

# Private giving and the economics of religious congregations

Al Slivinski - January, 09

## I. Theory of private giving behavior

What motivates individuals to donate money to organizations?

Two standard answers:

1. Private motivation: like paying for any other good or service
2. Public motivation: payment provides services to others

2 can be thought of in two ways

- a. Altruism: donations to feed the poor benefits those who are fed
- b. Publicness: Donor 1 thinks feeding the poor is a good thing, and others also donate to this cause. The donations of *each* donor therefore benefit *all* donors.

## Formalizations:

### 1. Private

Individual  $i$  has income  $w_i$  and utility function:

$$u_i(x_i, d_i)$$

$$x_i = \text{\$ to spend on herself}$$

$$d_i = \text{donation to cause}$$

$$x_i + d_i = w_i$$

$$\frac{\partial u_i}{\partial x_i} > 0, \frac{\partial u_i}{\partial d_i} > 0$$

$$d_i^* = \arg \max_{d_i} u_i(w_i - d_i, d_i)$$

## 2. Public

$w_i$  as above, and utility function:

$$u_i(x_i, D)$$
$$D = \sum_{j=1}^n d_j = D_{-i} + d_i$$
$$x_i + d_i = w_i$$
$$\frac{\partial u_i}{\partial x_i} > 0, \frac{\partial u_i}{\partial D} > 0$$

$$d_i^* = \arg \max_{d_i} u_i(w_i - d_i, D_{-i} + d_i)$$

Note:

Private  $\rightarrow d_i^*(w_i)$

Public  $\rightarrow d_i^*(w_i, D_{-i})$ , and  $\partial d_i^* / \partial D_{-i} < 0$

### 3. Mixed (Andreoni's 'warm glow' model)

$$u_i(x_i, d_i, D)$$

with

$$\text{all } \frac{\partial u_i}{\partial z} > 0$$

#### **Comment:**

Distinction between models 1 and 2 *not* related to how the donations are spent.

'Altruism' need not be important for either model.

Illustrative example: Suppose each  $j$  is a (potential) member of a club.

Club members pay a membership fee  $f$ , and may be asked to donate an additional  $d_i$ .

$Q$  = quality of club, and

$$Q = \chi(nf + \sum_{j=1}^n d_j)$$

Member utility for pure public version:

$$u_i(w_i - f - d_i, Q) \text{ if join } (d_i \text{ may be } 0)$$

$$u_i(w_i, 0) \text{ if not.}$$

This makes quality an ‘excludable’ public good.

Is purely private motivation possible?

$$u_i(w_i - d_i, d_i, 0)$$

a donating non-member

# Religious Congregations

Jon Rosborough

‘Club’ = religious congregation

Members can participate in either of two ways:

1. Attend services
2. Donate money

Potential member  $i$  has utility function:

$$v_i(x_i, t_i) + m_i(a_i, D)$$

and income  $w_i$  and time endowment 1.

$$D = \sum_j d_j = D_{-i} + d_i$$
$$t_i + a_i = 1$$
$$x_i + d_i = w_i$$

Assume:  $m_i(0, D) \equiv 0$

Congregational services are modeled as a ‘participatory public good’.

Added feature: structured heterogeneity -

$$\frac{\partial m}{\partial a_i \partial \beta_i} > 0, \frac{\partial m}{\partial D \partial \beta_i} > 0$$

$\beta_i$  is termed ‘religiosity’. Varies across individuals, is assumed to not be observable to others (including econometricians).

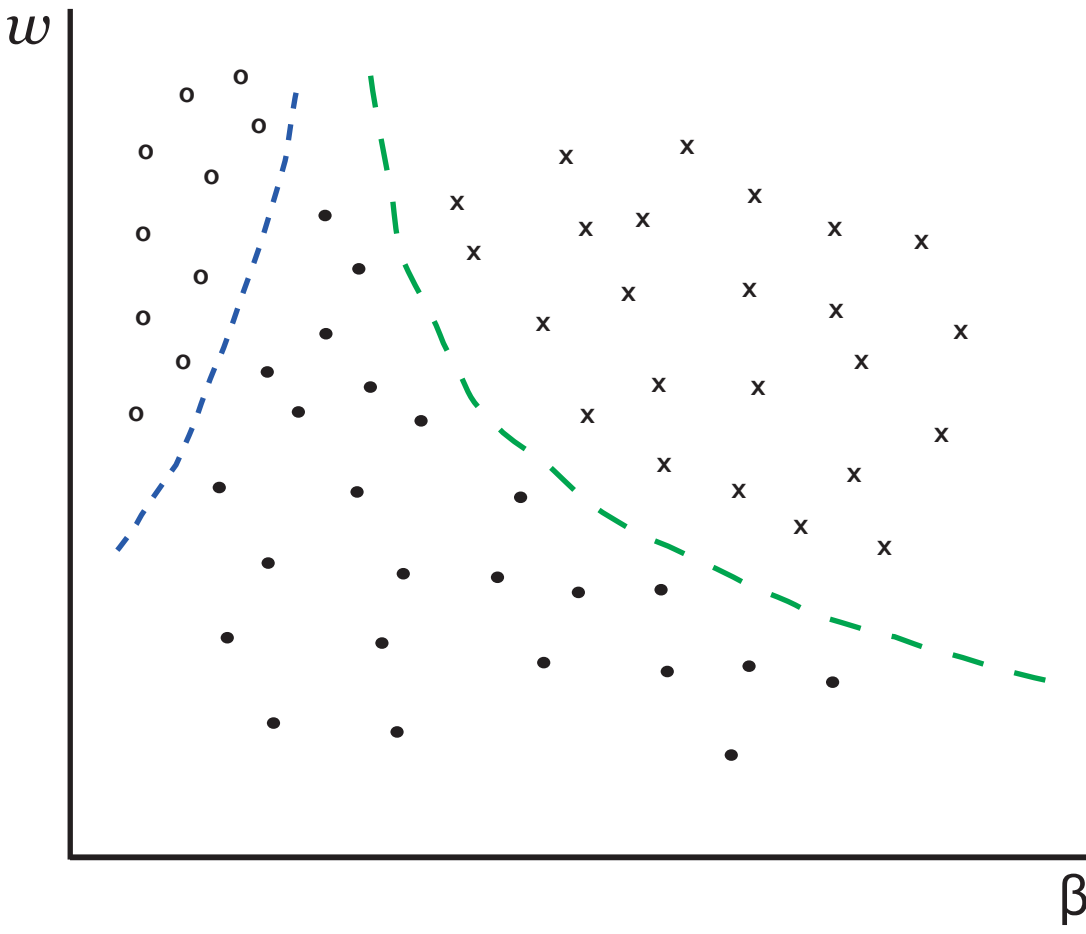
$w_i$  varies across individuals and *is* observable

## Equilibrium:

A set of  $n$  diverse (in  $w_i, \beta_i$ ) individuals choose  $a_i, d_i$  values simultaneously.

In the Nash equilibrium, there are three broad categories of choices that can be made:

1. Non-members:  $d_i = a_i = 0$ ,
2. Non-contributing attendees:  $a_i > 0 = d_i$ .
3. Contributing members.



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x Contributing Members    • Non-contributing Members    o Non-Members

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## **Immediate Predictions:**

1. For non-contributors, attendance decreases with income.
2. For contributing members, attendance increases with income
3. The most religious individuals attend the most, whether or not they contribute

## Extensions of Model:

### A. Doctrinal Heterogeneity

Assume congregation has a *doctrinal position*  $\alpha \in [0, 1]$ .

Assume individuals are of one of two types,  $k \in \{0, 1\}$ .

Individual  $i$ 's  $\beta_i$  value is determined by  $k, \alpha$  as:

$$\beta_i(k, \alpha) = \begin{cases} 1 - \alpha, & \text{if } k = 0 \\ \alpha, & \text{if } k = 1 \end{cases}$$

**Implication:** person  $i$  of type  $k = 1$ , say, will feel no religious inclination towards a congregation with  $\alpha = 0$ , somewhat more if  $\alpha = 1/2$ , and be most favorably disposed if  $\alpha = 1$ .

Conversely for  $k = 0$ .

## Implications:

For any given set of  $n$  potential participants:

1. Membership is smaller if  $\alpha \in \{0, 1\}$  than if  $\alpha = 1/2$ .
2. Donations/member are higher if  $\alpha \in \{0, 1\}$  than if  $\alpha = 1/2$ .
3. Average income of contributors is lower if  $\alpha \in \{0, 1\}$  than if  $\alpha = 1/2$ .

## B. Tithing

Individuals required to contribute  $\tau w_i$  to be a member.  
(this introduces excludability)

Assuming perfect enforcement, this eliminates free-riding.

Why might congregation institute this?

Given a set of  $N$  potential members, suppose the  $\tau = 0$  equilibrium implies donations  $D$ , set of contributors  $C \subset N$ .

There exists a  $\tau' > 0$  such that for any  $\tau \in (0, \tau')$ , the tithing equilibrium results in  $D^\tau > D$ .