Training, Community Development, or Advocacy and Human Rights. Section 4 provides more details.

beneficial to the targeted recipients or for organization survival (Mendoza-Abarca and Gras, 2019), it is not without concerns. It can result in management inefficiency and incur wasted transaction costs; similarly, expansion can be viewed as exploitive behaviour to access alternative sources of public money (Rumelt, 1982). At the same time, the decision to diversify in crisis-like situations is often scrutinized by the public and the media who question whether the huge influx of funding and donations for local NGOs is delivered to targeted recipients or is used to benefit NGO employees through expanding their operations.

It is not possible to know directly what motivates an NGO and it is unreliable to directly ask this information on a survey. We approach this question by testing indirectly their motivation from observing how they react to an exogenous large influx of money. We exploit an income shock to examine the dominant motive underlying the decision of Ugandan NGOs to diversify their activities. We focus on two broad motives often raised by academics and development practitioners, namely, NGOs diversify their range of activities: for personal gains from additional income sources, which is often seen as unethical from the public and donors; or for operation-related purposes, often to ensure financial security.

We incorporate these two broad motives in a general framework of how an NGO behaves following a shock to their contractual income, which is contracted by donors or the public to deliver pro-social values and often tied to specific overarching objectives. Our modelling provides testable predictions on how NGOs behave. Namely, we theoretically predict that NGOs primarily motivated by personal gain will tend to engage in more activities after a positive contractual income shock. The additional revenue provides surfeit for the NGOs to pursue their personal targets. In contrast, NGOs motivated primarily by operation-related concerns will take the additional contractual income to scale down their number of activities. The newly generated income allows the NGO to focus on their overarching objective.

We test the predictions using a surge in targeted international aid and relief support given to Uganda in response to a historic flood in the summer of 2007. Using a sample of nationally representative Ugandan NGOs surveyed in 2008, we instrument changes in financial incentives with a dummy variable identifying whether an NGO worked in the most affected Ugandan districts before the flood. We find our instrument is reliable: for NGOs working in the most affected areas (the instrument), the increase in support is strongly correlated with a higher proportion of income from contractual sources. Using the predicted reliance on contractual income after the flood, we find NGOs that received more contractual income engaged in fewer activities after the flood than the NGOs that relied on non-contractual income. The intuition is that the arrival of more contractual income allowed NGOs to refocus their activities towards their overarching mission. The results are consistent with the interpretation that NGOs are mostly concerned by operation-related risks (such as financial stability and cost complementarity) in their decision-making processes. With secure funding, they are more likely to focus on their mission rather than diversify. This suggests diversification is seen by NGOs themselves as a response to insecurity. While we cannot rule out the presence of personal motives such as egoistic gains or rent-seeking motivation, we provide empirical evidence consistent with theoretical predictions that operation-related concerns *primarily* influence development NGOs' decision-making process. We highlight the need for a continued commitment from donors to ensure NGOs can benefit from economies of specialization.

We contribute to the literature in three dimensions. First, we provide the first piece of empirical evidence on the extent to which development NGOs behave like pro-social actors or profit-seeking firms. Driven by US interests, the non-profit literature focuses on the behaviour of non-profit hospitals (see Silverman and Skinner, 2004; Chang and Jacobson, 2012), of newly founded charities (Mendoza-Abarca and Gras, 2019), or geographical diversification of NGOs (Kistruck *et al.*, 2013); whereas our article identifies the consequences of funding on NGO behaviour of development NGOs. We find evidence for the dominant

motive being operational concerns. We do not, however, rule out other motives such as rent-seeking or egoistic gains. In combining two bodies of literature: the determinants of firm diversification (Aggarwal and Samwick, 2003) and the studies on management strategies of non-profits (Steinberg, 1986), we contribute to the literature on behavioural motivators in organizational settings (Carpenter and Gong, 2016) and non-profit organizational choices (Herbst and Prufer, 2016; Dang and Owens, 2020; Dang *et al.*, 2021). Our results are consistent with the existing literature on non-profit hospitals which shows that labelling a non-profit as a pure profit-maximizer or an 'altruist' can be misleading (Deneffe and Masson, 2002; Malani *et al.*, 2003). Instead, our theoretical model and empirical analysis show that the motivations behind these organizations are more nuanced.

Second, we add to the existing development literature on motivations of pro-social behaviour. We provide a new angle, namely, diversification, to the agency approach in modelling an NGO's decision. Our model relates to theoretical studies on the motives underlying decisions of non-profit organizations which often claim NGOs act in a 'voluntary' manner and are driven by 'intrinsic motivations' (Bénabou and Tirole, 2006). Fruttero and Gauri (2005) propose a model of location decisions of NGOs, where NGOs act strategically in response to donors who label projects as a success or failure according to strict measurable outcomes. The authors show that NGOs avoid even the neediest communities if the locations are excessively challenging and likely to result in a project being defined as a failure. Empirically, Barr and Fafchamps (2006) come to a similar conclusion in the case of Ugandan NGOs. They show that these NGOs tend to operate in the same, less remote locations possibly for cost reasons. This clustering of NGOs leaves the neediest communities in more remote areas without sufficient assistance. Our article differs from the previous studies by looking at the diversification strategy instead.

Finally, our article relates to experimental studies on designing incentives to motivate charitable efforts. Imas (2014) shows that participants work harder for a charity than for themselves only when the benefits from the tasks are low. Dellavigna and Pope (2018) show monetary incentives work far more effectively than psychological motivators. The complementarity of our article is that we find pragmatic incentives reducing risks and costs and enhancing survivability, are dominant motivators, rather than personal reasons such as altruism, prestige, or signalling. Our result is useful for stakeholders when designing aid packages to incentivize their subcontractors, particularly in the development context where grassroots organizations often lack financial stability.

The article proceeds as follows. Section 2 reviews the motives for diversification and outlines our theoretical predictions. We provide a full model to justify our predictions in the Supplementary Appendix. Section 3 describes the Ugandan NGO sample. Section 4 discusses empirical results and the validity of our instrumentation strategy. Section 5 discusses several robustness checks, including a between-NGO analysis. Section 6 concludes with policy recommendations.

2. Why do NGOs diversify?

A development NGO is often referred to a non-profit organization focusing on charitable objectives that are related to the development of culture, science, and economic of a group of people or parts of a society. It is often characterized by their social and development missions, their reliance upon donors and volunteers to deliver a wide range of different activities or charitable missions to targeted recipients (e.g., see Kistruck *et al.*, 2013). Similar to charities and non-profits in developed countries, development NGOs are subject to the obvious non-distributional constraint that strictly prohibits profit distributions among employees for tax purposes. These NGOs, however, differ from their counterparts in developed countries and for-profit organizations in several ways. First, it is often thought that development NGOs are driven by the primarily intrinsic rewards, unlike profit maximization

pursuit as for-profit firms do. Second, development NGOs face fierce competition for donor resources for survival but do lack upwards accountability and monitoring from their donors due to geographical and resources constraint (Aldashev and Navarra, 2018). Third, having relied on volunteering to carry out missions, development NGOs tend to have a much flatter management structure instead of top-down decision-making as seen in large and established charities in the developed world. This point, however, does not preclude the administrative struggles regarding management inefficiency, resource waste, and institutional isomorphism (Kistruck *et al.*, 2013). As development NGOs, and charities in general, increase their involvement in commercial activities to raise income, the boundaries between the for-profit and non-profits sectors have become blurred. From an academic point of view, the significant differences in institutional settings and organizational aspects between for-profit organizations and development NGOs warrant unique study, the strategic management and decision-making underlying the two sectors bear sufficient similarity so that research on strategic diversification in either sector offers beneficial insights. As such, we first delve into the current research in the for-profit literature before looking into the extant non-profit literature.

There is a vast number of studies examining the underlying objectives of firms and organizations. We divide the current studies into three broad categories that will later correspond to our theoretical framework. Based on the taxonomy in Chang and Jacobson (2012) and Malani *et al.*, (2003), NGOs might diversify for: (i) *personal-gain*, acting as *for-profits in disguise*; (ii) *operational-related* motives, such as reducing costs and risks associated with the operation or future funding; or (iii) as *altruists*. In the Supplementary Appendix, we incorporate these broad categories of non-profit motivations into a principal–agent model to assess whether and how an exogenous shock to the contractual income of a non-profit impacts the number of activities (diversification level). The key intuition of our framework is that due to the non-distributional constraint, any additional revenue available after the shock will be spent on the activities that the non-profit values the most (fungibility). Our key contribution to the theoretical strategic management literature is to allow for different social welfare functions and a different shock to the budget constraint when evaluating the strategic management of non-profits. We find that a positive shock to contractual income tied to a charitable objective would allow the non-profit to either refocus on their more important activities or expand their operations, depending on their underlying preferences. We discuss the hypotheses and predictions below, with the technical details delegated to the Supplementary Appendix.

2.1 For-profits-in-disguise motivations

The literature that focuses on the for-profit motive posits that despite non-profit status, charitable organizations and NGOs operate to maximize profits and personal perks for their managers (Boris and Steuerle, 2006). This occurs when the non-distributional constraint, that is surplus or profit from the operation cannot be distributed within the organization, is not strictly enforced or when the legal requirements to qualify for tax-exempt status are unclear. These conditions are more prevalent in the development NGO sector where both the monitoring and enforcement mechanisms often fail to make NGOs comply with the sectoral norms established in developed countries (Aldashev and Navarra, 2018).

2.1.1 Rent seeking and revenue maximization

Within the agency theory, diversification is often undertaken for rent-seeking and entrenchment purposes. Managers may be involved in a number of activities in order to increase their potential earnings or bonuses (Murphy *et al.*, 1991). When the non-distributional constraint is not effectively enforced, which usually happens when there is a lack of accountability and monitoring over the sector, the non-profit would act as a rent seeker because the extra revenue can now be distributed among the employees through channels such as

increased salaries or even distributed profits (bonuses) by introducing more, perhaps auxiliary, activities. If extra activities incur cost but no apparent benefit to the NGO's manager, we predict that an exogenous increase in the income stream would have no effect on the level of activity diversification of the NGO. The non-profit management literature has little evidence about this motivation. Among the extant evidence for rent-seeking behaviour in the non-profit literature, Schlesinger and Gray (2006) show that non-profit hospitals in America make decisions on care and service provision based on profitability and pricing mechanisms instead of maximizing patients' welfare.

Prediction 1: If the underlying mechanism for diversification is to maximize personal gains via salaries or bonuses, an exogenous positive income shock has zero or positive effect on diversification.

2.1.2 Personal-perks maximization

Another related way to maximize personal gain is through pecuniary perks (Chang and Jacobson, 2012). When the non-distributional constraint is effectively binding, managers can use the delivery of multiple activities to justify expensive distortionary perquisites, those that directly impact on the marginal cost of service provision, but not necessarily improve the service quality (such as staying in five-star hotels or using first-class airfares). There are also non-distortionary perquisites, those that do not directly impact on the marginal costs of service provision, such as unnecessarily expensive working environments (including elaborate offices for the managers, shorter workdays, or additional holidays).

Another personal gain is 'managerial entrenchment' (Shleifer and Vishny, 1994). An agent may engage in activities that they are uniquely capable in the hope of increasing both the principal's demand for their skills and the cost to the donor of disposing of them. For NGOs, particularly small and grassroots organizations, the desire to maintain a relationship with donors is important because of the fierce competition for funding (Aldashev and Verdier, 2010). Burger and Owens (2013) document enormous growths of NGO sectors in Uganda after large funding initiatives by international donors and native governments. As a result, NGOs may diversify to entrench themselves when other organizations could become viable replacements, or when they are applying for new grants. Burger and Owens (2013) and Dang *et al.* (2021) show that grant-giving behaviour may be strongly habitual as the historical grant approval raises the success rate in the subsequent round for Ugandan NGOs.

NGOs and their managers may wish to signal competence, experience, and managerial ability to the funding market by engaging in different activities. Perceived competence is particularly important for those who wish to tap into new funding. Through experiments, Aaker *et al.* (2004) find that cues of credibility, if given, can serve as an effective tool to improve perceptions of competence, and thereby the likelihood of donations to non-profits. As such, well-diversified portfolios are often considered strong signals of managerial competence.

Finally, agents can derive egoistic gains that include prestige, privilege, and improved social status from running a more diversified organization with a philanthropic aim (Bénabou and Tirole, 2006). An NGO that manages to provide more missions could be highly regarded by peers, particularly those belonging to international networks or local umbrella organizations. Pursuing social recognition in such a manner could induce charitable organizations to diversify.

The consensus is that if an NGO aims to maximize personal gains via private and pecuniary perks, an increased income shock would lead to an increase in diversification.

Prediction 2: If the underlying mechanism for diversification is to maximize personal gains via perks, an exogenous positive income shock has a positive effect on diversification.

2.2 Risk reduction and cost complementarity

A common finding is that firms diversify both to mitigate against idiosyncratic uncertainty and to protect themselves from the ambiguity surrounding performance measures against which their effort is evaluated (Montgomery, 1994). Since for-profit firms and charitable organizations have become increasingly similar regarding organizational struggles, managerial incentives, and resource scarcity (Aldashev and Navarra, 2018), it is highly relevant for non-profit managers to engage in various income-generating activities to hedge their finances. While NGOs in developed economies benefit from multiple streams of revenue such as commercialized incomes, insurance, contracts, endowments, and donations (Trussel and Greenlee, 2004); grassroots development NGOs have far fewer choices (Barr *et al.*, 2004; Hodge and Piccolo, 2005). Any change in individual donor preferences or funding focus leads to unexpected financial downturns. NGOs with a narrow set of activities could then struggle to adapt if their single mission ceases to be targeted by funding bodies. To reduce dependence on a single source of income and the risk of interrupted funding, development NGOs may pursue a diversification strategy and engage in different missions. Kistruck *et al.* (2013) provide evidence of how diversification works as a safety net for charities.

The second operation-related purpose of diversification is cost complementarity. NGOs may expand to related sectors or introduce ancillary profit-making activities to benefit from the shared expertise across the organization (economies of scope) and reduce the marginal costs of their main services (Newhouse, 1970). By expanding to related services and sectors, NGOs can reduce transaction costs of transferring knowledge and expertise.

These current findings, however, are discussed under the situations that development NGOs face a binding capital constraint and under the fierce competition for financial survival. With exogenously increased funding, NGOs can shift the scarce human capital to their main activities. If NGOs only care about the costs and risks associated with their operation, extra revenue relaxes the need to reduce costs or maintain a source of finances for their operation. The NGO can now divert the extra revenue and the expenses previously spent on the complementary activities towards their main services. We have the following prediction.

> Prediction 3: If the underlying motivation for diversification is to minimize risk associated with financial survival or to benefit from cost complementarity, an exogenous positive income shock has a negative effect on diversification.

2.3 Altruism

At the other extreme of profit-maximizing theory, there is the hypothesis that NGOs sort into the sector and perform more charitable acts because of altruism (Besley and Ghatak, 2005). Different from corporations whose objective is to maximize profits, NGOs offer an extended set of activities to accommodate a wider range of beneficiaries. Using their non-profit status, NGOs can commit to providing quality and socially efficient outcomes, such as maximizing the total volume of charitable care (see Frank and Salkever, 1991), or by restricting their own incentives (such as reduced profit distribution, see Glaeser and Shleifer, 2001).

Recent evidence from experimental economics, however, indicates that altruism may not translate into a desire to see more activities. As participants are working towards an altruistic aim, they may perceive the 'warm glow' regardless of the number of donations and activities (Hsee and Rottenstreich, 2004). Small *et al.* (2007) demonstrate that individuals donate the same amount for helping one person as for helping 10 people. Frank and Salkever (1991) offer evidence of 'impure altruism'. US non-profits aim to offer higher quality and quantity (measured by the intensity of services) to compete with their rivals. In our conceptual framework and the theoretical model (Supplementary Appendix A), there are

two forms of altruism. The impurely altruistic NGOs would want to introduce more activities when given increased funding to compete for public perception of goodwill ('warm glow'). The purely altruistic NGOs, who want to maximize the total social welfare, would introduce more activities to expand their impact to a wider beneficiary. Overall, we have the following prediction.

> Prediction 4: If the underlying motivation for diversification is altruism, an exogenous positive income shock has a positive effect on diversification.

2.4 What motivates NGOs? A hypothesis

The above discussions covering different preferences provide four distinctive predictions on how diversification changes when an NGO receives a positive shock to their income. If the NGO's concern is for personal gain such as rent-seeking, maximizing perks, or altruism, the NGO will diversify more after the shock. In contrast, if the only concern is operation-related, such as to reduce costs or risks associated with future funding, the NGO will refocus and contract their activity portfolio. The underlying motivation dominating an NGO's strategic management determines the sign of the change in diversification following a positive shock to the contractual income. As such, we could tease out the primary motivation underlying the diversification decision of the organizations by looking at the effect of an exogenous income shock on the diversification level. We propose the following competing hypotheses, which will be tested in the next section. If we reject H1 in favour of H2, we conclude that the diversification decision is primarily influenced operation-related motivations, and vice versa. The technical details of the theoretical model are presented in the Supplementary Appendix.

Hypothesis (H1): If the underlying motivation for diversification is personal gain, an exogenous positive income shock has a positive effect on diversification.

Hypothesis (H2): If the underlying motivation for diversification is operation-related, an exogenous positive income shock has a negative effect on diversification.

3. Data: the representative Ugandan NGO survey

Uganda is an interesting case to investigate NGO behaviour due to the expansion of the sector following initiatives since 2000 by the international aid community and the Gates Foundation. We use the second wave of a nationally representative survey of the Ugandan NGO sector conducted in 2008 (see Burger and Owens (2013) and Barr *et al.* (2004) for details of the original sampling). Figure 1 shows the number of NGOs in the sample that either worked or had an office in each district of Uganda in 2007. This reflects the pattern of NGOs registered in each district according to the NGO Registration Board and verified by Barr *et al.* (2004). The most popular locations were Kampala (211 NGOs), Abim (182 NGOs), Bududa (94), and Arua (86). The map shows that our sampled NGOs did indeed have a presence in all Ugandan districts.

The data include details of all the activities provided by each NGO and the proportions of income spent on each at the end of 2007. There is also a wealth of information on other characteristics of the NGOs, such as their revenue from different funding sources, managers' background. There were no new NGOs founded in 2007, so we can rule out the concern that new NGOs started to capture the funding opportunity. From 478 interviewed NGOs, we remove those without information on our key variables of interest. We end up with 391 NGOs in the main analysis. Supplementary Table OA3 shows no significant

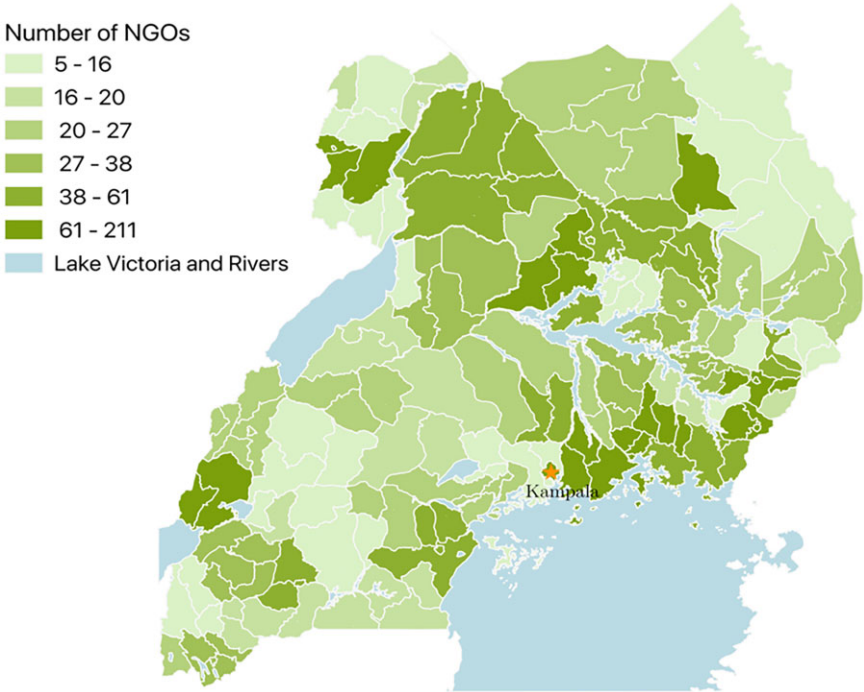

Fig. 1. The geographical coverage of NGOs in 2007. The map shows the number of NGOs in our sample working in each Ugandan district at the end of 2007. A darker colour represents a higher number.

Sources: Authors' calculation using the 2008 Ugandan NGO survey by Burger and Owens (2013). Supplementary Table OA2 presents the detailed numbers for each district. The official spatial location is as of 2006.

difference in the observable characteristics between the 391 NGOs and the 87 NGOs excluded from our study.

Figure 2 presents a broad categorization of the activities listed by each NGO at the end of 2007. Consistent with the result in the 2003 survey in Barr *et al.* (2004), the most popular activities in 2007 include Education and Training, Community Development, Advocacy and Human Rights, HIV/AIDS awareness and prevention, Support to farmers and farming activities, Child-related Services, Counselling, Water and Sanitation, and Credit and Finance. We use these broad categorizations to define activities reported by each NGO.[2]

4. Empirical methodology

We aim to identify the motivation dominating an NGO's decision to diversify. Section 3 presents two possible scenarios where one of the preferences for either operation-related motives (cost and risk reduction) or personal gain motives (altruism, rent-seeking, and perks) dominates the other. Proposition 5 suggests that the sign of the overall effect of higher contractual income on the observed diversification could indicate the underlying mechanism. We perform two exercises to test Proposition 5. First, we compare the diversification level of NGOs with a higher reliance level on contractual income with that of NGOs relying more on incomes from business activities and voluntary donations. We use the international surge in contractual funding to some Ugandan areas in the aftermath of the flood to generate the plausibly exogenous between-NGO variation in contractual income.

[2] NGOs conducted several specific projects within each categorized activity.

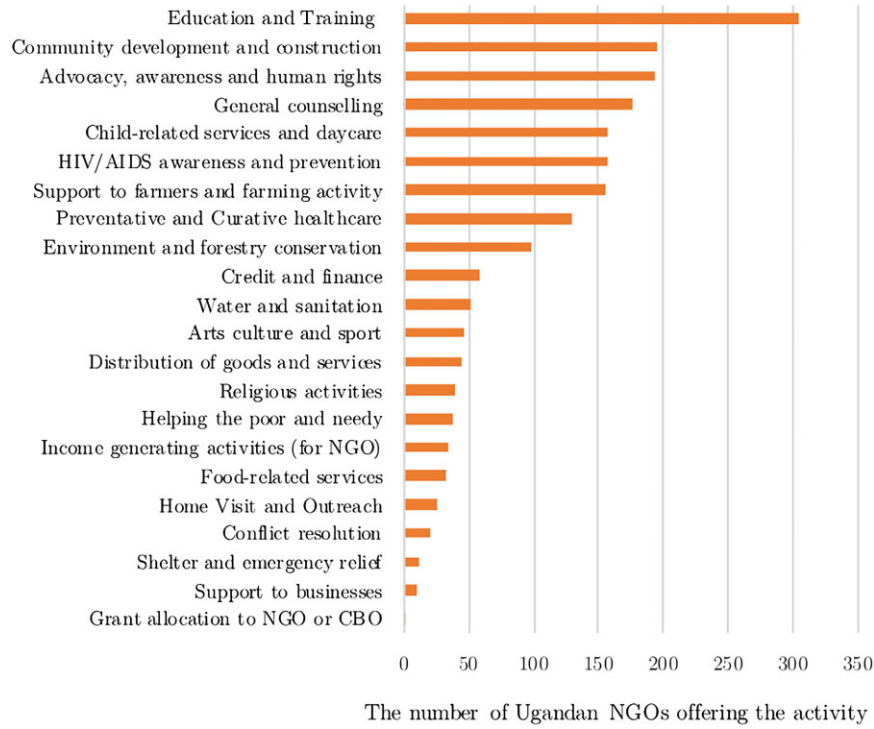

Fig. 2. The prevalence of categorized activities in the Ugandan NGO sector in 2007.
Source: Authors' calculation using the 2008 Ugandan NGO survey by Burger and Owens (2013).

Second, in Section 6, we exploit within-NGO variations in both contractual income and activity portfolio over time to directly compare the changes in the number of activities of NGOs with higher reliance on contractual income and that of NGOs relying on other income sources.

4.1 Empirical specification

We first describe our between-NGO variation strategy, which relies on estimating equation:

$$n_i^* = \gamma \text{GRANTS}_i + X_i' \gamma_X + \varepsilon_i, \quad (1)$$

where γ is the parameter of interest: the average effect of a change in contractual income (grants) on diversification; n_i^* captures the level of activity diversification.

4.1.1 Dependent variable

We use the categorized activities specified in Fig. 2 to construct a count index of the number of activities that each NGO reported to participate in at the end of 2007 to capture the extent (range) of the portfolio.[3] Second, to address the concern that some NGOs listed every activity they operated even without sufficient financial commitments such as conducting workshops or small advocacy activities, we construct a variable SIGNIFICANT ACTIVITIES$_i$, the number of activities on which the NGO spent at least 5% of the budget. This variable offers a more direct interpretation of the NGO's financial decisions regarding their portfolio.

[3] Our data do not permit capturing the intensity of the categories—an NGO offers an activity closely related to its current activities instead of a completely new service.

4.1.2 Independent variables

To measure the contractual income $GRANT_i$, we use the contractual income sources, namely, from donor grants (local and international), membership fees, and user fees as a percentage of the total income.[4] Since these sources of income are contingent on providing services to the beneficiaries, they fit our theoretical definition of contractual income which is influenced by external donors. To mitigate the concern that some NGOs in Uganda could have captured a large share of the financial grants available, we use a relative measure of income instead of an absolute value. The variable is hence interpreted as the reliance of the NGO on contractual outcome.

4.1.3 Controls

We use a set of control variables X_i' to proxy for the preference parameters in our framework. We include a measure of geographical coverage, DISTRICTS, as the number of districts in which the NGO has staff working in 2007. A binary KAMPALA variable is 1 if the NGO has its headquarters in the capital, and 0 otherwise. Two binary variables GEOGRAPHICAL EXPANSION and CHANGE FOCUS take the value 1 if the NGO has expanded geographically or changed its focus in the last 5 years, respectively, 0 otherwise. VOTE_ACTIVITY takes the value 1 if the NGO requires a vote from either its oversight committee or its members introducing a new activity, 0 otherwise. Finally, we control for the organizational size with LOGSTAFF—the logarithm of the number of staff working for the NGO. We include TENURE and TENURE2 indicating how long the current manager has been with the NGO and its square to capture the standard career concerns found in the literature and a possible U-shape relationship. To proxy for religious affiliation, we use RELIGIOUS TITLE taking the value 1 if the manager holds a religious title, 0 otherwise. To proxy for time resources available for managing a diversified NGO, we include OTHER_NGOS indicating whether the NGO manager works for at least one other organization.

Table 1 presents a summary of the key variables. On average, the NGOs in 2008 offer approximately four activities; 5 report to be involved in 10 different activities and 27 focused on one activity. Supplementary Fig. OA3 illustrates the frequencies of the activities, showing the distribution largely resembles a normal distribution. Regarding the reliance on contractual income, the surveyed NGOs rely on contractual funding from stakeholders for on average 62% of their revenue—117 NGOs depend exclusively on this funding source, while 52 receive their revenue only from donations or business income. Note that NGO funding in Uganda has a persistent pattern: NGOs are more likely to receive future funding once they become a grant recipient (Burger and Owens, 2013). About 40% of the surveyed NGOs have their headquarters in Kampala and on average work in 4 districts, with 43% of the NGOs requiring a vote from their members to introduce a new activity. Ugandan NGOs, on average, have 35 members of staff in 2007 (the median is 14). Regarding the management, 23% hold a religious title and 53% are involved in at least one other NGO. On average, managers have worked for more than one organization before their current tenure (averaged at 7 years). Over the 2002–2007 period, 47% had expanded their geographical coverage and 24% had changed their focus.

4.2 Using the historic flood in 2007 to generate between-NGO income variations

There are two main challenges in estimating the effect of a change in contractual income on the diversification level using Equation (1). First, an OLS estimation of Equation (5) requires an unrealistic assumption that, conditioning on the control variables, we can

[4] There are 85 organizations listing user fees as one of their sources of income. These organizations on average offer similar services to those without user fees. Main activities include Counselling, Education and Training, and HIV/AIDS prevention. Four organizations report incomes solely from user fees.

Table 1 Descriptive statistics for Ugandan NGOs in 2008

Variables	(1) Mean	(2) SD	(3) Min	(4) Max
Number of activities	4.288	1.861	1	10
Number of significant activities	3.567	1.455	1	8
GRANT (%)	61.59	40.27	0	100
KAMPALA	0.393	0.489	0	1
CHANGE FOCUS	0.242	0.429	0	1
DISTRICTS	3.750	5.986	1	57
GEOGRAPHICAL EXPANSION	0.467	0.500	0	1
NUMBER OF STAFF	34.87	94.01	1	1,284
VOTE_ACTIVITY	0.434	0.496	0	1
RELIGIOUS TITLE	0.227	0.419	0	1
TENURE	6.670	5.392	0.250	45
OTHER_NGOS	0.527	6.342	0	1
FLOOD_AFFECTED	0.196	0.398	0	1

Notes: There are 391 NGOs in the sample. The unit of the GRANT variable is %.
Source: Authors' calculations.

directly compare NGOs with different levels of reliance on contractual incomes and their diversification levels. The concern is that the contractual income level, Grant_i, is not exogenously assigned to the NGO. The differences in these reliance levels could come from unobservable confounders that also affect the NGO's diversification decision, such as the NGO's commitment or effectiveness. Second, there may be measurement error in NGOs' self-reported spending on activities and income sources. This measurement error could cause attenuation bias, causing the estimates of interest to tend towards zero.

To address these concerns, we use the surge in international relief given to specific areas in Uganda following a historic flood during July and September 2007 as an instrument to generate exogenous shocks to the reliance on contractual income Grant_i. Our identification mechanism is that the unexpected flood temporally causes unforeseen hardship in working conditions, exogenously requiring a shift in the composition of income for the NGOs to continue working in the location. The donor community would respond to these unexpected hardships by raising their incentives (the weight of grants or aid relief to the NGOs' incomes) specifically for NGOs working in the most affected areas. The NGOs respond to the changes in the contractual income by varying their activities portfolio.

There are several empirical reasons for the plausibility of the historic flood as a valid instrument. Both the flood and the surge in international grants to the affected areas were plausibly unexpected to the NGOs. According to the UN Office for the Coordination of Humanitarian Affairs (UNOCHA) and the Ugandan Red Cross, the unexpected heavy rainfall in 2007 led to flooding and damage across districts in eastern and northern Uganda, with the United Nations reporting the flood as one of the worst floods in recorded history.[5] According to the Dartmouth Flood Observatory archive, the event caused nearly 520,000 people to be displaced and at least 52 casualties.[6] In the BBC's profile of Uganda, it is the only recorded weather event in the country's chronology (which covers mainly conflicts and political incidents).[7] Using monthly rainfall data from The Climate Change Knowledge

[5] http://news.bbc.co.uk/1/hi/world/africa/6994995.stm (accessed on 20 December 2020).
[6] The 2007 flood was assessed at 1.5 on a 1–2 severity scale. There are three classes. Class 1 includes large flood events with significant damage to structures or agriculture. Class 1.5 includes very large events: with an estimated recurrence interval greater than 2 decades but less than 100 years, and/or a local recurrence interval of 1–2 decades and affecting a large geographic region (>5000 km^2). Class 2 includes extreme events with an estimated recurrence interval greater than 100 years. *Source*: https://floodobservatory.colorado.edu/archiveatlas/index.htm (accessed on 20 June 2022).
[7] http://www.bbc.co.uk/news/world-africa-14112446 (accessed on 20 December 2020).

Portal (Word Bank), Fig. 3 shows that the rainfall record for July 2007 was above 250 mm/month, nearly two times higher than the second rainiest event during the period 1901 to 2015 (a once-in-a-hundred year event).[8] It demonstrates the unexpectedness and the severity of the event.

Following the event, there was a surge in the humanitarian response from international donors and aid institutions, particularly from the UNOCHA and the Ugandan Red Cross to Ugandan NGOs.[9] Exploiting this surge of international aid towards districts most affected by the event, we hypothesize that NGOs who had a presence in the most affected districts prior to the flood saw a dramatic change in their income composition in 2007. Contractual sources became a larger part of these NGOs' total income. Since the NGOs could not plausibly have predicted this sudden change, the income re-composition serves as a plausible exogenous variation. There are two intuitive reasons for this. First, the surge in revenue from international aid during 2007 would allow organizations operating in the affected areas to shift focus from generating their own income towards receiving the (unexpected) funding from the new sources. Second, income from non-contractual sources, such as local donations or business activities, would be likely to decrease following the flood as local inhabitants would have fewer resources available for donating or purchasing services.

To the extent that the flood timing is as good as random, we instrument for GRANT_i by a variable FLOOD_AFFECTED_i, which equals to 1 if an NGO had worked (having staff or an office) in the most affected areas identified in the reports of the UNOCHA and the Ugandan Red Cross before 2007, 0 otherwise. The official list includes Soroti, Amuria, Katakwi, Bukedea, Kumi, Lira, Sironko, Bududa, and Nebbi (see Supplementary Fig. OA1). Table 1 reports that 20% of our sample of NGOs fall into this category.

Table 2 strongly supports the hypothesis that having a presence in an affected area significantly increases the proportion of contractual revenue from stakeholders by 25% age points (se = 4.65, p-value = 0.00).[10] The F-statistic is large at 31.70 (p-value = 0.00), providing support for our instrument being strongly correlated with GRANT_i. The Kleibergen–Paap LM statistic (22.91, p-value = 0.00) rejects the null that the specification is underidentified. In case our instrument is only weakly correlated with GRANT_i despite these test statistics, we additionally report Anderson–Rubin confidence intervals in Table 3 using bootstrapped standard errors with 200 replications.

4.3 Empirical results and discussion

Table 3 presents our main findings using our preferred measure of activity diversification, the count index. Column 1 reports a positive correlation between the reliance on contractual income (GRANT_i) and the number of activities. The result in Column 2 remains after the inclusion of control variables: NGOs relying more on contractual income have more activities. If taken at the face value, this result is consistent with the prediction that the personal gain preferences dominate the operation-related motives in shaping the NGOs' behaviour.

The above estimates could be biased and inconsistent due to potential confounders and measurement errors. Once we instrument for GRANT_i, the overall effect becomes negative and statistically significant.[11] Column 3 reports 2SLS estimates using the flood instrumentation and Column 4 reports similar results using instrumental variable

[8] http://sdwebx.worldbank.org/climateportal/ (accessed on 20 December 2020).

[9] http://reliefweb.int/disaster/fl-2007-000138-uga and http://www.ifrc.org/docs/appeals/07/MDRUG006.pdf (accessed on 15 March 2021).

[10] We further support the first-stage mechanism in Supplementary Table OA4.

[11] Note that we would ideally report the results with clustered standard errors at the district level of the NGO's head office to account for geographical heterogeneity. However, as the number of clusters is small (22), we report robust standard errors in the tables and report similar results with confidence intervals from pairwise bootstrap-based clustered errors as in Ibragimov and Muller (2010) and Cameron *et al.* (2008) in Supplementary Appendix E.

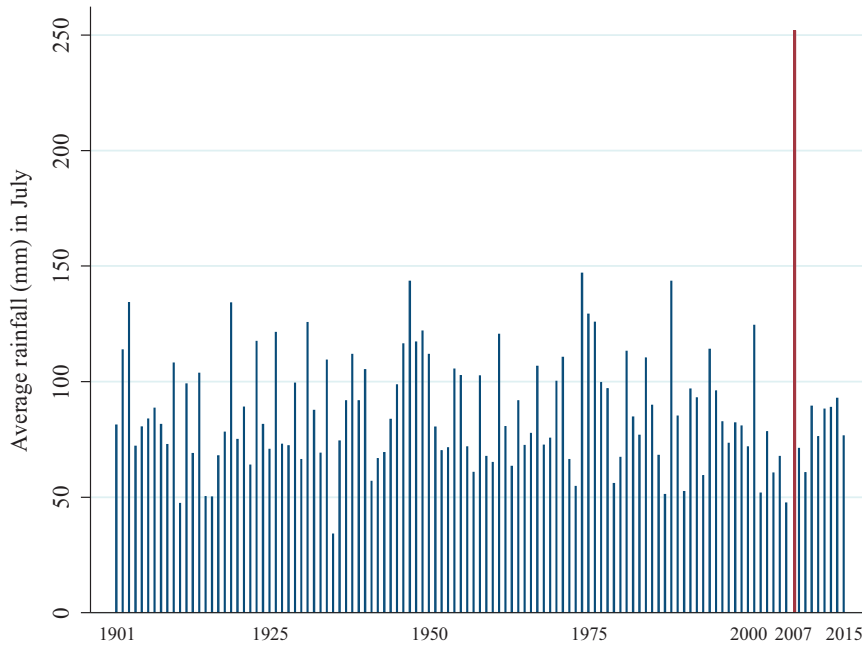

Fig. 3. The average rainfall (mm) in July from 1901 to 2015.
Sources: Using data from The Climate Change Knowledge Portal (Word Bank).

Table 2 First stage estimation for the instrument FLOOD_AFFECTED$_i$

IVs	GRANT$_i$
FLOOD_AFFECTED$_i$	25.98***
	(4.62)
F-test of excluded instruments: (Prob > *F* or *p*-value)	31.70*** (0.00)
Kleibergen–Paap rk LM statistic (under identification) (*p*-value)	22.91*** (0.00)

Notes: Robust standard error in parentheses unless stated otherwise. The first-stage estimation is

$$\text{GRANT}_i = \tau_0 + \tau_1 \text{FLOOD\_AFFECTED}_i + X_i'\tau + u_i,$$

where X_i' is the list of control variables, whose estimates are omitted here and u_i is the error term. The null hypothesis of Kleibergen–Paap rk LM test is that the specification is under-identified. The number of observations is 391. $^{***}p < 0.01$.
Source: Authors' calculations.

(IV)-Poisson estimates. Larger reliance on contractual income leads to a more focused portfolio of activities: a 40-percentage point increase in the dependence of the organization's revenue on stakeholder's grants, membership fees, and user fees (one standard deviation change) decreases the number of activities offered by one unit (or more than a half of the variable's standard deviation) (0.40×2.44) (se = 1.07). The negative and quite moderate response to a positive shock to income suggests that NGOs are diversifying mainly for operation-related purposes, such as to reduce costs and risks related to future funding. Once they receive additional support for their main activities, they refocus and reduce the number of services to deliver their main charitable agenda. This interpretation is consistent with the non-profit nature of the NGOs, that their efficiency and finance decisions are expected to be driven by operational activities instead of for-profit reasons. Our results do

Table 3 OLS and IV estimations for diversification

Variables	Dependent variables: Number of activities by classifications			
	(1) OLS	(2) OLS	(3) 2SLS	(4) IV-Poisson
GRANT	0.301	0.10	−2.44**	−0.53**
	(0.235)	(0.23)	(1.07)	(0.22)
KAMPALA		−54.13***	−60.13***	−13.63**
		(19.62)	(22.35)	(5.32)
CHANGED FOCUS		37.32*	35.24	8.17
		(21.95)	(24.43)	(5.43)
DISTRICT		3.08	4.28	0.95*
		(2.50)	(2.66)	(0.52)
GEOGRAPHICAL EXPANSION		31.33	51.84**	11.35**
		(21.24)	(24.37)	(5.50)
LOGSTAFF		22.49**	26.75**	6.05**
		(9.64)	(11.15)	(2.49)
VOTE_ACTIVITY		−13.81	−35.42	−7.44
		(18.44)	(22.95)	(5.18)
RELIGIOUS TITLE		10.39	−10.26	−2.17
		(22.52)	(26.09)	(5.99)
TENURE		8.13**	10.06**	2.68**
		(3.49)	(4.14)	(1.07)
TENURE2		−0.26***	−0.29**	−0.08**
		(0.10)	(0.12)	(0.04)
OTHER_NGOS		−1.27***	−1.79*	−0.41*
		(0.48)	(1.06)	(0.24)
CONSTANT	410.316***	316.73***	454.35***	145.57***
	(16.721)	(36.08)	(70.74)	(13.49)
Anderson–Rubin confidence intervals			[−5.64, −0.44] p-value = 0.016	
Observations	391	391	391	391

Notes: Robust standard errors in parentheses. Estimates are multiplied by 100 for ease of interpretation. The dependent variable is the number of activities reported for each organization in 2007. Two-step GMM estimator is used for the IV-Poisson. Anderson–Rubin confidence intervals are robust to weak instrumentation; the p-value is obtained after bootstrapping at 200 replications. IV estimates with no other covariates are largely similar. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. *Source*: Authors' calculations.

not support the hypotheses that NGOs, at least in our Ugandan sample, are acting as pure altruists or pure profit-maximizers. Instead, we support a more pragmatic view of Ugandan NGOs.

One caution is that our conclusion from the IV strategy only reflects the local average treatment effect for compliers, that is, the NGOs whose contractual income increased following the 2007 flood if they worked in the most affected areas. This interpretation helps explain the largely different magnitudes between the base OLS and the IV estimates. The base OLS estimates possibly capture the average difference in diversification levels over the whole population of the Ugandan NGO sector; whereas our IV estimates are only applicable for the subgroups whose funding was influenced by the flood. As our sample size is relatively small (391), our IV estimates, which rely on asymptotic properties, may also be biased.

Other correlations are also consistent with our expectations. Religious affiliation appears to have an insignificant, negative association with the diversification level. Having their headquarters in Kampala is significantly associated with a lower number of activities performed, perhaps since most of these NGOs are local branches of international NGOs (63%) that already specialize in some pre-determined activities. Operating in more districts, having expanded geographically in the last 5 years, and having more staff are all correlated

with more activities offered. There is also a U-shaped relationship between the manager's tenure and the number of activities, which is consistent with the career concern hypothesis that more established managers are less likely to expand the portfolio due to a weaker benefit from signalling competence (Gibbons and Murphy, 1992). The correlations are consistent with the model in which operation-related motives dominate in the decision-making process.

Table 4 presents estimates when we alter the outcome variable to consider only the number of activities allocated with at least 5% of the budget. We obtain a similar negative overall effect of grants on the diversification of spending on activities. That is, NGOs allocate meaningful expenses to fewer activities following the income shock. The negative estimates from both Columns 3 and 4 imply that at least personal perks are not the dominant motivation underlying the diversification decision of NGOs in our sample. Due to the reduced statistical power in Table 4, we focus our interpretations on the count measure of diversification used in Table 3. In Supplementary Appendix C, we report results using a Herfindahl–Hirschman index to measure the concentration of the NGO budget. While the results in this exercise are not statistically significant, the qualitative pattern is similar with the main findings. Due to the direct interpretation that a count variable can offer, we prefer the number of activities with expenses of at least 5% of the budget as our measure to describe the diversification decision of the NGO.

4.4 Assessing the excludability assumption of the flood instrumentation

Our main identification assumption is that locating in the most affected areas is related to the diversification decision only through changes in the funding composition after the 2007 flood. Our assumption holds for four reasons. First, it is unlikely that the NGOs in the affected areas could refocus their portfolio or introduce new activities without receiving some additional finance, particularly when the other income sources such as voluntary donations and business income would have become limited following the flood. Only 9% of the managers were from a wealthy family, and on average 17% of these NGOs' total income came from business sources. Like the aftermath of other natural disasters, particularly when Uganda is notorious for their harsh weather conditions, the interruption due to the flood would only be temporary. Due to the essential nature of the activities popularly offered such as education, community development, counselling, child-related services, the NGOs would not completely cease to operate or work on these activities unless there was no funding available for them to work. The ReliefWeb, a service provided by the OCHA, describes the disaster and states that the heavy rainfall gave 'rise to a major humanitarian response across all sectors' (OCHA, 31 January 2008). As such, there was a strong demand for NGOs' activities, and it must be the finances that would influence whether the NGOs would be able to continue to offer or strategically withdraw some of their planned activities. Second, the 2007 flood was unexpected and exogenous to the characteristics of whether the NGOs had a presence in affected areas prior to the event. The youngest NGO in our sample was founded before January 2007, hence no NGOs were founded simply to capture the new surge in funding. When we exclude NGOs working in only one district (184 of such NGOs, leaving us a sample of 197 NGOs), the results are qualitatively similar (see Supplementary Appendix I). Third, we perform an auxiliary test of the exclusion restriction in Supplementary Appendix H to informally alleviate the concern that large floods would directly and mechanically impede the ability of NGOs to implement all activities. The key intuition is that in a subsample for which there is no first stage, that is, the instrument (a large flood) does not affect the endogenous treatment variable (reliance on contractual income), we would expect to also see a zero-reduced form, the effect of the instrument (the large flood) on the outcome variable (the diversification level), if the exclusion restriction is satisfied—that is there is no way other than through the treatment (contractual reliance) that the instrument can affect the outcome. Because our data availability only permits

Table 4 OLS and IV estimations for diversification

Variables	Dependent variables: Number of significant activities by expenses			
	(1) OLS	(2) OLS	(3) 2SLS	(4) IV-Poisson
GRANT	0.234	0.04	−2.82**	−1.92**
	(0.281)	(0.28)	(1.23)	(0.86)
KAMPALA		−46.57*	−53.31*	−37.55
		(24.47)	(27.30)	(23.41)
CHANGED FOCUS		68.01**	65.68**	49.54**
		(29.40)	(31.57)	(20.96)
DISTRICT		2.37	3.72	2.76
		(3.35)	(3.50)	(2.07)
GEOGRAPHICAL EXPANSION		35.85	58.86*	37.71
		(27.48)	(30.45)	(23.56)
LOGSTAFF		21.72*	26.50*	20.83**
		(12.07)	(13.53)	(10.48)
VOTE_ACTIVITY		−18.71	−42.96	−24.56
		(23.21)	(27.63)	(21.92)
RELIGIOUS TITLE		−0.32	−23.50	−14.39
		(28.81)	(33.57)	(25.96)
TENURE		7.89	10.06*	17.75***
		(4.87)	(5.71)	(6.30)
TENURE2		−0.32**	−0.36*	−0.79***
		(0.16)	(0.20)	(0.28)
OTHER_NGOS		−2.04**	−2.62***	−3.58
		(0.84)	(0.78)	(2.74)
CONSTANT	112.721***	22.69	177.17**	−25.82
	(20.249)	(43.47)	(83.67)	(43.94)
Observations	342	342	342	342

Notes: Robust standard errors in parentheses. Estimates are multiplied by 100 for ease of interpretation. The dependent variable is the number of activities each NGO spent at least 5% of its total cost in 2007. Two-step GMM estimator is used for the IV-Poisson. Anderson–Rubin confidence intervals are robust to weak instrumentation; the p-value is obtained after bootstrapping at 200 replications. IV estimates with no other covariates are largely similar.
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.
Source: Authors' calculations.

information on the NGOs revenues and activities in 2002, we focus on two other large (extreme) floods highlighted in the Dartmouth Flood Observatory (see Supplementary Table OA1) in 11/2001 and 11/2002. There were 12 other extreme floods between 1988 and 2006 recorded by the Observatory, and these two floods are classified as 'large' with 'significant damage to structures and agriculture', compared with the 'very large' rating of the 2007 flood. Even though the severity of these two floods and the number of displaced residents is not as comparable as that of the 2007 flood, we should be able to detect some meaningful negative effect of these floods on our NGOs' diversification if this direct effect channel is prominent in our IV strategy. Supplementary Table OA10 shows that it is not the case. Consistent with anecdotal evidence of no surge in international funding towards the NGO sector in 2002, there is no statistically and qualitatively significant change in the reliance on contractual income in the revenue composition (no first stage) of affected NGOs working in the most affected areas, mostly in Kampala, the Eastern and Southwestern districts, identified by the Observatory (Kampala, Nakivubo Channel, Mbale, Bugiri, Sironko, Rukungiri, Kabale and Busheny, Masaka, and Kyazanga). Combined with this zero first stage, we find statistically and qualitatively insignificant direct effect (the point estimate is positive) of working in severely affected areas on the NGO diversification level (or no

reduced form estimate). This zero-first-stage test lends empirical support to our exclusion restriction: when extreme floods do not affect the revenue composition of NGOs, floods also do not affect diversification, ruling out the direct channel from flood to the ability of NGOs to implement activities.

Four concerns remain. First, as our diversification measures are recorded at the end of 2007, NGOs working in the affected areas may opportunistically aim to capture the grants by introducing or shifting focus towards humanitarian and relief activities. Our instrument excludability is then violated since the change in the activity portfolio of these opportunistic NGOs is directly affected by the flood (such as altruistic motives arising from the flood). We address this concern in two ways. First, we include the variable CHANGE_FOCUS for whether the NGO has changed their focus in the last 5 years and to capture any opportunistic move into the affected areas in 2007, we control for whether the NGO expanded in the last 5 years. The results are qualitatively the same if we exclude CHANGE_FOCUS and EXPAND_GEOGRAPHY from our specifications, as reported in Supplementary Appendix I. Second, we exclude NGOs that report working in humanitarian activities. Indeed, among 104 NGOs reporting to have worked in the affected areas, only 9 reported having activities in Shelter and Emergency Relief activities at the end of 2007. These activities present the best opportunities for organizations to capture the new funding. Other activities, such as water and sanitation, health, education, employment, and advocacy, are locally rooted and plausibly not started as a response to the unexpected heavy rainfalls. We drop these NGOs and find the results unchanged in Supplementary Table OA8.

The second concern is that the location decision is not random: some NGOs self-select to operate in areas that are more prone to future extreme rainfall and floods. For this argument to hold, one would need to show that: (i) NGOs could plausibly predict areas that are more likely to be affected by extreme rainfall in the future and (ii) there are systematic differences between NGOs who have worked in the most flood-prone areas and those who have not.

We demonstrate that the two scenarios are unlikely to hold in our data. First, there is no evidence that rainfall in Uganda is a predictable phenomenon, even within districts. Using monthly records for rainfall stations across Uganda from 1951 to 2003, Björkman-Nyqvist (2013) cannot reject the null hypothesis that rainfall in Ugandan districts follows a white-noise process. That is, there is no statistical correlation between the past and the future amount of rainfall. As such, the Ugandan NGOs are unlikely to selectively locate in the flood-prone areas by observing indicators for such future incidents.

Second, there are no systematic observable differences between organizations who have worked in the areas prone to extreme floods and those who have not. We use the archive of global flood events obtained from the Dartmouth Flood Observatory (updated 2017) to measure the vulnerability to extreme floods. We define an NGO working in areas vulnerable to extreme floods as having a presence in districts identified by the Dartmouth archive as being hit by at least one extreme flood from 1998 to 2017. Excluding the 2007 event, the archive identifies 24 other extreme floods occurring in various districts of Uganda (see Supplementary Table OA1 and Supplementary Fig. OA2). Using the Government of Ugandan's official district classifications in 2007, we identify 19 districts that were affected by at least one extreme flood event during 1988–2017.[12] We create a new variable, EVER_AFFECTED equal to 1 if the NGO works in at least one district hit by at least one extreme flood during 1988–2017, 0 otherwise. Assuming the timing of this once-in-a-hundred-year 2007 flood is unexpected, we compare observable characteristics of NGOs who have (EVER_AFFECTED = 1) or have not (EVER_AFFECTED = 0) worked in the areas most vulnerable to extreme floods between 1988 and 2017. We find no observable

[12] The 2010 Act of Local Government was enacted to merge several districts and form new official districts from others. We conservatively restrict our analysis to the administrative boundaries in 2008 when our survey occurred. For districts identified in the period 2010–2012, we match them with the pre-2010 official districts.

differences between ever affected NGOs and their counterparts (see Section G, Supplementary Appendix Table OA9). The result suggests that flood anticipation does not drive the location decision of the NGOs and unexpected floods are unlikely to directly alter their activities unless accompanied by financial support.

A related concern is that international donors may target some NGOs who concurrently have worked in the affected areas before 2007. Our instrument may then be correlated with characteristics of the NGO apart from the working location. Since NGOs may specialize in sectors that are transversal in nature, the spatial distribution of the different types of NGOs and their activities is not random but related to the pattern of flood occurrence in the areas. Our IV results would then come from the pre-trend channel, instead of from behavioural changes due to the income shock. Supplementary Fig. OA4 (Section G, Supplementary Appendix) shows that no NGO characteristic, in 2007 nor 2002, has any significant power in predicting NGO being located near or working in the areas affected by the 2007 flood. The NGOs in the affected areas (FLOOD_AFFECTED = 1), or in the vulnerable areas (EVER_AFFECTED = 1), neither anticipated the historic flood nor specialized in fewer activities in a systematic way.

The third concern about our strategy is that NGOs working in the affected areas differ from those operating in the unaffected areas in unobservable ways. To address this concern, we undertake a robustness check in which we restrict our sample to organizations working in areas that are historically vulnerable to floods (EVER_AFFECTED = 1). By doing so, we compare NGOs operating in areas that are equally likely to be affected by an extreme flood, where we let the timing and scale of the 2007 flood be the exogenous treatment. Without any prior knowledge of the 2007 shock, these NGOs would have similar expectations regarding the uncertainty of prospective funding. Since the timing is unpredictable, the 2007 flood instrument causes exogenous variations in the grant package due to the increased difficulty of working in the severely affected areas. Any difference in the response of the activity diversification in 2007 between the 'vulnerable NGOs' that were hit by the 2007 flood and the other 'vulnerable' NGOs that were not would be caused by these exogenous variations in their reliance on contractual grants, but not due to prior intention to locate in the flood-prone areas.

To address this third concern, we redo our analysis by restricting the sample to the 280 NGOs operating in the areas historically affected by at least one flood during 1988–2017. We observe a similar negative and significant effect of GRANT on diversification in Columns 1 and 2 (Table 5). Estimates of other control variables are also consistent with those in the full sample. The results demonstrate that our observed negative effect is not driven by self-selection into locations that may experience extreme weather and therefore be more likely to attract funding. This interpretation is consistent with our main result that the decision is largely driven by their operational concerns instead of personal gains derived from diversification.

The final concern is that due to the cease-fire treaty between the Ugandan Government and the Lord's Resistance Army in 2006–2008, our first-stage estimation might pick up the increase in aid or the government reconstruction support towards districts where the conflicts were settled. Given the survey design, it is not an issue. The initial survey took place in 2002 when it was unsafe for enumerators to travel to the affected areas and hence no interviews were conducted with NGOs working in the conflict areas (mainly in North Uganda). Furthermore, when we exclude the two NGOs that report construction-related activities, the results remain.

5. An alternative empirical approach

In Section 4, we examine the effect of a contractual income shock on NGOs using between-organization variations in the contractual grants after the 2007 flood. A more natural

Table 5 IV estimates using restricted sample: EVER_AFFECTED = 1

Variables	Number of activities		Number of significant activities	
	(1) 2SLS	(2) IV-Poisson	(3) 2SLS	(4) IV-Poisson
GRANT	−2.14**	−0.47**	−2.06*	−1.75
	(1.08)	(0.23)	(1.28)	(1.21)
KAMPALA	−46.49*	−10.43*	−14.08	1.94
	(23.99)	(5.75)	(28.64)	(39.13)
CHANGED FOCUS	35.94	8.35	15.09	14.33
	(27.98)	(6.31)	(35.43)	(38.20)
DISTRICT	4.58*	1.02*	5.38	4.58**
	(2.70)	(0.52)	(3.91)	(1.95)
GEOGRAPHICAL EXPANSION	37.56	8.32	26.34	14.19
	(28.03)	(6.52)	(34.01)	(46.15)
LOGSTAFF	29.65**	6.93**	17.48	22.64
	(12.90)	(2.98)	(17.07)	(18.70)
VOTE_ACTIVITY	−37.20	−7.91	−86.10***	−102.37**
	(28.73)	(6.58)	(32.97)	(47.66)
RELIGIOUS TITLE	20.66	5.06	51.13	65.23
	(29.30)	(6.75)	(39.17)	(40.26)
TENURE	8.80*	2.28**	7.67	19.82*
	(4.56)	(1.13)	(5.73)	(11.66)
TENURE2	−0.23**	−0.06**	−0.22	−0.81*
	(0.11)	(0.03)	(0.14)	(0.48)
OTHER_NGOS	1.54	0.35	−0.30	−1.25
	(1.87)	(0.45)	(2.45)	(5.62)
CONSTANT	415.53***	137.25***	121.14	−100.77
	(76.52)	(15.59)	(89.85)	(88.78)
Observations	280	280	280	280

Notes: Robust standard errors in parentheses. Estimates are multiplied by 100 for ease of interpretation. Two-step GMM is used for IV-Poisson.
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.
Source: Authors' calculations.

approach is to directly examine the response of each NGO to the shock, and their response relative to other NGOs (a within-NGO variation approach), by a fixed-effect (FE) and an Instrumental Variable (IV) estimation. Although this approach reduces our sample size, it provides a direct interpretation of the dynamic relationship of diversification and grants over time. The models also alleviate the concerns of both systematic misreporting (recalling) of the NGOs and the location effect.

To extrapolate information on previous activities and finances, we use the 2008 survey questions that ask the respondent to recall: (i) activities introduced since 2002 ($n_{i2007_{\text{introduced}}}$), (ii) activities discontinued since 2002 ($n_{i2007_{\text{discontinued}}}$), and (iii) relevant information in 2002. Our preferred specification examines changes in the number of activities between 2002 and 2007, using the following FE regression:

$$n_{it} = \beta \text{GRANT}_{it} + X'_{it}\alpha + \pi_i + \delta_t + \varepsilon_{it}, \tag{2}$$

where $t = 2002,\ 2007$. $n_{i2002} = n_{i2007} + n_{i2007_{\text{introduced}}} + n_{i2007_{\text{discontinued}}}$. As the survey asks for revenue information in both 2002 and 2007, the construction of GRANT_{i2002} is like that of GRANT_{i2007}. We remove 22 NGOs who were not established in 2002 or the respondents could not recall the revenue information. We end up with an unbalanced panel for the two periods with 168 NGOs with 2 years of data and 517 NGO-year units of observations.

Dummies π_i capture time-invariant characteristics of the NGO, which are likely to cover the unobserved preferences of the NGO specified in our framework. The NGO FE also captures the concern of systematic reporting bias since the information was recalled by the same NGO representative. δ_t captures the country-wise yearly characteristics that may affect both grant allocation and NGO activities. X_{it} is a set of time-variant control variables. We control for the characteristics of the NGO leadership by including a binary variable NEW MANAGER2007 indicating whether the manager in 2007 has been with the NGO since 2002. Private perks and altruism could also change over time, even under the same management if the NGO underwent any change in their focus or geographical coverage. We address these concerns by including two binary variables: (i) CHANGED FOCUS takes the value of 1 at $t = 2007$ if the NGO has changed its focus since 2002, 0 otherwise and (ii) GEOGRAPHICAL EXPANSION takes the value 1 at $t = 2007$ if the NGO has expanded its geographical coverage since 2002, 0 otherwise. To account for changes in the size of the NGO, we use the number of staff in 2002 and 2007 (NUMSTAFF). The construction of the number of staffs in 2002 and 2007 is similar to that of n_{2002} and n_{2007}.

To account for the concerns of unobservable time-variant confounders that determine the NGO diversification, we experiment with an IV estimation based on the changes in both the activity portfolio and contractual grants. We also use the instrument FLOOD_AFFECTED to generate variations in the changes in grants (ΔGRANT) during 2002–2007 uncorrelated with other confounders that might affect the changes in activities (Δn_i) during 2002–2007. The first stage is economically strong—being affected by the 2007 flood leads to around 28% age points increase in the reliance on contractual income over 5 years. Combined with previous evidence that self-selection into locations prone to floods is not a critical concern, this first stage further supports our idea that the historic flood is as good as randomly random and strongly relevant. We then run the following 2SLS estimation with FLOOD_AFFECTED as the instrument, reported in Column 4 of Table 6.

$$\Delta n_i = \beta_{\mathrm{IV}} \Delta \mathrm{GRANT}_i + e_i \#. \tag{3}$$

Table 6 reports the estimates for our within-NGO variation strategy. Controlling time and organization FEs, there exists a significant and negative effect of the reliance on contractual grants on the number of activities. The point estimates are smaller than what we observe in Tables 3 and 4, possibly because our estimates here are applicable for a period of 5 years which would allow NGOs to better manage the dynamics of their revenue compositions. We also find a contraction in activity portfolio over time with the IV estimation in Column 4. The *F*-stat is 10.39 and the Anderson–Rubin confidence interval provides support of a significant and negative effect of the changes in the proportion of contractual incomes on the changes in activities over the period. The overall pattern of results suggests that Ugandan NGOs respond to positive changes in contractual grants by refocusing their activity portfolio, instead of introducing more activities. This response is consistent with our prediction that NGO diversifying behaviour is driven by an operation-related motive instead of personal gains. We observe a strong positive time FE over the period in Columns 2 and 3 with or without other controls variables. The more pronounced time FE in Column 3 also suggests that a focus change in the charitable agenda (an operational activity) has softened the tendency towards an expanded activity portfolio. Taken together with the negative response to the income shock in 2007, the positive dynamic effect further supports our interpretation that operation-related motives are the main driving factor underlying an NGO decision. While NGOs tend to diversify over time as they accumulate more experience and operational prerequisites, once there is a positive income shock, NGOs refocus their portfolio as the new income relaxes operational concerns.

Table 6 Results from panel and IV estimations

Variables	Dependent variables			
	Number of activities: n_{it}		Δ Number of activities: Δn_i	
	OLS (1)	OLS (2)	OLS (3)	2SLS (4)
ΔGRANT				−2.02**
				(1.17)
GRANT	0.006	−0.25*	−0.36**	
	(0.156)	(0.14)	(0.18)	
TREND (2007 = 1)		41.68***	77.22***	
		(10.56)	(24.63)	
GEOGRAPHICAL EXPANSION			−8.70	
			(22.86)	
CHANGED FOCUS			−62.21***	
			(20.22)	
NEW MANAGER2007			8.05	
			(28.20)	
NUMSTAFF			0.17	
			(1.39)	
CONSTANT	422.242***	414.95***	417.25***	35.51***
	(14.063)	(11.79)	(38.18)	(12.45)
Organization FE	No	Yes	Yes	–
Observations	517	517	517	168
Number of NGOs	369	369	369	168

Notes: Unit of observations is NGO-year (unbalanced panel). Robust standard errors are in parentheses. Estimates are multiplied with 100 for ease of interpretation. Δ GRANT and Δ Number of activities are the differences in contractual income and number of activities between 2002 and 2007. Column 4 uses FLOOD_AFFECTED as instrument. The Kleibergen–Paap *F*-statistic is 10.39. The Anderson–Rubin weak instrument robust confidence interval is [−6.01, −0.02].
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
Source: Authors' calculations.

6. Conclusion

Understanding the motives for diversifying the activities NGOs undertake is important when devising development projects and improving their effectiveness. We identify two broad motivations for activity diversification that NGOs in Uganda undertake: operation-related (reduce costs and risks) and personal gain (rent-seeking, personal perks, and altruism). Exploiting the surge of international funding towards several Ugandan districts following the unexpected flood in 2007, we show that NGOs respond to an increase in the proportion of income from contracts (such as grants, membership fees, or user fees) by lowering the number of activities they offer. The result is robust when we control for within-organization variations, time FEs, time-varying characteristics available on activities and funding in 2002.

The result is largely consistent with the interpretation that these NGOs, on average, diversify primarily to reduce risks and costs associated with their operation rather than to derive personal gain. This interpretation implies NGOs themselves consider diversification not to be a desirable action. Policies, therefore, should be directed to ensure NGOs' financial resilience, particularly for grassroots NGOs who rely mainly on external funding. Stakeholders can also help NGOs focus on their overriding mission by providing a commitment to funding. Our result is also encouraging since we do not find supporting evidence for self-benefitting motivations underlying NGOs' behaviour, at least with respect to activity diversification. As such, to improve the sector's efficiency donors could design their aid and grant package conditions to directly target the financial stability of their recipients and

subcontractors. We also find evidence against the general one-fit-all hypothesis that development NGOs are acting as pure altruists or pure opportunistic organizations. The policy and academic debate, instead, could focus on the social welfare analysis, the quality of the activities offered, and organization management when NGOs reduce the number of activities following improved financial situations. Further research is needed to shed light on this welfare improvement channel.

Supplementary material

Supplementary material is available on the OUP website. These are the data and replication files that are needed to reproduce the results reported in this paper, and the Supplementary Appendix.

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