# Working for God?

## Evidence from a change in financing of not-for-profit health care providers in Uganda

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# Agenda

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- The institution Setting of Health Care in Uganda
- Simple model of behavior of the religious NFP health facility
- Identification
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# Goal of this research

To find the motivation of the not-for-profit health care of providers by using a change in financing of not-for-profit health care providers in Uganda to test 2 theories of organizational behavior.

# Introduction

- Even though not-for-profit organizations are important health care unit, there's only a few evidence to support the well-functioning of the NFP health care.

- The problem of NFP health care unit is the ineffective monitoring.

# Introduction

- Therefore, this paper is aimed to fulfill the gap between ineffective monitoring and altruistic workers by using a change in financing of the not-for-profit health care sector in Uganda to test 2 theories of organizational behaviors.

- 1. Workers and managers of not-for-profit providers are intrinsically motivated to serve people.

- 2. not-for-profit workers are motivated by their managers to do the job.

# Introduction (Cont.)

- The effect of the financial aids
- Due to the lack of communication, the grants are not provided equally to every NFP health care units.
- The benefits of financial aids are to increase the number of malaria case tasting, lower price and also increased utility but aid has no effect in worker's income.
- That kind of this not-for-profit health care providers are religious not-for-profit health care (working for god)

# Institutional Setting

- Not-for-profit health care in Uganda was well-functioning until there are politics and military turmoils which cause the dramatic fall in the quality of health care even though the government of Uganda tried to help them by refunding. The most common health unit in Uganda is dispensaries which are the lowest priority of the health system because there are less interaction between users and health care providers.

# Institutional Setting

- Basically, not-for-profit health care providers are self-governing, so that they can set the price and quantity as they want.

- The main income of NFP health care unit come from the donation.

- Later on, the portion of external donation have been declining while the public subsidy from government become an important part of not-for-profit sector's revenues.

# Conceptual framework

- **Model is solved under two alternative assumptions of the preferences of the not-for- profit unit**
  - The religious not- for- profit facility is captured by a non-altruistic manager
  - The religious not- for- profit provider maximizes the total health impact of its activities
- **Basic**
  - A manager for a not- for- profit facility ((NFP) faces the problem of determining the price and quality of a given health service.
  - The inverse demand function is $p = P(x, q)$ where p is the price, q is effort (quality)
  - The facility is assumed to be a local monopolist

# Conceptual framework (Cont.)

- **The rent/ profit maximizing not- for- profit facility**
  - They assume that if the non-distribution constraint binds, the manager is forced to spend profits on perquisites, denoted by z
  - The utility of spending profits on perquisite is $v(z) = \alpha z,$ where $\alpha \leq 1$, if $\alpha = 1$: profit- maximizing firm
  - The manager's problem is to maximize $\max_{x,q} \alpha [P(x,q)x - c(q)x]$ where z= $\pi = P(x,q)x - c(q)x.$
- **The altruistic not- for- profit facility**
  - They operationalize the health impact of its activities as the number of (poor) patients treated
  - The provider maximizes x, subject to the constraint that $P(x,q)x - c(q)x \geq 0.$

# Conceptual framework (Cont.)

- **The effects of financial aid**
  - The case of untied financial support denoted by $a$.
  - The total cash profit of facility is $\pi = P(x,q)x - c(q)x + a.$
  - A price and quality choices of a rent maximizing provider would be unaffected since untied aid does not affect the marginal cost or revenue schedules. Aid will only lead to increased rents
  - The altruistic provider's maximization program would be affected, the provider maximizes $\max_{x,q} L = x + \lambda\left(a + P(x,q)x - c(q)x\right)$
  - For altruistic provider, aid will lead to lower prices and to higher quality care.

# Identification

- 3 Main Administrative designs of the financial aid program
  1. NFP Facility -> Register
  2. The district health administration -> Request
  3. Ministry of Finance -> Control all

- The system/How each NFP facilities receive their funds.

# Identification (Cont.)

- Variation in receipts (those NFP receiving funds after a fiscal year)-> Indicate behavior of NFP
- The reason why the receipts is delayed is because of the facilities' characteristics.
- Bias actually plays important role for NFP in order for them to receiving their funds.
- a difference-in-difference method

$$y_{jt} = \alpha_0 + \beta_1 \lambda_t + \beta_2 early_j + \beta_3 early_j \lambda_t + x_{jt}\beta_4 + \varepsilon_{jt}$$ <— Variable Funds

$$y_{jt} = \pi_1 \lambda_t + \pi_2 early_j \lambda_t + x_{jt}\pi_3 + \mu_j + \varepsilon_{jt}$$ <— Fixed Funds

# Identification (Cont.)

- Find no evidence of increase in Investment in the group of early recipients

- Financial aid program have an objective to fund for current NFP current expenditure

- Investment decision in 2000, didn't significantly cause an effect in the following year.

# Data

- 44 observations of the Non-for-profit facilities
- from 10 randomly districts in Uganda

# Evidence

**Table 1.** Infrastructure (investment) of early and late grant recipients at the end of 2000

| Variable | Early recipient | Late recipient | F-test (early=late) |
|---|---|---|---|
| Examination beds | 1.54 | 1.64 | 0.08<br>[.78] |
| Sterilization equipment | 2.77 | 2.21 | 1.27<br>[.27] |
| Refrigeration equipment | 0.65 | 0.71 | 0.12<br>[.73] |
| Blood pressure equipment | 1.31 | 1.07 | 0.79<br>[.38] |
| Microscopes | 0.81 | 0.57 | 1.29<br>[.26] |
| Sets of protective clothing | 1.50 | 1.07 | 0.54<br>[.47] |
| Weighting scales | 2.54 | 1.5 | 6.51<br>[.02] |
| Height scales | 0.24 | 0.07 | 1.58<br>[.22] |
| Working area (square meters) | 314 | 242 | 1.35<br>[.25] |
| Wald statistic | | | 8.50<br>[.49] |

**Notes**: (i) Mean values in columns (2) and (3). (ii) F-statistic of the null hypothesis that the average values are equal with P-values in brackets in column (4). The Wald statistic is the test statistic for testing the null hypothesis that all averages across early and late recipients are equal.

- Inputs have no effect on the delayed funds

# Evidence

**Table 2.** Characteristics of early and late grant recipients

| Variable | Early recipient | Late recipient | F-test (early=late) |
|---|---|---|---|
| Established (year) | 1978 | 1981 | 0.35 [.56] |
| Access to telephone | 0.04 | 0.00 | 0.53 [.47] |
| Access to newspaper | 0.23 | 0.21 | 0.01 [.91] |
| Access to radio | 0.58 | 0.64 | 0.05 [.83] |
| Access to safe water supply | 0.69 | 0.79 | 0.38 [.54] |
| Distance to district HQ (km) | 27.3 | 29.6 | 0.07 [.80] |
| Distance to health sub-district HQ (km) | 12.2 | 9.5 | 0.63 [.43] |
| Wald statistic | | | 2.15 [.95] |

**Notes**: (i) Mean values in columns (2) and (3). (ii) F-statistic of the null hypothesis that the average values are equal with P-values in brackets in column (4). The Wald statistic is the test statistic for testing the null hypothesis that all averages across early and late recipients are equal.

- No difference

# Evidence

**Table 3.** Difference-in-difference estimates of early and late grant receipt on number of blood slides and stool tests for every 100 outpatient

| Regression | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Dep. variable | Blood slides for every 100 outpatient | | | | Stool tests for every 100 outpatient | | | |
| Constant | 16.2*** | -2.8 | | 9.6** | 7.1*** | 5.3 | | 9.9*** |
| | (4.53) | (7.40) | | (2.48) | (2.54) | (4.33) | | (1.47) |
| Fiscal year 2000 | -10.5* | -13.7*** | -11.7** | | 3.6 | 3.8 | 1.25 | |
| | (5.35) | (5.56) | (5.64) | | (3.11) | (2.89) | (3.70) | |
| Early grant recipient | 1.1 | -2.7 | | 4.5 | -0.02 | -0.79 | | -0.75 |
| | (5.87) | (4.63) | | (4.44) | (3.39) | (3.52) | | (3.52) |
| Early grant recipient*2000 | 14.0** | 12.7* | 13.0* | 12.1* | 5.5 | 5.5 | 8.5* | 5.0 |
| | (6.86) | (6.94) | (6.85) | (6.32) | (4.66) | (4.65) | (5.17) | (4.56) |
| Controls | No | Yes | Yes | No | No | Yes | Yes | No |
| Health unit fixed effects | No | No | Yes | No | No | No | Yes | No |
| Region-by-year fixed effects | No | No | No | Yes | No | No | No | Yes |
| Observations | 81 | 80 | 80 | 81 | 69 | 69 | 69 | 69 |

Standard errors clustered by facility in parenthesis. * (**) [***] denotes significance at the 10 (5) [1] percent level. The control variables are number of dispensaries and health centers in the facility's catchment area; number of weighting scales; and number of staff.

- Early grant recipients -> More stool test

# Evidence

**Table 4.** Difference-in-difference estimates of early and late grant receipt on user-fee for general outpatient service and number of outpatients treated per month

| Regression | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Years | Log of user-fees | | | | Log of outpatients per month | | | |
| Constant | 4.7*** | 4.8*** | | 6.3*** | 6.0*** | 5.0*** | | 5.8*** |
| | (.90) | (1.16) | | (.49) | (.25) | (.36) | | (.20) |
| Fiscal year 2000 | 2.8*** | 2.8** | 2.8*** | | -0.7*** | -0.8* | -0.4* | |
| | (1.0) | (1.17) | (1.17) | | (.21) | (.25) | (.19) | |
| Early grant recipient | 1.3 | 1.3 | | 0.7 | 0.3 | 0.18 | | 0.17 |
| | (1.02) | (1.05) | | (.85) | (.30) | (.24) | | (.27) |
| Early grant recipient*2000 | -3.1** | -3.1** | -3.1** | -2.5** | 0.21 | 0.11 | 0.06 | 0.31 |
| | (1.26) | (1.28) | (1.35) | (1.01) | (.23) | (.29) | (.21) | (.23) |
| Controls | No | Yes | Yes | No | No | Yes | Yes | No |
| Health unit fixed effects | No | No | Yes | No | No | No | Yes | No |
| Region-by-year fixed effects | No | No | No | Yes | No | No | Yes | Yes |
| Facilities | 73 | 73 | 73 | 73 | 81 | 79 | 79 | 81 |

Standard errors clustered by facility in parenthesis. * (**) [***] denotes significance at the 10 (5) [1] percent level. The control variables are number of dispensaries and health centers in the facility's catchment area; number of weighting scales; and number of staff.

- Early grant recipients -> Lower user fee -> More number of patients

# Evidence

**Table 5.** Difference-in-difference estimates of early and late grant receipt on Remuneration (in logarithms)

| Regression | (1) | (2) | (3) |
|---|---|---|---|
| Dep. variable | All | Qualified | Nursing aides |
| Constant | 11.0*** | 10.7*** | 10.4*** |
| | (.38) | (1.0) | (1.1) |
| Fiscal year 2000 | -0.4*** | -0.0 | 1.0 |
| | (.13) | (.61) | (1.60) |
| Early grant recipient*2000 | -0.2 | -0.9 | 0.7 |
| | (.17) | (.97) | (1.62) |
| Controls | Yes | Yes | Yes |
| Health unit fixed effects | Yes | Yes | Yes |
| Facilities | 69 | 60 | 60 |

Robust standard errors (col. 2) clustered by facility (cols. 1,3,4) in parenthesis. * (**) [***] denotes significance at the 10 (5) [1] percent level. The control variables are number of dispensaries and health centers in the facility's catchment area; number of weighting scales; and number of staff.

- Staffs who get early salary and late salary are not different. It has no effect on the stuff remuneration.

# Evidence

**Table 6.** Placebo tests: Supply of drugs and vaccines

| Regression | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Years | ALL | ALL | ALL | ALL |
| Dependent variable | Vaccines | Drug supplies | Chloroquine (log) | Septrin (log) |
| Fiscal year 2000 | -0.0 | -0.3** | -4.1*** | -3.8*** |
| | (.01) | (.13) | (1.49) | (1.30) |
| Early grant recipient*2000 | -0.0 | 0.1 | 1.3 | 0.2 |
| | (.05) | (.12) | (1.77) | (1.57) |
| Controls | Yes | Yes | Yes | Yes |
| Health unit fixed effects | Yes | Yes | Yes | Yes |
| Facilities | 76 | 80 | 78 | 78 |

Standard errors clustered by facility in parenthesis. * (**) [***] denotes significance at the 10 (5) [1] percent level. The control variables are number of dispensaries and health centers in the facility's catchment area; number of weighting scales; and number of staff.

- Grant will use to increase the tests and replace forgone revenue of the price cut effect.

# Evidence

- Robustness Test
  - Ministry of Finance and District health has an effect on late grant receipt.

# Summary

- It showed that the financial aids lead to more laboratory testing, lower user charges, and increased utilization.
- There is no correlation between financial aid and remuneration staff.
- For some of NFP, it does intrinsically create to serve the poor.
- If there is no corruption, the benefit will effect directly to the patients.
- The more information we can get, the better investment decisions
- We suggest that the future research should explore whether the real objectives that use to serve the poor is driven by a deeper motivation.

# Q&A