

The Sustainability of Charitable Organisations

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Abstract

The major problem of sustainability for most charities and philanthropic organisations is that they do not produce commercially viable outputs. The problem is highlighted by the fact that many not-for-profit organisations that do produce a saleable commodity, such as sports clubs, stock exchanges, insurance clubs and community banks frequently convert to for-profit organisations. Those that cannot or do not produce saleable commodities rely on donations from individuals, organisations and governments, for which they cannot usually offer any direct exchange of goods. Nevertheless these organisations provide vital services such as family welfare services and counselling, and emergency relief. They provide both public and private goods that caring societies desire, but these providing organisations have enormous difficulties in sustaining themselves.

Charitable organisations carry out fundraising as a source of income. They operate in an increasingly competitive context where being a sustainable organisation has emerged as a critical issue. However, sustainability studies are virtually absent in the not-for-profit (excluding government) sector. It is believed that this is either the first or one of the first studies of economic sustainability of charitable organisations. It uses organisational data.

For sustained donations these organisations rely on either some continuing form of self-interest on the part of donors or, if the self-interest motive is not available, some form of altruism. This problem is further compounded by the existence of competition for funds among charities operating in the same areas e.g. disaster and emergency relief, medicine and family welfare. It is argued in this paper using data from Australia that competition for funds diminishes sustainability.

Non-profit organisations compete for donations in two ways. The first is by an efficient and effective service to the charitable organisations' recipients. This is often but not always directly observable by the donating public. The second form of competition is the public provision of information, services and marketing and

promotion to potential donor. Competition in this form, of course, raises the fundraising expenditures of charitable organisations.

Keywords: Non-profit; Organisational sustainability; Public Goods in Private Goods; Provision; Replacing Government; Volunteers.

1. Introduction

The major problem of sustainability for most charities and philanthropic organisations is that they do not produce commercial outputs. The problem is highlighted by the fact that many not-for-profit organisations that do produce a saleable commodity such as sports clubs, stock exchanges, insurance clubs and community banks frequently convert to for-profit organisations. Those that cannot or do not produce saleable commodities rely on donations from individuals, organisations and governments, for which they cannot usually offer any direct exchange of goods. Nevertheless these organisations provide vital services such as disaster, family welfare and counselling, and emergency relief. They provide both public and private goods that caring societies desire but the organisations have enormous difficulties in sustaining themselves.

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For sustained donations these organisations rely on either some continuing form of self-interest on the part of donors or, if the self-interest motive is not available, some form of altruism. This problem is further compounded by the existence of competition for funds among charities operating in the same areas e.g. disaster and emergency relief, medicine and family welfare. It is argued in this paper using data from Australia that competition for funds diminishes sustainability.

This article, therefore, attempts to investigate research questions of effective fundraising activities have effect on competition of charitable organisations for donation, using the data from samples of Australian charitable organisations on the

competition model, how competition has impact on total donation through level of fundraising, level of other costs and other organisational factors.

Charitable organisations are forced to become more independent of the Government as a result of government policy (Keen 1999; Hatsutani 2001; Ouchi 2004) and an increasing number of charitable organisations are seeking donation from a broader section of the community (Salamon, Hems et al. 2000).

Despite most contributions from individuals go to charitable organisations instead of for-profit organisations or government agencies (Rose-Ackerman 1982). Given the difficulty of monitoring work related to social welfare, donors may fear that for-profit firms will convert contributions into compensation for the owners. Although managers of charitable organisations are able to misuse funds, using a charitable organisation for private gain is illegal (Hansmann 1980). Therefore if people are willing to make such a comparison, charitable organisations are positions to compete for such altruistic contribution better than for-profits. People trust that charitable organisations have particular beliefs about the best way to provide more diverse services than is possible in the public sector (Rose-Ackerman 1997). The question may then be one of understanding how charitable organisations operate with respect to each other. In particular how they compete for donations. Pleasure charitable organisations feel for an idea of supporting refined in a service-providing or advocacy organisation.

In view of both the growth and the significance of the charity sector, there is a need of understand the role of charitable organisation to survive in the competition market (Parsons 2003). There seems a potential for empirical models of the competition between charitable organisations for donations.

2. Theoretical Framework

Charitable organisations will likely compete with each other for donation. Recent research has found that market competition for donations is a primary

instrument for charitable organisation to be more disciplined organisation (Glaeser 2003; Thornton and Belski 2009). Yet, it is not clear how donor markets might influence by variation in organisational efficiency. The effects of competition among charitable organisations may emphasise their ability to contract on the use of donation (Castaneda, Garen et al. 2007). A potential avenue of inquiry is the interest on financial information shown by potential donors as a tool of selection of most effective and trustworthy charitable organisation for donations (Seidman 1998). In addition, a charity's fundraising spending which is the flow of additions to total donations or replacements for adequate service goods is important because it determines the future value of the charitable organisation and thus affects future services and aggregate to recipients.

Employing the modified theory of oligopolistic competition markets, this study attempts to construct theoretically and empirical modelling for answering research questions using samples of charitable organisations in Australia.

People may donate because they have deep concern for others in what is predominantly an altruistic act or they may expect other benefits. These can include receiving recognition from others in a more self-centred motivation (Gordon and Khumawala 1999; Andreoni and Petrie 2004). Thus altruistic donors are described as focused on the goal of benefiting others, while status seeking donors are interested in receiving a higher social recognition (Kumru and Vesterlund 2005). Romano and Yildirim (2001) find the observability of donation participants in prestigious charities is highly correlated with the total donations received by those charities: for instance the announcement of a wealthy donor's substantial donation may influence individual smaller donors to contribute (Andreoni 1998).

Donors value the services of charitable organisations and so wish to provide donations. But in reality, charitable organisations usually have preferences about administrative expenses and program services. If we assume an organisation is a purely altruistic charitable organisation, it will only be interested in maximising the

utility of recipient (Roberts 1984). However, although most charitable organisations may be motivated by altruism, charitable organisations consist of incompletely altruistic individuals (members, employees and donors). Each charitable organisation has preferences over administrative expenses and program services. However, if the charitable organisation is an altruistic organisation, donations from private donors will directly go to program services, to recipients.

Of course charitable organisations are not monopoly providers. Which form of competition dominates determines how the competition affects the quality and quantity of program delivery to recipients. The maximising of the provision of program goods and services to recipients is crucial in this regard. Maximising the net value of the program goods and services enables the charitable organisation to credibly lower its cost of expenditure, thereby attracting donors. In the absence of this ability, competition occurs only in the form of fundraising spending, which does not improve the provision of the good or service. It is this better situation that is assumed in the absence of cost of delivery of service data.

We consider charitable organisations in a market with N organisations. We assume the number and size of charitable organisations serves as the index of the degree of competition, and as the number of charitable organisations increases, the market is considered more competitive. We also assume that each charitable organisation produces a service to recipients (P) which is valued by potential donors. Thus, the charitable organisations compete for donations via (i) fundraising expenditures and (ii) the level of donations going to recipients. Fundraising expenditures are assumed to either inform, induce or enhance the utility donors obtain from the output of the charitable organisation. Of course, increased fundraising expenditures reduce the resources available for program services so a balancing calculation has to be made by the organisation.

Consider a charitable organisation that receives donations from donors. The donations are used to cover expenditures on program services (PE), administration

costs (AC), fundraising expenditure (F), and other expenditures (OE). Each charitable organisation operates under the non-distribution of surplus constraint as follows

$$PE + AC + F + OE = D \quad (1)$$

As indicated, donors derive utility from the services (P_i) of the charitable organisations. However, the utility derived from the services of a particular charitable organisation may increase with fundraising expenditures. This could occur for a number of reasons. For example, if fundraising expenditures enhance the services of the charitable organisation or provide other services to donors, then fundraising expenditures enter directly in the utility function of donors. If we treat fundraising expenditure mainly as being for the purpose of advertising in this thesis, providing information about the existence and nature of the organisation, then fundraising expenditures do not enter directly into the utility function of donors. It is assumed that the services provided to recipients are identical for all charitable organisations in a given group.

Donors derive utility from the quantity of their donations (Andreoni 1989), but can nonetheless choose the most efficient charitable organisations if they value the recipients. Here, we model the interaction of the charitable organisations their competitors, and donors as an extensive form of complete information, where

Competition period: In a period, the charitable organisations choose the portion of donations (F_i) for fundraising expenditures to raise total donations.

Donations period: Then, the donors observe the choices of the Charitable organisations and chooses an allocation of donations (D_1, \dots, D_N).

Ratio of competitors: Assuming CO's fundraising activities/expenditure effect on donations, then its donations may be affected by competitors' fundraising activities/expenditures or the fraction of its fundraising expenditures to total competitors' fundraising expenditures.

Relative size effect: Charitable organisations' size/age are considered as a stock of quality of charitable organisations.

Grouping: Charitable organisations compete with similar service providers of charitable organisations, or charitable organisations in the same location area (grouping allocation).

As an example, consider two charities that operate in a duopolistic market. Assume that they might compete (noncooperative) or cooperate (cooperative) in the market place. As a monopoly a charitable organisation would choose a scale of dollars to maximise net funds received by recipients. In other words each charitable organisation is interested in increasing the utility of recipients, and their control over the utility of recipients is determined by the level of coordination among them (Dimand 1988). In other words, increases in total dollars to recipients affect oligopoly charities' utility favourably (Hochman and Rodgers 1969). This distinguishing characteristic of an oligopoly charitable organisation is that there are a few mutually interdependent charities that allocate either identical collection of donations to recipients or heterogeneous collection to recipients. Consider two charities competing for donations as well as each output to recipients;

$$(R_i, R_j), \text{ and } R_i = F(R_j) \text{ and } R_j = G(R_i).$$

where: i = charitable organisation i ; j = competing charitable organisation j ;
 R = output to recipient; F and G = function.

The characteristics of these charities may be considered as either:

(i) Cooperating with each other as a monopoly. The optimum of utility $\text{Max}UR$ is

$$\text{where } F \text{ is optimum } F = F_i + F_j;$$

(ii) Competing with each other, which shows two charities as duopoly organisations.

We assume that charitable organisation i 's total donation is affected by its own fundraising expenditures at competition period and donation period, when fundraising activities are taking place; and competitors' fundraising activities and ratio of competitors' fundraising expenditures on its own fundraising expenditure are also

influenced at the same time. However, as discussed above, the charitable organisation i's size (fixed assets), age, volunteers, administration costs, government grants and the relative effect of competitors' size on its own size may have an effect on the previous period. Consistent with previous studies, a log-log form of the model is used. This form of the model has generally stated as being better¹ than the linear form of the model (Jacobs and Marudas 2009).

The parameter estimates from testing a log-log model are interpreted as elasticities; i.e., the percentage (not absolute) change in the dependent variable associated with a one percent change in the independent variable. The underlying assumption is that the elasticities, rather than the absolute effects, are constant across the range of data. The initial empirical model tested was Model 1:

$$\ln D_{it} = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \sum \ln F_{jt}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \sum \ln A_{jt-1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \varepsilon$$

(1)

where: i indicates the charitable organisation;
j indicates competing charitable organisations;
t indicates the year;
D is donations;
F is fundraising expenditures;
F_i / F is the ratio of F_i to F;
A is fixed assets (a proxy of organisational size);
A_i / A is the ratio of A_i to A;
V is the number of volunteers;
Age is organisational age; and
ε is the error term.

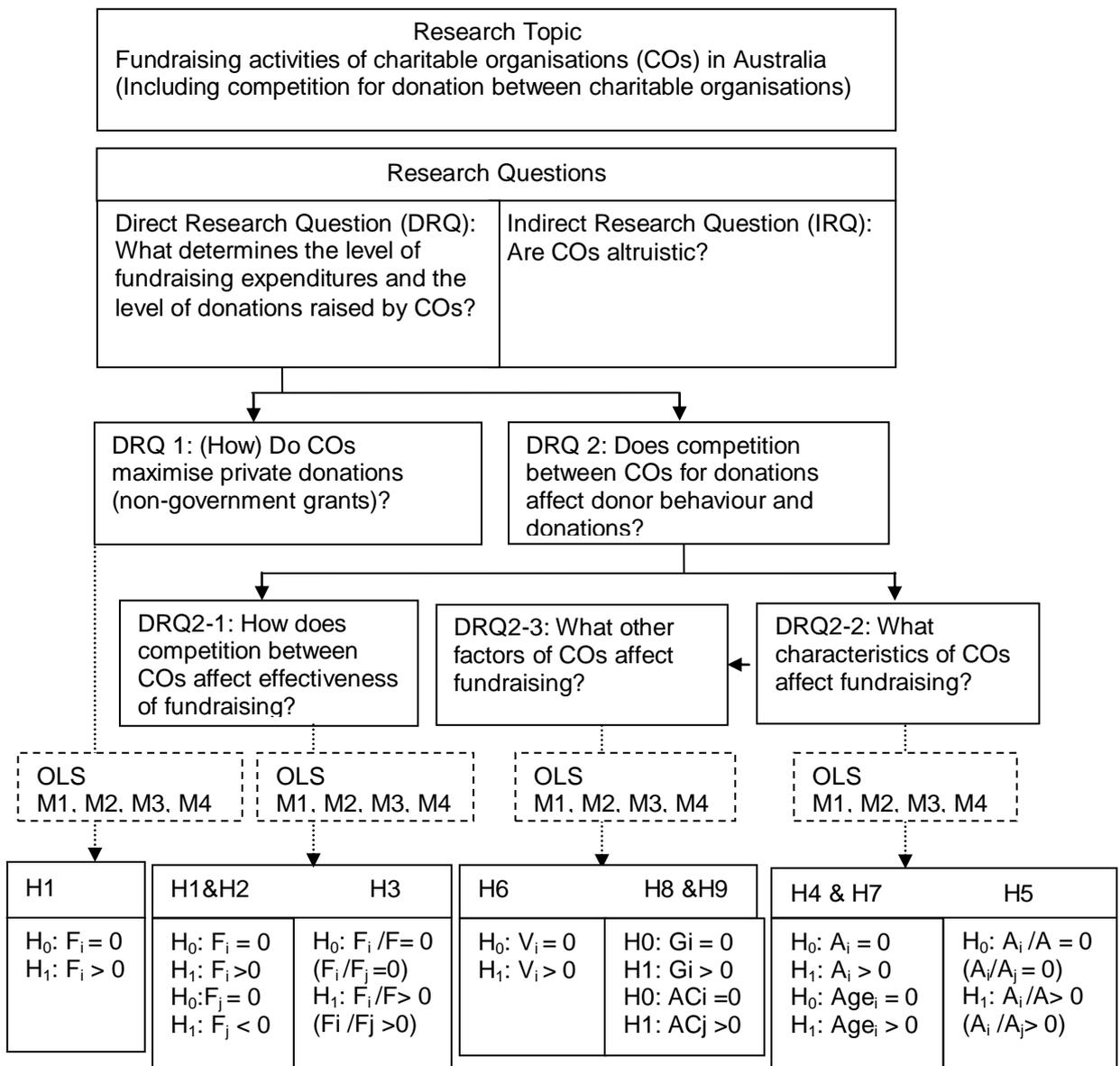
The dependent variable is total private donations. The major independent variables of interest is F, fundraising expenditures is included because presumably the more a charitable organisation spends on fundraising activities, the objective of which is to raise additional donations, the more donations the charitable organisation should receive.

¹ The evidence of 'better' was based on US data because most of the previous studies used US data.

Another independent variable of major interest is *A*, fixed assets at the end of the year. This is included because it can be a measure of organisational wealth and that the wealthier an organisation is the less it needs additional donations, suggesting a negative relation between years of assets and donations (Marudas and Jacobs 2004).

Figure 1 presents the summary of research questions, testable hypotheses and empirical models. To answer Direct Research Question 1, hypothesis 1 is tested using empirical Models 1, 2, 3 and 4. To answer Direct Research Question 2, further sub questions are asked. To answer Direct Research Question 2-1, hypotheses 2 and 3 are tested using empirical Models 1, 2, 3 and 4. To answer Direct Research Question 2-2, hypotheses 4, 5 and 7 are tested using empirical Models 1, 2, 3 and 4. To answer Direct Research Question 2-3, hypotheses 6, 8 and 9 are tested using empirical Models 1, 2, 3 and 4. Therefore, all models 1 to 4 including all equations 1-24 are a family of empirical models and they are used to answer the research questions of this study.

Figure 1: Research topics, questions, hypotheses and models of the research



where: M = ordinary least squared (OLS) model (M1-4) for hypotheses (H) 1-9 testing;
 i = charitable organisation (CO) i; j = competitor CO to CO i;
 F = fundraising expenditures; A = fixed assets (a proxy of size);
 Age = number of years since the CO i was formally created (operational age);
 V = number of persons per year working as volunteers;
 G = government subsidies/grants; AC = Administrative costs

3. Methodology

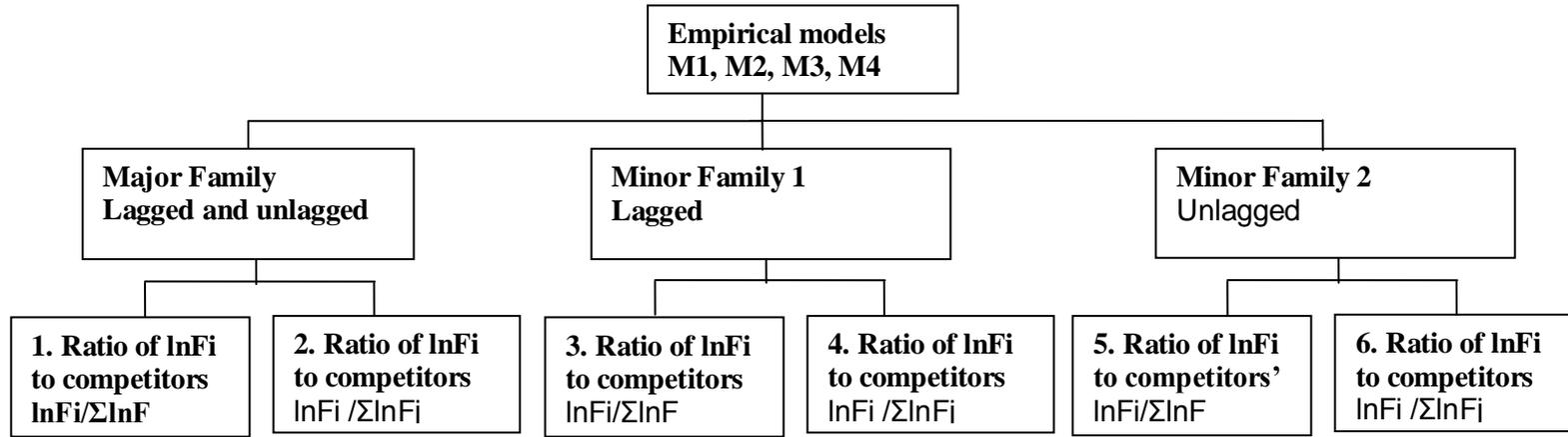
To find the competition among not-for-profit organisations for funds diminishes sustainability, we employ created modification of Model 1. In the following section, the formation of each modified model is explained.

3.1 Creating a family of models

All of the models in this section are modifications of Model 1. As shown in Figure 2, a *family of empirical models*, in the first row there are four models, Model 1 to 4. Models 2 to 4 are modified from Model 1. For example, a modification for Model 2 is created by including an additional variable, Government Grants (G), on Model 1. A modification for Model 3 is created by including an additional variable, Administrative Costs (AC), on Model 1. Model 4 is created by excluding a variable, Organisational Age (Age) and including an additional variable, Government Grants (G).

Each Model 1 to 4 is divided into three, major family or two of minor family models. Major family models, 1 to 4 are consisted of combination of lagged and unlagged independent variables, whereas minor family models, 1 to 4 formed by either lagged independent variables only (Minor Family 1) or unlagged independent variables only (Minor Family 2). Major family models are labelled as Models 1 to 4. Minor family models employ either lagged independent variables only (minor family 1) or unlagged independent variables only (minor family 2, labelled as U). Models of minor family 1 are labelled L for sub-division of Models 1 to 4 (i.e. Model 1_L), whereas models of minor family 2 are labelled U for sub-division of Models 1 to 4 (i.e. Model 1_U).

Figure 2: A family of empirical models



Note: M1, M2, M3, M4 are family models. Major family models use combining lagged and unlagged values for independent variables [fundraising expenditure related variables are unlagged (lnFi, lnFj and lnFi/lnF) and others are lagged]. Minor family models are either all lagged (L) (minor family 1) or unlagged (U) (minor family 2) for independent variables. The ratios to competitors are employed in two ways to compute competitors: 1. all competitors, F (or A); or 2. competing charities J (Fj or Aj), computed from all competitors minus i, (Fj=F–Fi or Aj = A–Ai).

M1:	$\ln D_{it} = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\sum \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\sum \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \varepsilon$
M2:	$\ln D_{it} = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\sum \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\sum \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon$
M3:	$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\sum \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\sum \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln AC_{it-1} + \varepsilon$
M4:	$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\sum \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\sum \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon$

Note: M1, M2, M3, M4 are family models. M1 is basic model and M2, M3 and M4 are constructed from M1. M2 contains an additional variable to M1, Government Grants, G. M3 contains an additional variable, Administrative Costs, AC. M4 has an additional variable G, but not Age.

Furthermore, major or minor models are each divided into two groups in relation to calculation of the ratio, either using denominator as total value of competing charities or the value of competing charities j . Figure 2 presents a family of empirical models, in the third row there are the first and the second box (1 or 2, 3 or 4, 5 or 6). Each of the first family models in the first boxes (1, 3 or 5) in the third row use the total value of all competing charities as the denominator in the calculation of the ratios (i.e., $\ln F_i / \sum \ln F$ or $\ln A_i / \sum \ln A$), whereas the second family models in the second boxes (2, 4 and 6) use the value of competing charity j as the denominator in the calculation of the ratios (i.e., $\ln F_i / \sum \ln F_j$ or $\ln A_i / \sum \ln A_j$). The latter models are labelled j as an addition of sub-modified Models 1 to 4 (i.e., Model 1_J or Model 1_LJ or Model 1_UJ). The amounts of competing charities j are calculated from the total value of competing charities minus the amount of charity i ($\sum \ln F_j = \sum \ln F - \ln F_i$ and $\sum \ln A_j = \sum \ln A - \ln A_i$).

Therefore, Model 1 is consistent with Equations 1 to 6, Model 2 with Equations 7 to 12, Model 3 with Equations 13 to 18, and Model 4 is consistent with 19 to 24.

4. Data and Sample selection

This study uses, as its sample data, the financial and non-financial variables obtained from the annual reports of 100 charitable organisations, of which 50 operate in from Australia for the four financial years from 2001 to 2008.

The choice of the eight year time period provides scope for the inclusion of data that is both representative and avoids distortion. With respect to the eight year time period selected from 2001, the Australian Government has required Australian charitable organisations to disclose their annual reports since 2001. This allows this study to employ full data sets from 2001.

The Australian charitable organisations are selected from the Business Review Weekly's (BRW) "Top 200 Charitable Organisations" list, as at July 2006

(BRW 2006). Annual reports for the 50 Australian charitable organisations are obtained via each organisation's website or, alternatively, following a written request to the organisations. The study excludes government formed non-profit organisations, political party organisations, universities, hospitals, social clubs and groups, because the operations of these organisations are chiefly dependent on government budgets or club members' fees. Such individual donations as occur are not likely to influence these organisations' operations. On the other hand, the charities' operations are partly dependent on individual donations and individual donors' determinants for donations and, hence, are more likely to influence charitable operations.

The sample data and variables were defined in the previous section. Correlation coefficients tend to be less reliable when estimated from small samples (Tabachnick and Fidell 2001); therefore, it is important to have a sample size large enough to obtain a reliable estimation for the correlation coefficients.

First, descriptive statistics on data are tested, followed by a correlation matrix which discloses the general factorability (Tabachnick and Fidell 2001). Second, the data are checked for normal distribution. If the variables are normally distributed, the solution is enhanced (Tabachnick and Fidell 2001). However, the logarithm transformation for variables is to reduce the impact of outliers but it is necessary to check whether the variable gives a normal or near-normal distribution after the transformation of the data (Tabachnick and Fidell 2001,p.81). Thirdly, the outliers in the variables act as an influence on the factor solution. Univariate outliers are examined using the scatter plot and the histogram graphically, or testing from a standardised score of z scores on one or more variables, to see if it is in excess of 3.29 ($p < 0.001$, two-tailed test) (Tabachnick and Fidell 2001). If outliers are detected, the data is eliminated after checking the accuracy of the data entry. In addition, the Mahalanobis Distance (MD) measurement is used to determine the outliers (Gujarati 1995).

Finally, heteroscedasticity is tested using the “Newy West test”. In regression analysis, the variance of the dependent variable is assumed to be the equal variance across the data (homogeneity of variance) (Tabachnick and Fidell 2001). The results of the “White test” are evaluated for the null hypothesis of heteroscedasticity in the residuals with F-statistic in p-value. This ‘Newy West test’ also allows the results of heteroscedasticity to be adjusted using the weighted least squares (Norusis 1993).

4.1 Dependent and Independent Variables

OLS regression analyses are conducted using the natural logarithm on total donations as the dependent variable ($\ln D_{it}$). “Donations” are used as the dependent variable for the following reasons: Donations are more commonly used in studies of charitable organisations (Trussel and Parsons 2004); Donations are far more prevalent than government funding. “Government funding” indicates that the contributor is a government entity rather than an individual, foundation or corporation (cf. Parsons 2003). Donations include only monetary contributions and do not include gifts of goods, because gifts of goods are not reported by most charity organisations (Piliavin and Charng 1990).

Based upon theoretical and empirical modelling, the following variables are included as independent variables in the models and they are all transformed to a logarithm and are employed in the previous studies. Fundraising expenditures (F) (Weisbrod and Dominguez 1986; Gordon and Khumawala 1999; Tinkelman 2004); Administration Costs (AC) (Castaneda, Garen et al. 2007); Fixed Assets (A) (Rose-Ackerman 1996; Tinkelman 1999; 2002); Organisational age (Age) ((Weisbrod and Dominguez 1986; Posnett and Sandler 1989; Tinkelman 1999; Khanna and Sandler 2000; Parsons and Trussel 2003; 2008); The number of volunteers (V): (Gidron 1983; Smith 1983; Unger 1991; Callen 1994; Bekkers and Graaf 2005; Gittel and Tebaldi 2006); and Government grants (G): Charitable organisations compete for receiving government subsidies (Marcuello and Salas 2001). Some previous studies find that

government grants encourage private donors to donate more (Warr 1982; Roberts 1984; Kingma 1989; Andreoni 1990; Payne 1998; Khanna and Sandler 2000) and others have found that government subsidies discourage private giving (Warr 1982; Roberts 1984; Kingma 1989; Payne 1998), or that any increased government assistance can partially reduce private donations. (Schokkaert and Ootegem 1998).

Furthermore, the dependent variable is total donations (D) and this is reported in the first level (raw data) and in natural log form (lnD). A number of the independent variables are presented in thousands of dollars including fundraising expenditures (F_i and F_j), fixed assets (A_i), government grants (G), administrative costs (AC) and the number of volunteers (V).

One major difference between the present study and the most similar of previous studies (Posnett and Sandler 1989; Castaneda, Garen et al. 2007) is that they employed the fundraising competition index variables and the annexed aggregation of group in charity types. Such aggregation would be fatal to the present study, since it would render meaningless the competition variables, which should vary between like charity groups. The competition variables are competitors fundraising expenditure, F_j , and the ratio of fundraising expenditures to all competitors, F_i/F or F_i/F_j and ratio of organisational size to all competitors' size. The difference between F_i/F and F_i/F_j , or A_i/A and A_i/A_j is whether the denominator value includes the value of the charitable organisation in the former (F_i/F and A_i/A) or excludes it in the latter (F_i/F_j and A_i/A_j). These values are not different from each other when the group is large, but when the group is small, their differences would be large and so would affect results. The reason for using different denominators is to determine whether the empirical results are sensitive to the formulation used.

A further difference lies on large standard deviations in variables of samples. Most of the raw variables are very different between charitable organisations and there are very large variations between samples at the raw level. This indicates

outliers requiring logarithmic transformation of data for OLS estimation. Table summarises research variables and summary definitions

Table 1: Research variables and summary definitions

Variables	Definitions
$\ln D_i$	The natural logarithm of private donations (current dollars) to charitable organisation (CO) i
$\ln F_i$	The natural logarithm of fundraising expenditures of COi
$\ln F_j$	The natural logarithm of fundraising expenditures of COi's competitor COj, (Total fundraising expenditures in a group (F) – Fi). This value will vary between groups.
$\ln F_i / \sum \ln F$	The natural logarithm of ratio Fi to all competitors' F. This value will vary between groups.
$\ln F_i / \ln F_j$	The natural logarithm of ratio Fi to competitors' Fj, (alternative ratio to $\ln F_i / \sum \ln F$). This value will vary between groups.
$\ln A_i$	The natural logarithm of fixed assets of COi; used a proxy for the size and wealth of CO.
$\ln A_i / \sum \ln A$	The natural logarithm of ratio Ai to all competitors 'A. This value will vary between groups.
$\ln A_i / \ln A_j$	The natural logarithm of ratio Ai to competitor's Aj (alternative ratio to $\ln A_i / \sum \ln A$). This value will vary between groups.
$\ln V_i$	The natural logarithm of number of persons per year working as volunteers for COi.
$\ln \text{Age}_i$	The natural logarithm of number of years since the COi was formally created (operational age).
$\ln G_i$	The natural logarithm of government subsidies/grants to COi.
$\ln \text{AC}_i$	The natural logarithm of administrative costs of COi.

NOTE: All variables are represented in number or monetary value for a financial year.

5. The results of a family of empirical modelling for Australian data

Competitive models in the OLS regression with allocation of charitable organisations into similar industry group. The purpose of the grouping is to allow competition effects from competitor charities, different organisations with similar missions and objectives. A sample of charitable organisations in Australia is grouped into eight groups. These are:

1. All — all organisations combined (352 observations)
2. Welfare (119)
3. Humanitarian (42)
4. Global (35)
- 5 Disability (84)
6. Animal (21)
7. Science (and Culture) (28)
8. Rural (49)

5.1 Major family of competition model 1

Model 1 combines lagged and unlagged independent variables as determining donation. As discussed earlier, fundraising expenditures are the cost for fundraising activities for raising donations, therefore fundraising expenditures are expected to have a direct effect on current collection of donations. Other independent variables take longer to have an effect on the current donation, so Model 1 employs fundraising expenditures of the current year whereas other independent variables use information from the previous year.

The results of the parameter estimation of a log-log model are interpretable as elasticity; i.e. the percentage change in the dependent variable correlated with a one percent change in the independent variable. The underlying assumption is that the elasticities, rather than the absolute effects, are constant across the range of data. Estimation results for each industry group and the coefficients of independent

variables for each industry group are presented. These results indicate several points: (1) the sample of Australian charitable organisations is successfully allocated in an appropriate group; (2) the competition models fit well with the groups of charitable organisations; (3) most variables in the competition models one are related to total donations; and (4) charitable organisations compete within the same group of organisation. The structural form of the regression analysis indicates a Cournot type model of oligopolistic competition.

In Table 2, $\ln F_i$ is shown as positive elasticity in most of the groups, as expected, except Rural. Thus, the coefficients of fundraising expenditures in all groups are the range between -0.010 and 10.016. $\ln F_i$ shows significantly positive correlation in the Global, Disability and Science groups. As developed in Chapter 5, hypothesis one is tested as follows: $H_0: F_i \leq 0$; and $H_1: F_i > 0$. The Null Hypothesis is rejected in most groups; All, Welfare, Humanitarian, Global, Disability, Animal and Science groups, while the Null Hypothesis is not rejected in the Rural group.

The coefficients in $\ln F_j$ are significantly negative in the Global, Disability and Science groups as expected, while they are positive and significant in the Humanitarian industry and positive but insignificant in the All, Welfare, Animal and Rural groups, and the ranges are between -6.094 and 0.607. Hypothesis 2 is tested as: $H_0: F_j \geq 0$ and $H_1: F_j < 0$. The Null Hypothesis is rejected in Global, Disability and Science groups, while the Null Hypothesis is not rejected in the All, Welfare, Humanitarian, Animal and Rural groups.

The regression coefficient on the ratio of $\ln F_i$ to all competitors, $\ln F_i / \sum \ln F$, garnered mixed results, with significantly positive elasticities in All, but insignificant but positive elasticities in the Humanitarian and Animal. Those of the Global, Disability and Science groups are negative but significant, but show negative and insignificant elasticities in the Welfare and Rural groups. Hypothesis 3 is tested as: Hypothesis 3: $H_0: F_i / F \leq 0$ and $H_1: F_i / F > 0$. The Null Hypothesis is rejected the All,

Humanitarian and Animal groups, whereas the Null Hypothesis is not rejected in the Welfare, Global, Disability, Science and Rural groups.

These results indicate that fundraising expenditures have a positive impact on the level of total donation in the most of groups except in the Rural group. The competitors fundraising activities impact on donors in the Global, Disability and Science groups to donate competitors by reducing donation to the original organisations. However, they increased the level of donations in the Welfare, Humanitarian, Animal and Rural groups. In other words, competitors' fundraising activities may influence donors to increase overall support for their own preferred charitable causes especially in the Welfare, Humanitarian, Animal and Rural groups.

The coefficient on size ($\ln A_i$) is shown to be positive and significant in the Disability group, and insignificant but positive in the Welfare, Animal, and Science groups as expected, whereas the coefficients in the All, Humanitarian, Global and Rural groups are obtained otherwise. Hypothesis 4 is tested as: $H_0: A_i \leq 0$ and $H_1: A_i > 0$: The Null Hypothesis is rejected in the Welfare, Disability, Animal, and Science groups, while the Null Hypothesis is not rejected in the All, Humanitarian, Global and Rural groups.

The coefficient on the ratio of size to competitors' size is positive in the All, Humanitarian, Global, Science and Rural groups, while those in the Disability and Animal groups is negative but significant, and negative and insignificant in the Welfare group. Hypothesis 5 is tested as: $H_0: A_i / A \leq 0$ and $H_1: A_i / A > 0$. The Null Hypothesis is rejected in the All, Humanitarian, Global, Science and Rural groups, whereas the Null Hypothesis is not rejected in the Welfare, Disability and Animal groups. The above results indicate that the size of charitable organisations has a positive impact and encourages donors to donate more in the groups of Welfare, Animal and Disability.

The coefficients on Volunteers (InV) are either significantly positive or positive in all groups, significantly positive in the All, Welfare, Humanitarian, Disability and Rural groups, and positive but insignificant in the Animal group. Volunteers seem to impact and increase the level of total donations in all groups. Hypothesis 6 is tested as: $H_0: V_i \leq 0$ and $H_1: V_i > 0$. Thus, the Null Hypothesis is rejected in the All, Welfare, Humanitarian, Disability, Rural groups of charitable organisations. Conversely the Null Hypothesis is rejected in the Animal group.

The coefficient on Age (InAge) also indicated mixed results. It was positive and significant in the Disability and positive but insignificant in the All and Science groups, whereas those of the Humanitarian, Global and Rural groups are negative but significant, and negative and insignificant in the Welfare and Animal groups. Hypothesis 7 is tested as: $H_0: Age_i \leq 0$ and $H_1: Age_i > 0$. The Null hypothesis is rejected in the All, Disability and, Science and Culture groups of charitable organisations, while the Null Hypothesis is not rejected in the Humanitarian, Global, Welfare, Animal and Rural groups of charitable organisations.

Lastly the coefficients on constant show significantly positive in the Global, Disability, Animal and Rural groups, whereas those in the All, Welfare and Humanitarian groups are otherwise.

Table 2: OLS Estimation for a Family of Model 1

$$\ln Dt = \beta_0 + \beta_1 \ln Fit + \beta_2 \ln Fjt + \beta_3 (\ln Fi / \sum \ln Ft) + \beta_4 \ln Ait-1 + \beta_5 (\ln Ait-1 / \sum \ln At-1) + \beta_6 \ln Vit + \beta_7 \ln Agei + e$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.709 (5.658)	-1.266 (2.924)	-4.026 (4.365)	32.919*** (9.789)	64.777*** (16.962)	30.224*** (7.349)	31.845 (25.291)	13.650** (6.700)
$\ln Fi$ (β_1)	0.116 (1.380)	0.351 (0.356)	0.103 (0.081)	7.502*** (2.587)	10.016*** (3.044)	0.020 (0.575)	4.808** (2.639)	-0.010 (0.576)
$\ln Fj$ (β_2)	0.325 (0.447)	0.024 (0.228)	0.607** (0.359)	-2.137*** (0.773)	-6.094*** (1.516)	0.643 (0.499)	-4.024** (2.043)	0.027 (0.489)
$\ln Fi / \sum \ln F$ (β_3)	145.228 (757.196)	-9.597 (64.776)	7.171* (5.060)	-374.576*** (143.195)	-1305.326*** (400.462)	4.376 (17.699)	-186.955** (103.03)	-6.179 (55.186)
$\ln Ai$ t-1 (β_4)	-0.686 (1.416)	0.015 (0.183)	-0.484 (0.430)	-1.344 (1.573)	1.856** (1.178)	0.178 (0.291)	0.387 (0.925)	-1.466* (1.064)
$\ln Ai$ t-1/ $\sum \ln At$ -1 (β_5)	382.981 (944.701)	-18.724 (41.424)	82.331 (72.106)	73.543 (95.283)	-275.739** (174.335)	-39.811*** (13.181)	1.364 (41.849)	92.648 (105.94)
$\ln Vi$ t-1 (β_6)	0.679*** (0.064)	1.116*** (0.113)	0.771*** (0.066)	0.245 (0.252)	0.373*** (0.148)	-2.488*** (0.859)	0.307 (0.552)	1.018*** (0.123)
$\ln Agei$ t-1 (β_7)	0.143 (0.112)	-0.066 (0.122)	-0.227** (0.103)	-1.188*** (0.294)	1.678*** (0.225)	-0.060 (0.345)	2.201 (2.164)	-1.099*** (0.278)
R2	0.455	0.570	0.711	0.832	0.610	0.838	0.639	0.785
Adjusted R2	0.442	0.543	0.684	0.789	0.574	0.751	0.512	0.740
SE regression	1.319	1.003	0.734	0.521	1.034	0.298	1.117	0.663
Observations	308	119	42	35	84	21	28	49

NOTE: Dependent variable is \ln of Total Donations (D_i), Table 1 presents definition of variables, ***, **, * significant at 1, 5, 10 %

5.2 Summary of Results for Model 1 and its sub-families

A family model of Model 1 consists of independent variables, including fundraising expenditures; competing charities' fundraising expenditures; the ratio of fundraising expenditures to the total of all competing charities' fundraising expenditures; fixed assets (as a proxy of established size); the ratio of fixed assets to the total of all competing charities' fixed assets; the number of volunteers and organisational age. A family model of Models is constructed through modifications of Model 1. Thus Equations 2 to 6 use either the total of all competing charities' values or competing charities j 's values for the denominator in the calculation of the ratios of fundraising expenditures or fixed assets combination, or use lagged or unlagged independent variables only.

The results of Model 1 family indicate that the effectiveness of fundraising activities of charitable organisations and the positive effect of volunteers on the level of total donations in most groups except Humanitarian, Animal and Rural. The competing charities' fundraising expenditures are consistently negative in the Global, Disability and Science groups as expected, whereas in other five groups have obtained positive correlation to total donations in some variations of Model 1. Similarly, the sign of the ratio of fundraising expenditures in the Global, Disability and Science groups are, not as expected, constantly shown as negative, while the signs of that in other five groups vary as in Model 1.

The results of correlation between the size of organisation and total donations vary in sign, similarity to Model 1, except that the Animal group is positive. The ratio of organisational size to total of competing charities' size is expected to have a positive correlation to total donations. However, the results vary again as with Model 1. Similarly, signs of correlation between the ratio of fixed assets and total donations vary similarity to Model 1.

6. Discussion and Conclusion

6.1 Industry Groups

The results showed that the more a charitable organisation spent on its fundraising expenditures (F_i), the more its total donations increased in the current year in the most of Australian charity groups except Animal industry. The results also indicated, as expected, that the more a competing organisation spends on competing organisational fundraising expenditures (F_j), less a charitable organisation raises total donations in Global, Disability and Science groups in the current year. Furthermore, when government grants were included as an additional explanatory variable in empirical models (Models 2 and 4), the competing organisation's Fundraising expenditures (F_j) also became negative effect on its total donations in Welfare and Rural groups in current year. The reasons for this are unclear in terms of donor and organisational behaviour. In addition, the ratio of fundraising expenditures to the competitors' fundraising expenditures in the current year had a positive effect on raising donations in the full sample of charitable organisations (All), Humanitarian, and Animal groups. These results indicated that a sample of each charitable organisation in similar service provider group carefully watches the major decisions of its rival and would often plan counterstrategies in Australia. For example, Red Cross Australia cancelled its annual door-knock appeal after the collection of large donations for the Victorian Bushfire in 2009.

The level of volunteers (V) had a significant positive effect on donations in most of groups except Animal industry in the following year and Welfare and Rural groups show strongest at 1% of significance (1.018 and 1.116, respectively). This was because volunteers involved fundraising activities of the charity and also many of them can be expected to also donate. Because of volunteers have insight into how charitable organisations operate, donors might see as the longer or the more volunteers involved in the charitable organisations, the more they would trust the organisation.

Similar to the volunteers on donation, the organisational size and age also showed a positive affect on the total donations. Thus, organisational size (A) had a positive effect on donations in Welfare, Disability, Animal and Science groups in the following years (from 0.015 to 1.856), whereas organisational age has also a positive effect in All, Disability, Science and Rural industry(from 0.143 to 4.475).

Government support (G) showed mixed results which was consistent with the previous studies (see Section 3.5.2). In five groups, All, Welfare, Humanitarian, Global, Animal and Rural groups, government grants crowded-in effect on total donations in the following year, whereas in Global, Disability and Science groups, it was crowding-out donations.

Administrative costs (AC) were negative effect on total donations in All, Global and Science groups in Australia and this result was consistent with the previous study which found that the more charitable organisations spent on administration, the less it received from donors using limited organisational data with very larger donations in US (Tinkelman and Mankaney 2007). However, in this thesis in five groups, Welfare, Humanitarian, Disability, Animal and Rural, it was positive on donations in the following year, these results might be affected by the size of donations.

We also conducted for geographic geographical location grouping in 6 States, ACT, Victoria, New South Wales (NSW), Queensland (QLD), Western Australia (WA) and South Australia (SA). The number of observations is 16 in ACT, 143 in Victoria, 98 in NSW, 28 in QLD, 28 in WA and 16 in SA. Some of groups showed similar signs with the results of the industry groups, while some not. Overall the empirical results are for more inconsistent. In the four states, Victoria, NSW, QLD and WA, Fundraising expenditures were positive on total donations and competitors' fundraising expenditures were negative on total donations but not in the state of ACT and SA. However, the number of volunteers showed similar results with the industry groups, it was significantly positive on total donations in most of the States except WA. The ratio of fundraising expenditure to competitors' fundraising expenditures were obtained mixed results as a positive in ACT and SA and a negative to total donations in Victoria,

NSW, QLD and WA. Organisational size and age were also obtained the mixed results. Organisational size was positive on total donation in Victoria, NSW and WA and negative in ACT, QLD and SA. Organisational age was positive on total donations in ACT, Victoria and WA, and negative in NSW, QLD and SA. Thus, government grants crowded-in ACT, Victoria, WA, while it crowded-out in NSW, QLD and SA. Administrative costs were positive on total donations in only two States, ACT and NSW, while four States in Victoria, QLD, WA and SA showed negative on total donations.

Hence, overall the results with the geographic groups were much weaker than the industry group. This is to be expected if donors have an interest in the focus of organisations' charitable activities, rather than their location. This is especially so as many charities operate well away from their area of domicile.

The significance of this article arises in several respects, incorporating charitable operational information effect on donation, focusing on competition among charities for donations, the role of altruism, discussion of theoretical and empirical modelling and providing the results of testing empirical models with sample of Australian charitable organisations. This study attempts to follow in the line of Castaneda, Garen and Thornton (2007). However, their study is to find the effects of competition for donors on the behaviour of charitable organisations and whether the information of the allocation of donation is contractible, the thesis concentrates the effectiveness of fundraising activities of charitable organisational competition for donations based on the Cournot quantity competition theory.

References

Andreoni, J. (1989). "Giving with impure altruism: applications to charity and regarding equivalence." The Journal of Political Economy **97**(6): 1447-58.

Andreoni, J. (1990). "Impure altruism and donations to public goods: A theory of warm-glow giving." The Economic Journal **100**(401): 464-77.

Andreoni, J. (1998). "Toward a theory of charitable fund-raising." The Journal of Political Economy **106**(6): 1186-1213.

Andreoni, J. and R. Petrie (2004). "Public goods experiments without confidentiality: A glimpse into fundraising." Journal of Public Economics **88**(7-8): 1605-1623.

Bekkers, R. and N. D. Graaf (2005). Education and prosocial behavior. Utrecht, the Netherlands, Utrecht University.

BRW (2006). Australia's top 200 charities, ranked by gross annual revenue-2005.

Callen, J. L. (1994). "Money donations, volunteering and organizational efficiency." The Journal of Productivity Analysis **5**: 215-28.

Castaneda, M. A., J. Garen, et al. (2007). "Competition, contractibility, and the market for donors to Nonprofits." Journal of Law, Economics, and Organization Advance Access.

Dimand, R. W. (1988). "An early Canadian contribution to mathematical economics: J. B. Cherriman's 1857 review of Cournot." The Canadian Journal of Economics **21**(3): 610-616.

Gidron, B. (1983). "Sources of job satisfaction among service volunteers." Nonprofit and Voluntary Sector Quarterly **12**(20): 1-17.

Gittell, R. and E. Tebaldi (2006). "Charitable giving: Factors influencing giving in U.S. States." Nonprofit and Voluntary Sector Quarterly **35**(4): 721-36.

Glaeser, E. L. (2003). The governance of not-for-profit organizations. Chicago, University of Chicago Press.

Gordon, T. P. and S. B. Khumawala (1999). "The demand for not-for-profit Financial Statements: a model of individual giving." Journal of Accounting Literature **18**: 31-56.

Gujarati, D. N. (1995). Basic Econometrics. New York, McGraw-Hill, Inc.

Hansmann, H. B. (1980). "The role of nonprofit enterprise." The Yale Law Journal **89**(5): 835-902.

Hatsutani, I. (2001). "NPO policy and administrative discretion: determining public interest." The Nonprofit Review **1**(1): 27-40.

Hochman, H. M. and J. D. Rodgers (1969). "Pareto optimal redistribution." American Economic Association **59**(4): 542-557.

Jacobs, F. and N. P. Marudas (2009). "The combined effect of donation price and administrative inefficiency on donations to US Nonprofit organizations." Financial Accountability & Management **25**(1): 33-53.

- Keen, S. (1999). "Association in Australian history: their contribution to social capital." Journal of Interdisciplinary History **29**(4).
- Khanna, J. and T. Sandler (2000). "Partners in giving: The crowding-in effects of UK government grants." European Economic Review **44**: 1543-1556.
- Kingma, B. R. (1989). "An accurate measurement of the crowd-out effect, income effect, and price effect for charitable contributions." The Journal of Political Economy
- Kumru, C. and L. Vesterlund (2005). The effect of status on voluntary contribution. Department of Economics. Pittsburgh, University of Pittsburgh.
- Marcuello, C. and V. Salas (2001). "Nonprofit organizations, monopolistic competition, and private donations: Evidence from Spain." Public Finance Review **29**(3): 183-207.
- Marudas, N. P. and F. Jacobs (2004). "Determinants of charitable donations to large U.S. higher education, hospital, and scientific research NPOs: New evidence from Panel data." Voluntas: International Journal of Voluntary and Nonprofit Organizations **15**(2): 157-179.
- Norusis, M. J. (1993). SPSS for Widows: Professional Statistics, Release 6.0. Chicago, SPSS Inc.
- Ouchi, M. (2004). "Charitable giving in Japan: a comparative study of Japan and the United States." The Nonprofit Review **4**(1): 39-52.
- Parsons, L. M. (2003). "Is accounting information from nonprofit organizations useful to donors? A review of charitable giving and value-relevance." Journal of Accounting Literature **22**: 104-29.
- Parsons, L. M. and J. M. Trussel (2003). Are donations affected by the financial stability of not-for-profit organizations? In Collected Abstracts of the 2003 Annual Meeting of the American Accounting Association, Honolulu, HI.
- Payne, A. A. (1998). "Does the Government crowd-out private donations? New evidence from a sample of non-profit firms." Journal of Public Economics **63**: 323-45.
- Piliavin, J. A. and H.-W. Charng (1990). "Altruism: A review of recent theory and research." Annual Review of Sociology **16**: 27-65.
- Posnett, J. and T. Sandler (1989). "Demand for charity donations in private non-profit markets: The case of the U.K." Journal of Public Economics **40**(2): 187-200.
- Roberts, R. D. (1984). "A positive model of private charity and public transfers." Journal of Political Economy **92**(1): 136-48.
- Romano, R. and H. Yildirim (2001). "Why charities announce donations: a positive perspective." Journal of Public Economics **81**: 423-47.
- Rose-Ackerman, S. (1982). "Charitable giving and "excessive" fundraising." Quarterly Journal of Economics **97**(2): 194-212.
- Rose-Ackerman, S. (1996). "Altruism, nonprofits, and economic theory." Journal of Economic Literature **34**(2): 701-28.

- Rose-Ackerman, S. (1997). "Altruism, ideological entrepreneurs and the non-profit firm." Voluntas: International Journal of Voluntary and Nonprofit Organizations **8**(2): 120-134.
- Salamon, L. M., L. Hems, et al. (2000). The Nonprofit sector: for what and for whom? Working papers of the Johns Hopkins Comparative Nonprofit sector project.
- Schokkaert, E. and L. V. Ootegem (1998). Preference variation and private donations. Discussion paper series DPS 98.08. Leuven, Katholieka University Department of Economics: 34.
- Seidman, I. (1998). Interviewing as qualitative research: A guide for researchers in education and social sciences. New York, Teachers College Press.
- Smith, D. H. (1983). "Altruism, volunteers, and volunteerism " Journal of Voluntary Action Research **12**: 21-36.
- Tabachnick, B. and L. Fidell (2001). Using Multivariate Statistics. Boston, Allyn and Bacon.
- Thornton, J. and W. Belski (2009). "Financial reporting quality and price competition among nonprofit firms." Applied Economics **1**: 1-15.
- Tinkelman, D. (1999). "Factors affecting the relation between donations to not-for-profit organizations and an efficiency ratio." Research in Government and Nonprofit Accounting **10**: 135-61.
- Tinkelman, D. (2002). When are charities' average fundraising ratios informative of their marginal fundraising costs? In collected abstracts of the 2002 annual meeting of the American Accounting Association., San Antonio, TX.
- Tinkelman, D. (2004). "Using nonprofit organization-level financial data to infer managers' fund-raising strategies." Journal of Public Economics **88**: 2181-2192.
- Tinkelman, D. and K. Mankaney (2007). "When is administrative efficiency associated with charitable donations?" Nonprofit and Voluntary Sector Quarterly **36**(41): 41-64.
- Trussel, J. M. and L. M. Parsons (2004). Financial reporting factors affecting donations to charitable not-for-profit organizations. American Accounting Association 2004 Mid-Atlantic Region Meeting, Harrisburg, Fairfax.
- Unger, L. S. (1991). "Altruism as a motivation to volunteer." Journal of Economic Psychology **12**: 71-100.
- Warr, P. G. (1982). "Pareto Optimal redistribution and private charity." Journal of Public Economics **19**: 131-38.
- Weisbrod, B. A. and N. D. Dominguez (1986). "Demand for collective goods in private nonprofit markets: Can fundraising expenditures help overcome free-rider behavior?" Journal of Public Economics **30**: 83-96.