What motivates Ugandan NGOs to diversify?

Risk reduction or Private gain

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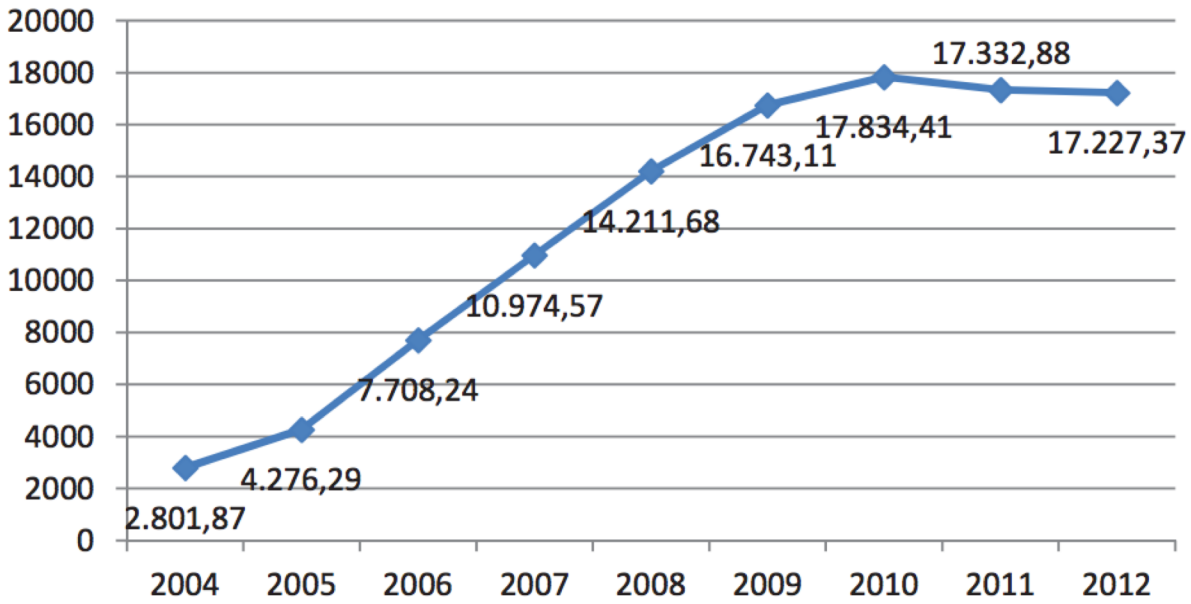
Aid channelled through NGOs and substitutes for local government



OECD aid through NGOs has grown massively
(*Source*: Aldeshev and Navara (2018, in millions $)

- Education and Training
- Community development and construction
- HIV prevention
- Child-related services
- Credit and Finance
- Healthcare
- Forestry Conservation
- Water and Sanitation

Ugandan NGOs provide essential public services

Why should we care about NGO diversification?

- NGOs important to delivery of development programmes and public services
- How to design incentive scheme to promote pro-social behaviours?
- Diversification could accommodate a wider range of beneficiaries but is costly

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Overview

Do Ugandan NGOs diversify activities *mainly* to reduce uncertainty (risks) related to funding or to gain personally (e.g. prestige, careerism, or impure altruism…)?

Methodology – Look at the effect of value-based incentives (contracted grants) on diversification

- **Theoretically**, if risk parameters ≻ personal gains, incentives ↘ diversification
- If personal gains ≻ risk parameters, incentives ↗ diversification

Sample – A unique dataset of 391 randomly sampled Ugandan NGOs

1. **Empirically**, exploit between-NGO variations in grants received after a historic flood in mid-2007
2. Exploit within-NGO variations in activities and incentives in 2002 and 2007

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Summary of results

An increase in the proportion of contracted incomes (e.g. grants, membership, fees)

decreases the number of activities

Interpretation - NGOs getting more value-based incentives from stakeholders diversify less

- Diversifying to reduce risks as incentives are to create extra development, mission-related value
- Not personal gains as higher incentives are insurance against risks and NGOs would diversify more

Conclusion - No evidence for NGO decisions being mainly driven by personal gains

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What has been done in the literature

Behavioural motivators in firms and non-profits (Carpenter and Gong, 2016)

- Firms to reduce risks related to performance (Campa & Kedia, 2002); Managers to reduce uncertainty of performance measure and advance career (Aggarwal & Samwick, 2003)
- Impacts of diversification on NGOs' financial stability and efficiency (Arikan and Stulz, 2016)
- NGOs to avoid excessively challenging locations, despite neediest (Fruttero & Gauri, 2005; Barr & Fafchamps, 2006) → *not mission-driven but rather personally*

Studies on designing incentives for pro-social efforts

- Imas (2014) – volunteer more if the stakes are low
- DellaVigna & Pope (2017) – monetary incentives work better than psychological motivators
- Gneezy et al. (2011); Besley & Ghatak (2005) – NGOs driven by impure altruism or "warm-glow"

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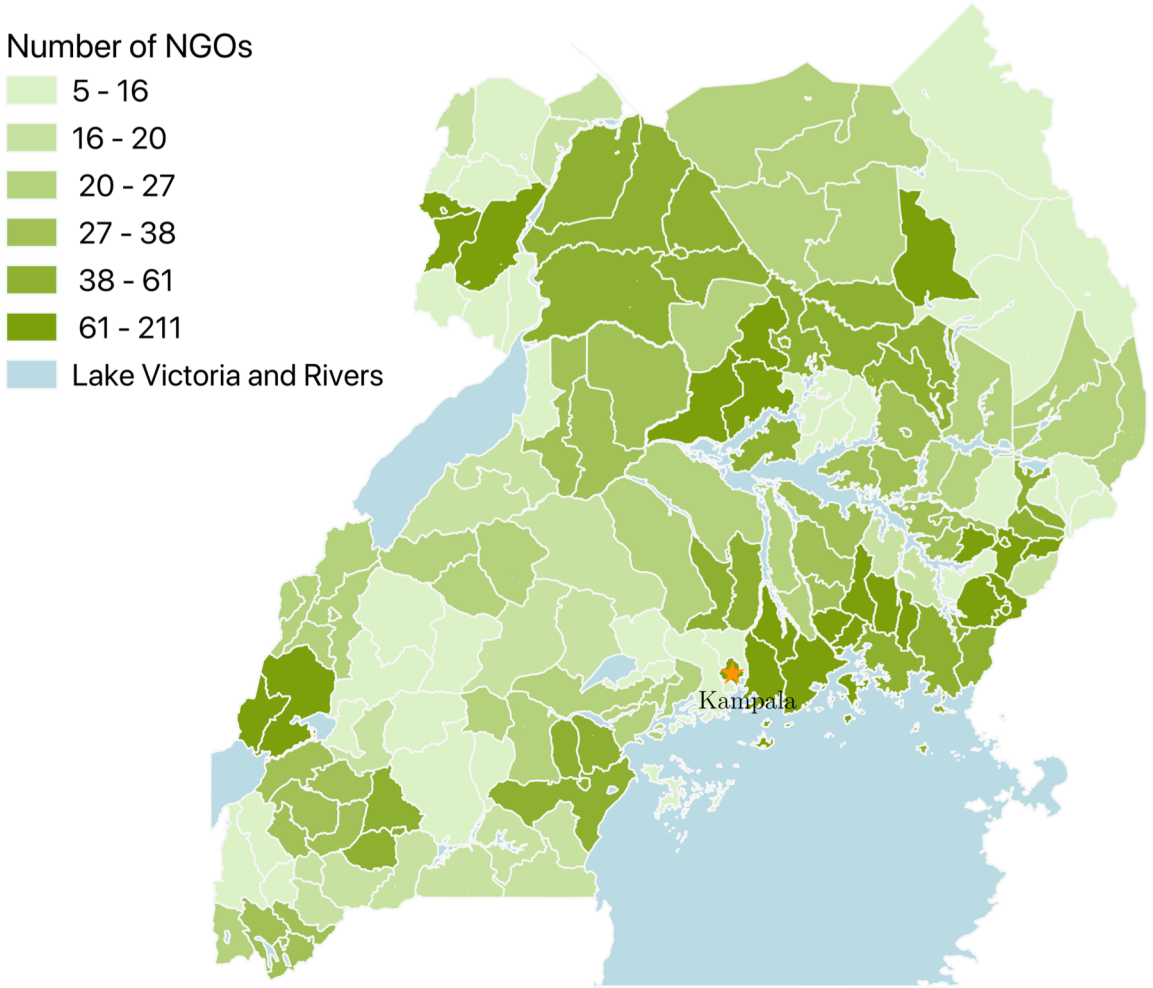
Outline

1. Motivation and related literature
2. Ugandan NGO data
3. Empirical strategies and Results
4. A model to relate value-based incentives and diversification
5. Discussion

2008 Ugandan NGO Data – A representative survey



Education and Training

Community development and construction

HIV prevention

Child-related services

Credit and Finance

Healthcare

Forestry Conservation

Water and Sanitation

At least 5 NGOs worked in each Ugandan district in 2008

391 randomly sampled NGOs cover a range of activities

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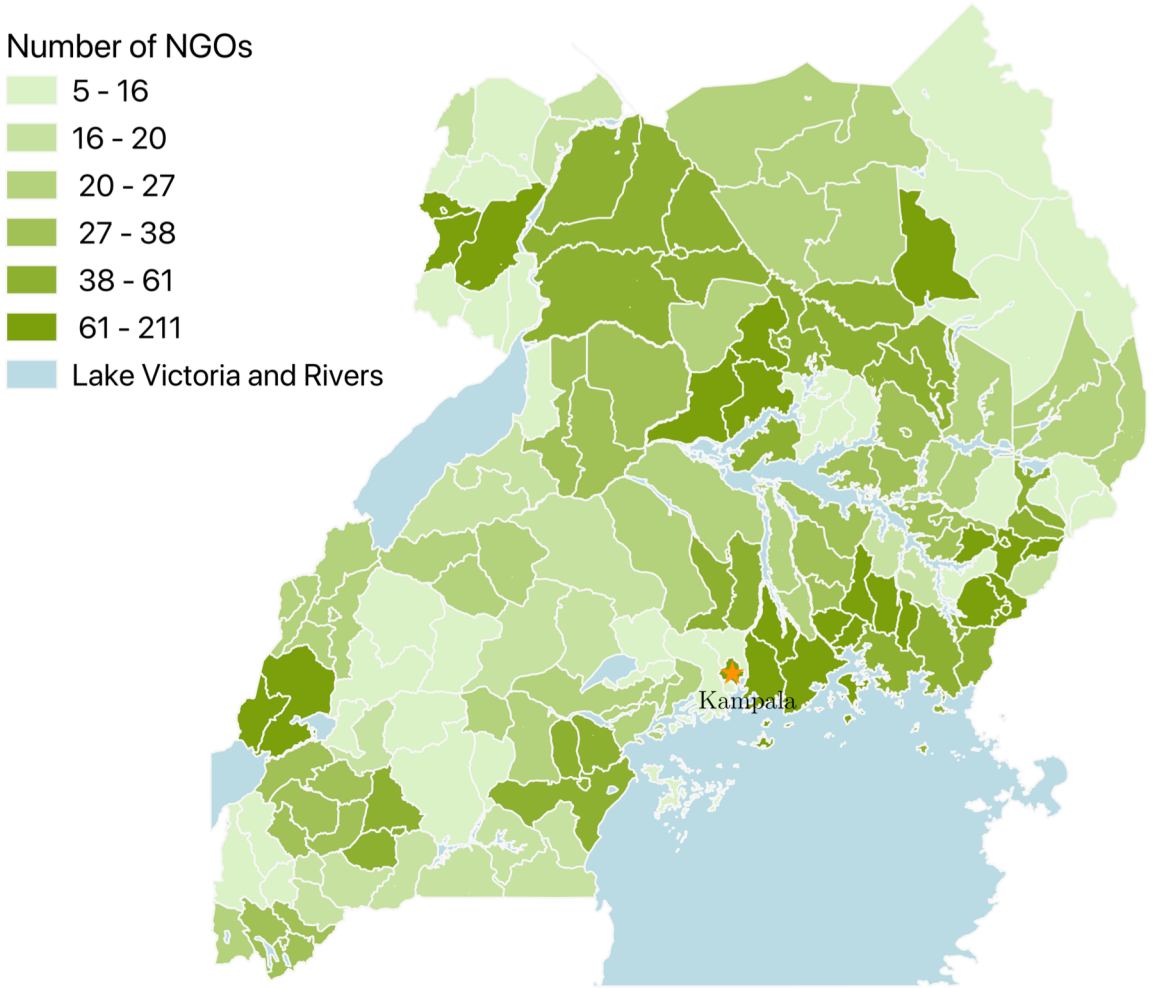

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Summary statistics for 391 NGOs

Number of activates: mean = 4

NGOs have missions (e.g. fight poverty), apply for grants and decide on activities

Two sources of incomes

- Contractual (62% total income): grants, membership & user fees

→ We use the proportion of contractual incomes as INCENTIVES

- Voluntary donations and non-mission business income (38%)

Measure of diversification

→ Number of activities at the end of 2007 (4 on average)

Other organisations and managerial information

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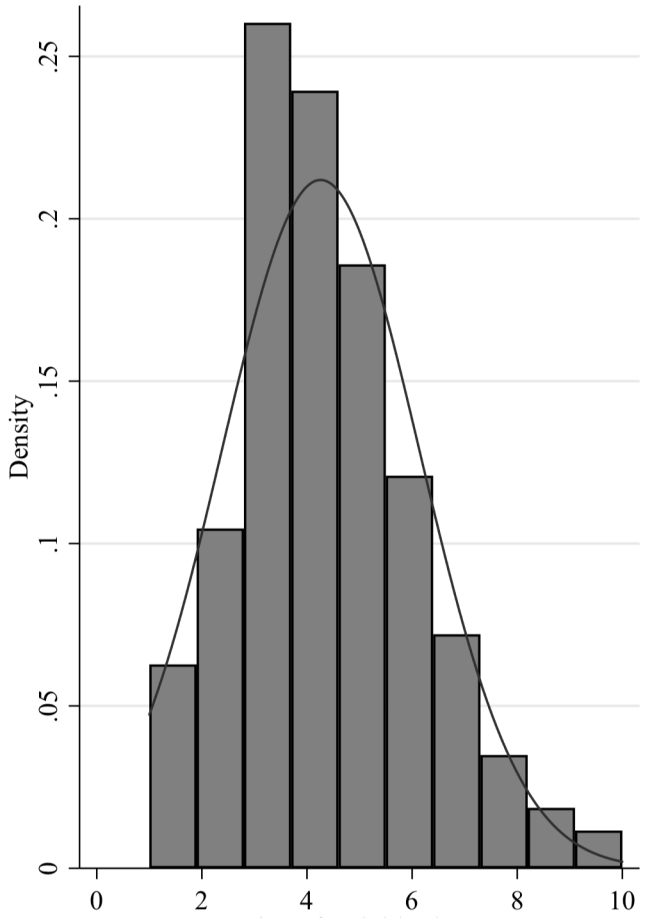

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Empirical strategies

$$n_i = \gamma \times \text{INCENTIVES}_i + X_i'\gamma_X + \varepsilon_i$$

Aim – estimate the effect of INCENTIVES on diversification *n*

Challenges – γ is biased due to omitted variables that affect both INCENTIVES & *n*

- Unobserved managerial commitment or quality of employees

Strategies

1. Using between-NGO variations and an IV from the historic 2007 flood
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Between-NGO variations and an IV from the 2007 flood

$$n_i = \gamma \times \text{INCENTIVES}_i + X_i' \gamma_X + \varepsilon_i$$

Aim – an IV that affects *n* only through changes in the proportion of contracted incomes

Sources – a historic flood after unexpected heavy rainfalls from July to September 2007

➔ Surge in international grants targeting the most severely affected districts

The 2007 Flood in Uganda

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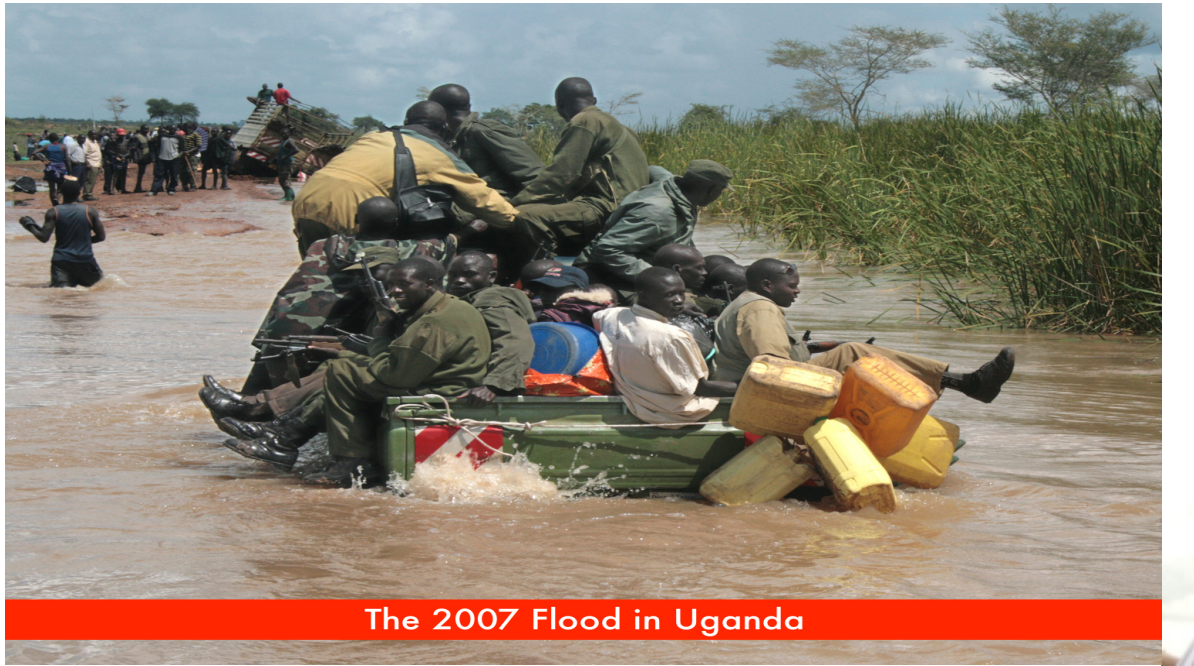


2007 flood is an exogenous event

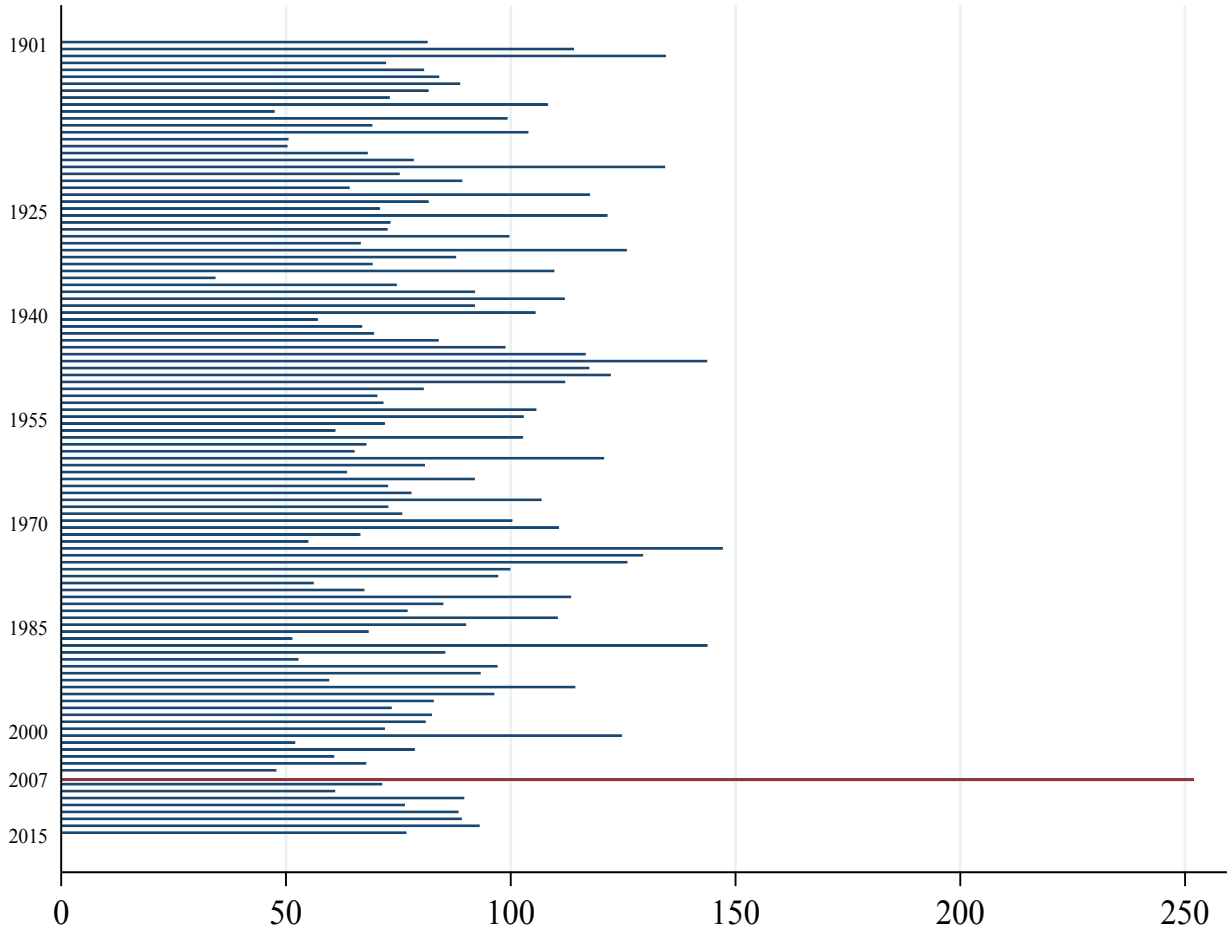
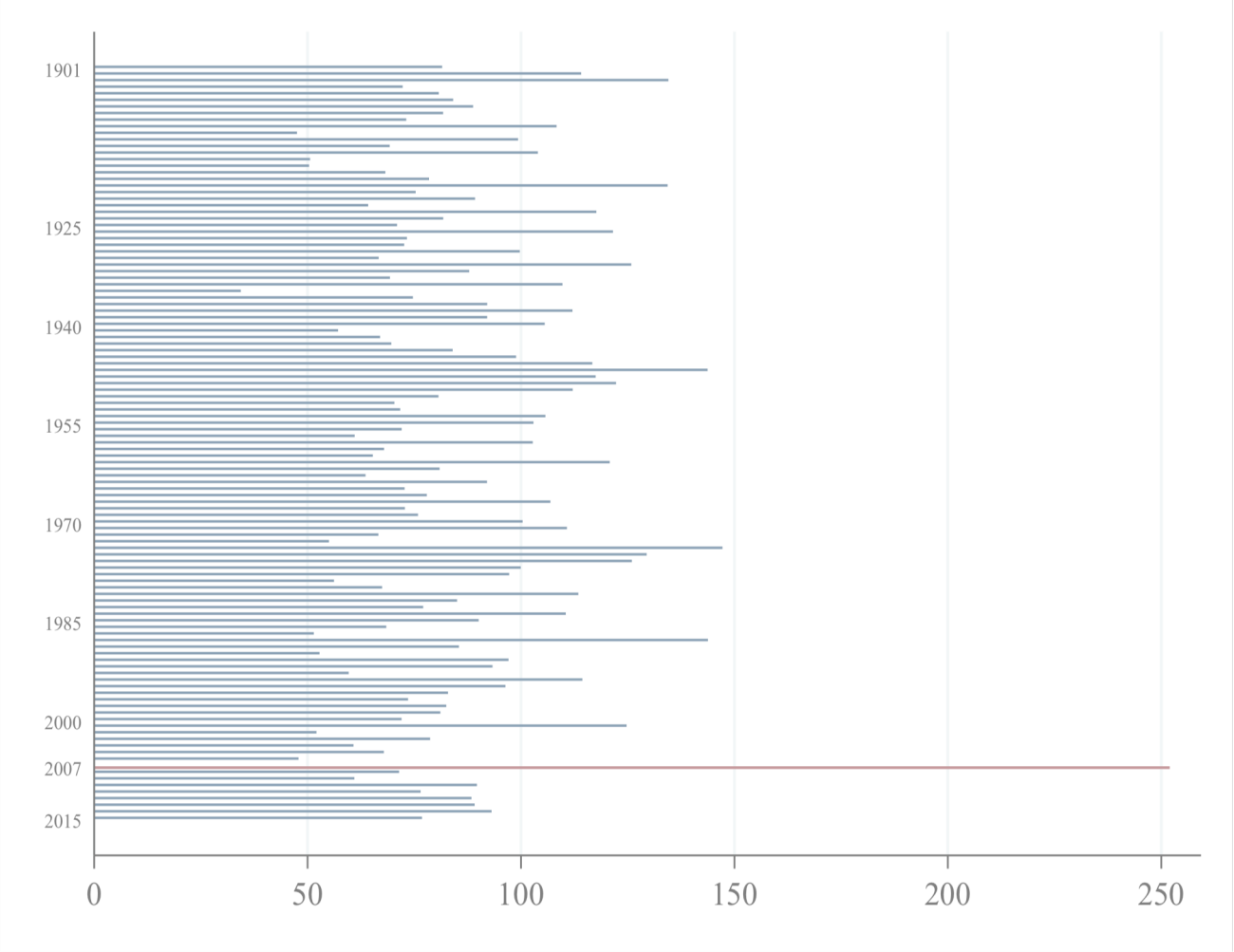


Figure. **Precipitation level (mm)**
The 2007 flood caused 57 deaths, a once-in-hundred-year event

82/391 NGOs working in the most severely affected districted identified by UNOCHA and Ugandan Red Cross

2007 flood as a positive shock to NGO's international funding



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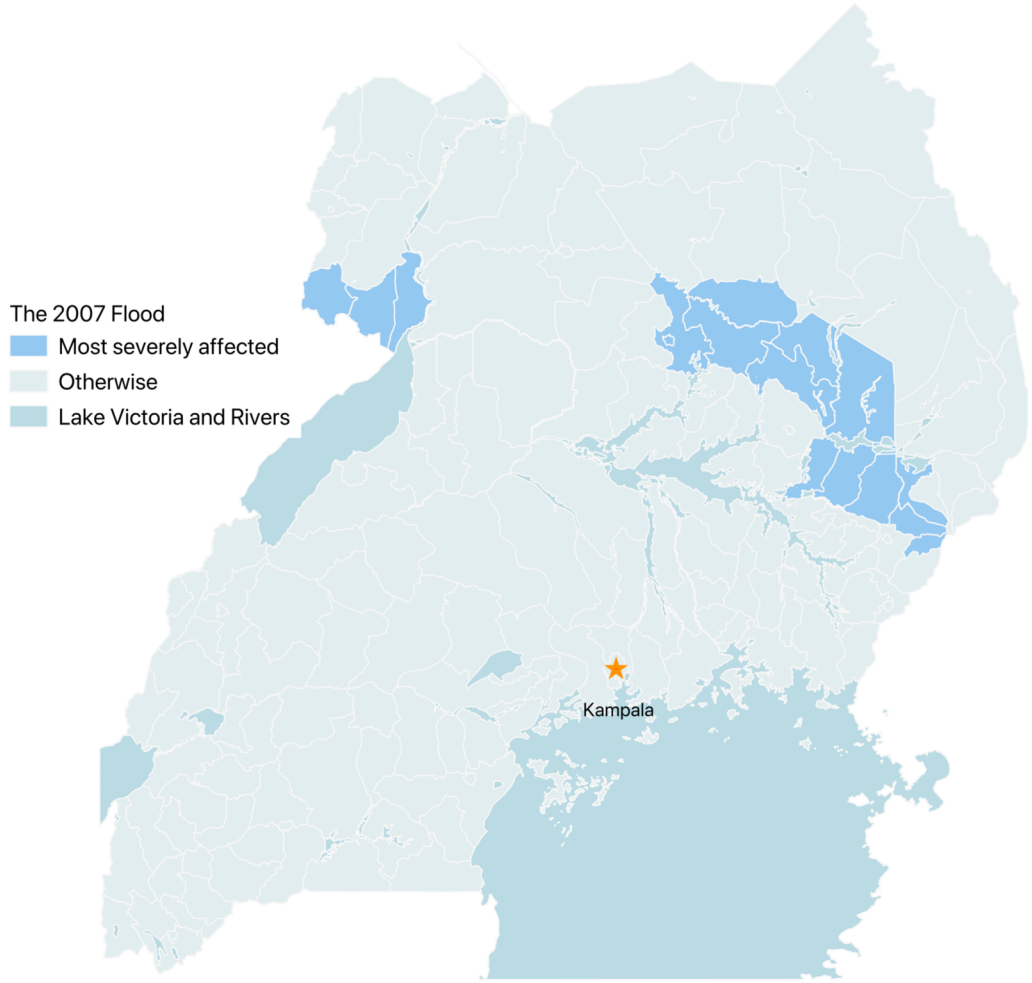

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Between-NGO variations and an IV from the 2007 flood

$$n_i = \gamma \times \text{INCENTIVES}_i + X_i' \gamma_X + \varepsilon_i$$

Aim – an IV that affects *n* only through changes in the proportion of contracted incomes

Sources – a historic flood after unexpected heavy rainfalls from July to September 2007

- ➛ Surge in international grants targeting the most severely affected districts
- ➛ NGOs working in the affected areas likely to receive more international grants
- ➛ We use an IV $(\text{AFFECTED}_i = 1)$- whether NGO worked in affected areas before 2007
  - ➛ We show that the decision to locate in these areas is not correlated with any characteristics in 2007

First-stage estimation

$$\text{INCENTIVES}_i = \alpha \times \text{AFFECTED}_i + X_i' \alpha_X + \varepsilon_i$$

FLOOD_AFFECTED	25.39 *** (4.65)
Sanderson-Windmeijer multivariate F test of excluded instruments: (Prob > F)	31.70 *** (0.00)

Interpretation – Working in the most affected areas in 2007 significantly associates with a larger proportion of 2007 income from contracted sources (grants)

Threats to IV validity

$\mathrm{AFFECTED}_i = 1$ if NGO worked in one of the most affected districts in 2007

Threats – decision of working in affected areas relates to factors other than funding sources

- ✓ Timing is exogenous – Ugandan rainfall pattern is white noise (Nvqvist, *JDE,* 2013)
- → NGOs hardly able to pre-select the locations in 2007 based on past rainfalls
- ? Self-selection into ”potential” areas to get funding at some point
- ☞ Look at NGOs working in areas with ≥ 1 extreme flood from 1988 to 2017

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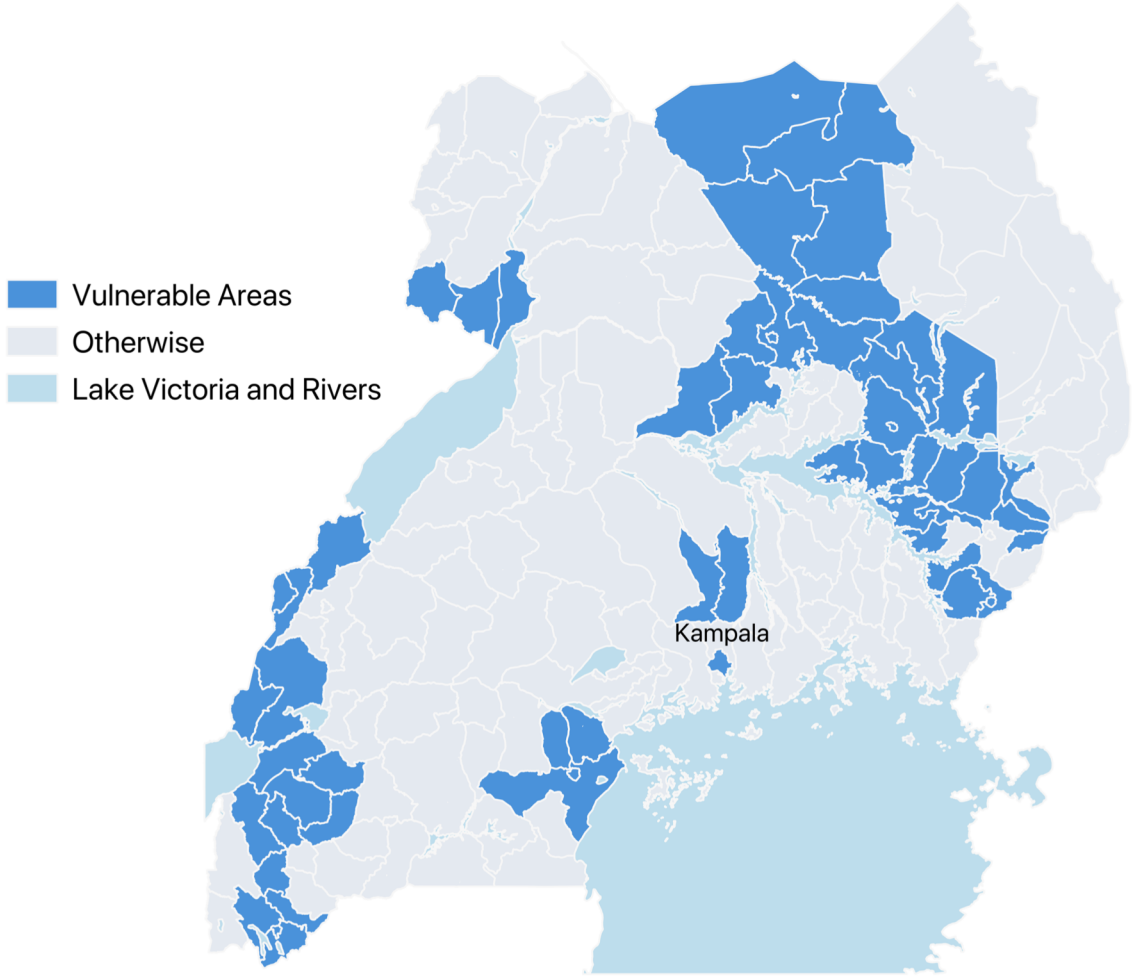
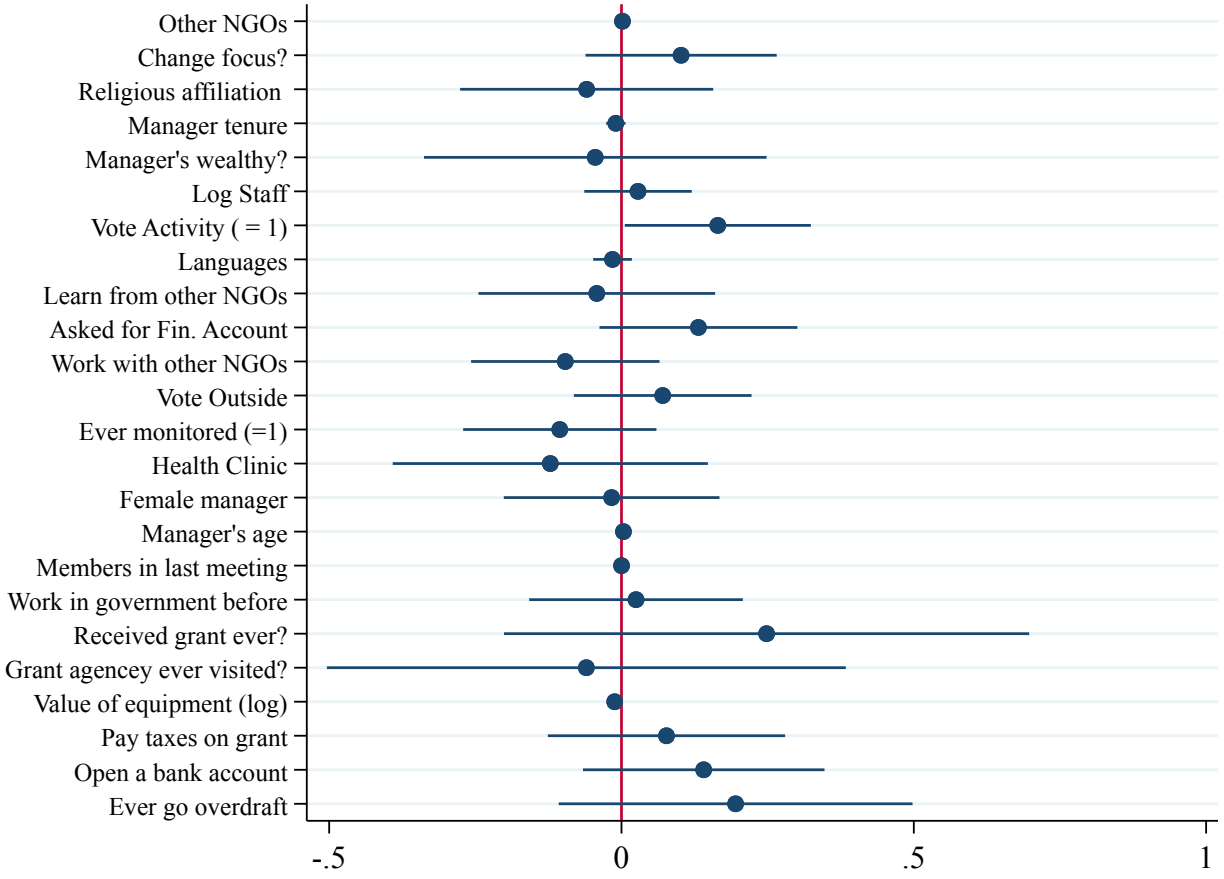
Affected NGOs statistically similar to unaffected NGOs



Areas vulnerable to ≥ 1 extreme flood from 1988 to 2017



NGOs in vulnerable vs non-vulnerable areas are generally similar

What if they differ in some unobservable ways?

- ☞ Redo the analysis using the sub-sample of NGOs working in vulnerable areas, treating the timing of the 2007 flood as the exogenous source
- ☞ Use within-NGO variations to account for within-NGO differences (2nd strategy)

Results using between-NGO variations

$$n_i = \gamma \times \widehat{\text{INCENTIVES}}_i + X_i'\gamma_X + \varepsilon_i$$

Variables	Full Sample (N = 391)			Restricted sample (N = 280)		
	OLS	2SLS	IV-Poission	OLS	2SLS	IV-Poission
Incentives	0.10	-2.44**	-0.53**	0.06	-2.14**	-0.47**
	(0.23)	(1.07)	(0.22)	(0.15)	(1.08)	(0.23)
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. Estimates are multiplied by 100 for ease of interpretation. Restricted sample includes NGO working in areas vulnerable to ≥ 1 extreme flood from 1988 to 2017.

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$$n_i = \gamma \times \widehat{\text{INCENTIVES}}_i + X_i'\gamma_X + \varepsilon_i$$

An increase in the proportion of contracted incomes (e.g. grants, membership, fees) *decreases* the number of activities

Results using within-NGO variations

$$n_{it} = \gamma \times \text{INCENTIVES}_{it} + X'_{it}\gamma_X + \pi_i + \sigma_t + \varepsilon_{it}$$

Information from recall data asked in the same 2008 questionnaire.

$t = 2002, 2007;$ $\quad n_{i2002} = n_{i2007} - n_{i2007_{introduced}} + n_{i2007_{discountinued}}$

π_i, σ_t: organisation and time fixed effects

X'_{it}: time-varying controls – whether changed focus/manager or expanded since 2002, number of staff

Results using within-NGO variations

VARIABLES	*Number of activities*		
	(1)	(2)	(3)
INCENTIVES	-0.04	-0.25*	-0.36**
	[0.15]	[0.14]	[0.18]
TREND (2007 = 1)	31.68***	41.68***	78.53***
	[10.24]	[10.56]	[23.09]
Controls + FE	Yes	Yes	Yes
Estimator	OLS	OLS	OLS

Notes. *** p<0.01, ** p<0.05, * p<0.1. N = 369

Interpretation

- NGOs relying more on contracted incomes diversify less (robust)
- NGOs tend to diversify more over time

A model to relate Incentives and Diversification

A risk-averse NGO and an altruistic stakeholder

Stakeholder only cares about the success of the mission net contracted grants

- ➛ Set a value-based incentive to motivate the effort
- ➛ NGO also chooses unobservable effort & diversification to reduce uncertainty and/or gain benefits

- If personal benefits ≫ reducing uncertainty, higher value-based incentive works as insurance against risks
  ➛NGO diversifies more ➛ effect on diversification is positive
- If reducing uncertainty ≫ personal benefits, higher value-based incentive **increases** value-created effort
  ➛NGO diversifies less ➛ effect on diversification is negative
- Interpretation – estimated incentive effect is negative for both within and between-variation estimates

☞ Ugandan NGOs diversify mainly due to risk-related factors rather than personal benefits

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Conclusion

Higher reliance on stakeholder funding (e.g. grants, membership, fees) *reduces* the number of activities offered by Ugandan NGOs

Consistent with Ugandan NGOs diversify mainly to reduce risks related to operation

- ✓ Motivations might not dominantly be self-benefiting
- ✓ Donors provide funding stream & financial stability → NGOs focus on overarching mission

Drawbacks

- × Distinguish between “good” (altruism) vs “bad” personal gain (careerism)
- × IV estimates only applicable locally

Thank you for your attention!

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Appendix

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
Herfindahl-Hirschman index (HHI)	0.538	0.224	0	0.993
INCENTIVES	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
FEMALE	0.260	0.439	0	1
RELIGIOUS TITLE	0.227	0.419	0	1
TENURE	6.670	5.392	0.250	45
OTHER_NGOS	1.444	6.342	0	108
FLOOD_AFFECTED	0.196	0.398	0	1

Notes: INCENTIVES is measured as revenue from local grants, international grants, and membership and user fees as a percentage of total revenue. KAMPALA takes the value 1 if the NGO has the headquarter in the capital and 0 otherwise. GEOGRAPHICAL EXPANSION and CHANGED FOCUS take the value 1 if the NGO expands geographically or changes its focus in the last five years, respectively; 0 otherwise. VOTE_ACTIVITY takes the value 1 if the NGO requires a vote from either its oversight committee or its members or some external body before introducing a new activity. NUMBER OF STAFF is the number of staff working for the NGO in 2007. RELIGIOUS TITLE takes the value 1 if the manager has a religious title, 0 otherwise. TENURE indicates how long the current manager has been with the NGO. OTHER_NGOS indicates the number of other NGOs that the manager is currently involved. There was one NGO whose manager reports working for more than 100 NGOs. If we exclude this NGO, the results remain unchanged. See Table A5 in Appendix for a sensitivity analysis when we exclude NGOs whose managers working for more than 10, 15, and 100

Appendix – Robustness to clustered standard errors

Table OA6. Robustness to using pairs clustered bootstrapped procedure

	Dependent variable: Count Index			
	Panel A. 2SLS results for full sample (N = 391)			
	Coefficient	Prob>t	95%_CI_low	95%_CI_high
INCENTIVES	-2.53	0.00	-4.26	-0.79
KAMPALA	-56.54	0.00	-92.18	-20.90
CHANGED FOCUS	35.56	0.00	4.65	66.46
DISTRICT	4.32	0.00	1.12	7.52
GEOGRAPHICAL EXPANSION	45.26	0.00	6.65	83.88
LOGSTAFF	26.04	0.00	5.40	46.68
VOTE_ACTIVITY	-47.67	10	-104.26	8.93
RELIGIOUS	-14.48	50	-57.57	28.61
TENURE	10.69	0.00	4.60	16.78
TENURE_SQUARED	-0.31	0.00	-0.50	-0.12
OTHER_NGOS	-2.23	0.00	-3.19	-1.27
CONSTANT	467.85	0.00	327.17	608.53
	Panel B. 2SLS results for restricted sample (N = 323)			
INCENTIVES	-2.47	0.00	-4.54	-0.40
KAMPALA	-50.04	0.00	-90.18	-9.89
CHANGED FOCUS	38.54	0.00	2.75	74.32
DISTRICT	4.73	0.00	2.20	7.27
GEOGRAPHICAL EXPANSION	33.19	10	-14.28	80.66
LOGSTAFF	30.09	10	-0.36	60.55
VOTE_ACTIVITY	-54.43	10	-127.12	18.25
RELIGIOUS	12.15	60	-57.72	82.01
TENURE	10.01	0.00	4.68	15.34
TENURE_SQUARED	-0.26	0.00	-0.38	-0.15
OTHER_NGOS	-0.47	80	-4.34	3.40
CONSTANT	447.02	0.00	278.72	615.31

Notes: 95% confidence intervals for pairs clustered bootstrapped-based standard errors and p-values are reported. Estimates are multiplied by 100 for ease of interpretation. The samples used are either full (including all available NGOs) or restricted (including NGOs most vulnerable to an extreme flood during the period 1988 – 2017). Bootstrapping is at 500 replications.

Appendix – Balance Test

Table OA3. Balance checks for NGOs with or without information on revenue composition

	Without	With	Difference	t statistics	p-values
No. of activities in 2007	4.13	4.29	-0.16	-0.72	0.47
No. of new act. s.2002	0.53	0.73	-0.20	-1.72	0.09
No. of discontinued act. s.2002	0.40	0.36	0.03	0.33	0.74
Other NGOs	1.98	1.44	0.53	0.61	0.54
Kampala Headquarter (=1)	0.44	0.39	0.05	0.84	0.40
No. of working districts	4.41	3.94	0.47	0.60	0.55
Change focus (=1)	0.20	0.24	-0.04	-0.88	0.38
Number of staff (log)	2.78	2.80	-0.02	-0.14	0.89
Religious affiliation	0.26	0.23	0.03	0.57	0.57
Manager Tenure	7.39	6.67	0.72	1.04	0.30
Manager's wealthy	0.06	0.08	-0.02	-0.65	0.51
Taxes on Grant	0.14	0.12	0.02	0.47	0.64
Having a bank account (=1)	0.81	0.73	0.08	1.52	0.13
Having overdraft	0.10	0.08	0.02	0.70	0.48
Languages	3.26	3.78	-0.52	-1.46	0.15
Learn from other NGOs	0.20	0.13	0.06	1.51	0.13
Evaluated by other NGOs	0.57	0.58	-0.01	-0.13	0.90
Asked for Fin. account	0.52	0.56	-0.04	-0.72	0.47
Worked with other NGOs (= 1)	0.44	0.52	-0.07	-1.21	0.23
Has NGOs as member (= 1)	0.17	0.24	-0.07	-1.30	0.19
Vote Activity (=1)	0.26	0.37	-0.11	-1.94	0.05
Monitored (= 1)	0.64	0.63	0.01	0.23	0.82
International Travel (= 1)	0.64	0.63	0.01	0.23	0.82
Manager has uni. degree (=1)	0.83	0.86	-0.03	-0.81	0.42
Value of equipment (log)	15.72	15.64	0.07	0.25	0.80
Value of rented vehicle (log)	5.48	6.10	-0.62	-0.77	0.44
Belong to an international NGO	0.10	0.07	0.03	1.07	0.28
Health Clinic (=1)	0.10	0.14	-0.04	-0.89	0.37
Female manager (= 1)	0.22	0.27	-0.04	-0.81	0.42
No. of members in last meeting	0.10	0.14	-0.04	-0.89	0.37
Find needs of community	0.22	0.27	-0.04	-0.81	0.42
Ever received grant (= 1)	0.68	0.63	0.04	0.68	0.49
Number of NGOs	87	391			

Notes: T-tests of characteristics between 87 NGOs without information revenue composition (excluded from the analysis) and 391 NGOs with the information. We demonstrate that the missing information is likely due to random factors. Variables' names are self-explaining. *Other NGOs* indicates the number of other NGOs managed by the manager, *Change focus:* whether the NGO change focus in the last five years, *Managers' wealthy:* whether the manager comes from a wealthy family, *Languages:* number of languages the manager speaks, *Asked for Fin. Account:* whether the NGO was ever asked for a financial account. *Worked with other NGOs:* whether the NGO collaborated with any other NGOs *Has NGOs*

A risk-averse NGO and an altruistic stakeholder

NGO chooses effort and diversification for a mission set by stakeholder (donor, members, users)

$$v = e + \epsilon(n)$$

v: measure of development value; e unobserved effort; $\epsilon(n) \sim \mathrm{N}(0, s^2/n)$ uncertainty diversifiable by n

Stakeholder offers a contract: $w = w_0 + \alpha \times v.$ (α: value-based incentives)

NGO accepts and maximises: $u(W) = -\exp(-rW)$ where $W = w - k\,{e^2}/{n} + \lambda \ln n - \beta n.$

r risk-aversion; s^2 risk variance; k disutility from effort; λ, β private benefits and costs from diversification

Stakeholder sets α to maximises:

$$\underbrace{E(v)}_{\text{Expected development value}} + \underbrace{G(\alpha, k)}_{\substack{\text{Empathy toward the NGO} \\ = \alpha f(k)}} - \underbrace{w}_{\text{Grant}}$$

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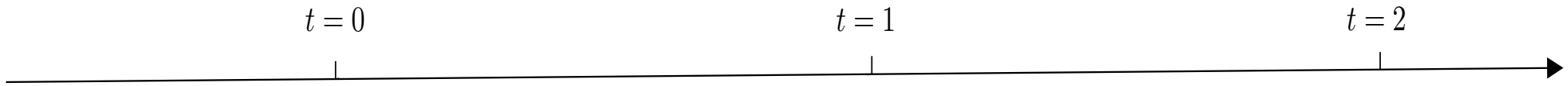
Timeline and equilibrium



- Stakeholder offers a grant based on a development value v
- Stakeholder also cares about the NGO (empathy G) and payment w

- NGO chooses (observable) diversification n and (unobservable) e
- n reduces variance of v
- NGO gains net benefits from n

- v is realised and the agent is fully compensated

$$e^* = \frac{\alpha^*}{k}$$

$$n^* = \frac{\lambda}{2\beta} + \frac{1}{2}\sqrt{\left(\frac{\lambda}{\beta}\right)^2 + 2\frac{r}{\beta}s^2 \times \underbrace{\left[\alpha^*\left(r, s^2, \lambda, k, \beta\right)^2\right]}_{\text{optimal value-based incentive}}}$$

The total effect of Incentives on Diversification

$$\underbrace{\frac{\partial n}{\partial \alpha^*}}_{\text{Incentive effect}} = \underbrace{\underbrace{\frac{\partial n/\partial r}{\partial \alpha^*/\partial r}}_{<0} + \underbrace{\frac{\partial n/\partial s^2}{\partial \alpha^*/\partial s^2}}_{<0}}_{\text{diversify for risk reduction (risk aversion and variance)}} + \underbrace{\underbrace{\frac{\partial n/\partial \lambda}{\partial \alpha^*/\partial \lambda}}_{>0} + \underbrace{\frac{\partial n/\partial k}{\partial \alpha^*/\partial k}}_{>0} + \underbrace{\frac{\partial n/\partial \beta}{\partial \alpha^*/\partial \beta}}_{>0}}_{\text{diversify for personal reasons (private benefits, effort disutility, costs)}}$$

If personal reasons ≫ reducing risks, the incentive effect is positive

If reducing risks ≫ personal reasons, **the incentive effect is negative**

Interpretation – estimated incentive effect is also negative

☞ Ugandan NGOs diversify mainly due to risk-related factors rather than personal benefits