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Thriving and Surviving: A Population Ecology of International NGOs
Motivating the Research

Life-Cycle of Humanitarian Aid: The CNN Effect

US Economic Assistance to [Kosovo]  US Economic Assistance to Rwanda

Source: USAID Green Book
Research Question

How does an increase in sector resources affect the growth and survival of non-profits in the sector?
Theoretical Lenses

- How can non-profits better mobilize resources to address pressing social concerns? (Pfeffer & Salancik, 2003; McCarthy & Zald, 1977)

- How does the particular funding environment impact the survival of non-profits? (Hannan & Freeman, 1993; Hagar, Galaskiewicz & Larson, 2004; Twombly, 2003; Galaskiewicz & Bielefeld, 1998)

- Does increased funding have unintended consequences? (Brooks, 2000; Gugerty & Kremer, 2004; Gates Effect)
The Data

- **Primary Data**
  - NCCS Core Trend 990 Data Files: 1989-2007
    - International Classification in the NTEE

- **Secondary Data**
  - IRS Statistics of Income (SOI) Survey
  - NCCS Digitized 990 Data: 1998-2003
  - The Policy Agenda’s Project (Baumgartner and Jones).
Growth of the International Non-Profit Sector
The international sector grew 600%, much more than domestic sectors.
The international sector grew 600%, much more than domestic sectors. It also quadrupled in the number of organizations.
There are two distinct periods of sector expansion.
There are two distinct periods of sector expansion.
The Nature of Growth

Some Thrive!

Most Survive

Random Sample of Organizations

$1.5 billion

Annual Revenue
The Nature of Growth

Random Sample of Organizations

$1.5 billion

Annual Revenue

The Nature of Growth

Random Sample of Organizations

Annual Revenue

$1.5 billion
Resource Capture

Share of Resources

Each band represents 1% of the organizations
Resource Capture

1% of NGOs receive 60% of the resources

Each band represents 1% of the organizations
Resource Capture

Median Size of NGOs

Annual Revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>Median Size</th>
</tr>
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<tbody>
<tr>
<td>1990</td>
<td>190000</td>
</tr>
<tr>
<td>1995</td>
<td>180000</td>
</tr>
<tr>
<td>2000</td>
<td>170000</td>
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<tr>
<td>2005</td>
<td>160000</td>
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</table>
Competition and Survival
The Selection Process

Number of International NGOs

- 1,812 NGOs in 1989
- 2,380 die
- 7,068 born
- 6,500 in the 2007 pop.
Entry and Exit Trends

Period 1

Period 2
Entry and Exit Trends

Average of ~200 net new organizations

Period 1

Period 2
Entry and Exit Trends

Average of ~300 net new organizations

Period 1

Period 2
Hypotheses

How does an increase in sector resources affect the growth and survival of non-profits in the sector?
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1) Increased funding will lead to increased competition

2) Competition is moderated by characteristics of the NGOs

- Larger organizations compete better
- Type of Services ?
- Governance Structure ?
- Membership in Networks / Collaborations ?
- Geographic Stratification ?
Modeling Method

- Discrete-Time Survival Analysis (Willet and Singer, 1993)
- Estimation of hazard rates using a discrete-time logit
- Operationalization of “failure” in the data

```
XXXX 1990 1991 XXXX 1993 XXXX XXXX
XXXX XXXX XXXX XXXX 1993 1994 1995
```
Modeling Method

- Discrete-Time Survival Analysis (Willet and Singer, 1993)
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<tbody>
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<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
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<td>XXXX</td>
</tr>
</tbody>
</table>

- Cannot distinguish failure from mergers

\[ 8880 - 1812 = 7068 \]
## Model Results

| Variable                  | Estimate | Std. Error | z-value | Pr(>|z|) | Effect |
|---------------------------|----------|------------|---------|----------|--------|
| (Intercept)               | -2.6160  | 0.3124     | -8.3740 | 0.0000   | ***    |
| Fail at T=1               | -1.4680  | 0.2615     | -5.6150 | 0.0000   | ***    |
| Fail at T=2               | -0.4897  | 0.1982     | -2.4710 | 0.0135   | *      |
| Fail at T=3               | 0.3956   | 0.1461     | 2.7080  | 0.0068   | **     |
| Fail at T=4               | 0.1032   | 0.1162     | 0.8880  | 0.3745   |        |
| Duration                  | -0.1922  | 0.0705     | -2.7250 | 0.0064   | **     |
| Duration ^ 2              | 0.0058   | 0.0035     | 1.6540  | 0.0980   |        |
| Size at Formation         | 0.0000   | 0.0000     | -3.6170 | 0.0003   | ***    |
| Epoch Dummy               | 0.6078   | 0.0797     | 7.6300  | 0.0000   | ***    |
| Formed in 2nd Epoch?      | -0.3507  | 0.0697     | -5.0350 | 0.0000   | ***    |

Significance codes: ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1

Null deviance: 15378 on 48253 degrees of freedom
Residual deviance: 14924 on 48228 degrees of freedom
AIC: 14976
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#### Centered Failure Rates Across Epochs

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P1 --&gt; P2</th>
<th>P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>2.53%</td>
<td>4.64%</td>
<td>3.27%</td>
</tr>
<tr>
<td>Large</td>
<td>2.24%</td>
<td>4.12%</td>
<td>2.90%</td>
</tr>
</tbody>
</table>
Key Finding: Variation on the “Liability of Newness”

International Sector

Mental Health

Barriers to Government Grants in the International Sector
Conclusions

How does an increase in sector resources affect the growth and survival of non-profits in the sector?

1) Increased funding will lead to increased competition

→ Yes, through # of orgs and resource capture

2) Competition is moderated by characteristics of the NGOs

- Larger organizations compete better → Yes
  → New entrants also

- Type of Services ?
- Governance Structure ?
- Membership in Networks / Collaborations ?
- Geographic Stratification ?
Future Work: Management Variables

How does an increase in sector resources affect the growth and survival of non-profits in the sector?

1) Increased funding will lead to increased competition

2) Competition is moderated by characteristics of the NGOs
   - Larger organizations compete better
   - Type of Services?
   - Governance Structure?
   - Membership in Networks / Collaborations?
   - Geographic Stratification?

Adding Vulnerability Measures:
- Ohlson (1980)
- Tuckman-Chang (1991)
- Altman (1968)
Future Work: Funding and Performance

The Life-Cycle of Aid

Behavioral Model: \( \text{NGO utility} = \text{project spending} + \text{endowment} \)

\[
\max(\text{utility}) = \left( \sum_t \text{projects}_t \right) + \text{endowment}_t
\]

\[
\text{endowment}_t = \sum_{t-1} \left( \text{grants}_{t-1} - \text{projects}_{t-1} \right)
\]
Questions?
Auxiliary Slides
Size at Birth and Death

Size of Organizations at Birth

Size of Organizations at Death
Surge in Government Funding

Total NGO Revenues

Billions of Dollars

Federal Spending on International Development

Billions of Dollars

Source: Policy Agenda Project (Baumgartner & Jones)
Changes in Revenue Mix

Two Revenue Streams as a Proportion of Total Revenue

Policy Shift?

Private

Government
The fate of new AIDS organizations was highly dependent on their acquisition of stable funding sources, particularly public funds. Internal organizational problems had a limited impact on the deaths of organizations, especially those with public funds. (Chambre & Fatt, 2002)
Growth of the “Average” Organization: Gibrat’s Law

- The rate of firm growth is independent of firm size.
- The distribution of growth of all firms is centered at zero and follows a log-normal distribution.
Which Rate do we Use?


→ These studies conclude that small firms grow faster than large firms
Does Sector Matter?


→ Claim that size and growth are independent in the service sector because of absent entry barriers
Cohort Evidence:
Small Firms Grow Faster
Is Selection Driving the Conclusions?
Or Simpson’s Paradox?

### Discrete Case

<table>
<thead>
<tr>
<th>Department</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Applicants</td>
</tr>
<tr>
<td>A</td>
<td>825</td>
<td>108</td>
</tr>
<tr>
<td>B</td>
<td>560</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>325</td>
<td>593</td>
</tr>
<tr>
<td>D</td>
<td>417</td>
<td>375</td>
</tr>
<tr>
<td>E</td>
<td>191</td>
<td>393</td>
</tr>
<tr>
<td>F</td>
<td>272</td>
<td>341</td>
</tr>
</tbody>
</table>

### Continuous Case

Open Research Question: How Does Volatility Affect Survival?
Important Features of Growth Rates

International Sector (n = 8,880)

Mean: 0.37
Median: 0.000
St. Dev: 6.8
Pr( growth > 1 ) = 0.035
Pr( growth < 0 ) = 0.140

Human Services (n = 58,290)

Mean: 0.47
Median: 0.023
St. Dev: 162
Pr( growth > 1 ) = 0.023
Pr( growth < 0 ) = 0.160