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Competition Between Charitable Organisation For Private Donations

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Abstract

A central problem for charitable organisations is that they do not derive revenues from their core philanthropic activities. Consequently they cannot survive unless they can derive revenues from other sources. The three major sources of these revenues are: (a) Government grants; (b) commercial activities that cross-subsidise the philanthropic activities; and (c) private donations. In each of these fund-raising activities they compete with other organisations, but none more so than in seeking private donations.

Consequently, this thesis is concerned with the competition for private donations among charities with similar aims. Fundraising efforts through government grant competition and commercial activities are not considered. The charities considered are located in Australia and Japan, a comparative analysis being an initial major purpose of the research. This was based upon the argument that the behaviour of charitable organisations will be influenced by local culture far more than profit making corporations facing global markets. There was, therefore, an interest in examining how different the forms of competitions might be in the countries.

Charitable organisations compete for private donations in two ways. The first is by an efficient and effective service to the charitable organisations' recipients. Unfortunately for fundraising, such service is not usually directly observable by potential donors. The second form of competition is the public provision of information, services and marketing and promotion to potential donors, specifically with the aim of eliciting donations. Competition in this form, of course, requires fundraising expenditures on the part of charitable organisations.

The effects of competition for donations on the behaviour of charitable organisations are investigated at both the theoretical and empirical levels. In particular, this thesis examines the effects of fundraising expenditure on donation levels, and how donation levels to organisations are affected by the level of competition in the market for donations. Such competition is treated as a form of Cournot oligopoly. The degree of competition can then be measured by the level of fundraising expenditure of "like charitable organisations". Like charitable organisations are those that serve similar purposes so that their philanthropic services are similar, i.e. in economic terms they are substitutes. This was tested among a group of charitable organisations providing in similar services in both Australia and Japan.

The effectiveness of donation raising behaviour of charities in Australia and Japan is considered by examining organisational financial accounts within the model framework. The application of the oligopoly model throughout this thesis has resulted in the following major findings. First, it was found that increases in total fundraising expenditure by all charities increases total donations to all charities but at a decreasing rate. Second, an increase in competition is related both closely and positively to fundraising spending and the total level of donations in the current year rather than previous years. Third, and again, supporting the oligopoly model, the fundraising expenditure of a charity's competitors relates both closely and negatively to the level of donations to that charity in the current year. Fourth, and very importantly, it was found that the numbers of volunteers associated with an organisation significantly increased its level of donations in the following year. Fifth, and finally, the impacts of organisational age and size, government grants and administrative costs vary across groups of charitable organisations, but still indicate the effectiveness of using the oligopoly model.

The thesis uses organisational level data to capture the competitive behaviour of charitable organisations, whereas most previous studies have analysed donors. Although charitable organisations in both Australia and Japan have the same perceived objectives, their behaviour differs due not only to cultural and political variations but with the size and history of charities. It appears that the model is much more appropriate for Australia than to Japan. The reasons for this are given. Most notably these differences appear to be due to the intense regulation of charities found in Japan.

The significance of the research lies not only in the empirical success of the modelling. It also lies in the fact that although charitable organisations play a crucial role in the delivery of public and private goods and services, there are relatively few attempts to pay attention to the economic analysis of this sector.

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Statement of Authorship

In compliance with the requirements relating to admission to examination and submission of theses, for the Degree of Doctor of Philosophy of Griffith University, I hereby certify that this work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Understanding the Behaviour of Charitable Organisations

1.1 Motivation and objective of the thesis

The fundraising behaviour of charitable organisations is analysed both theoretically and empirically. This grows out of an interest in the benevolent response of both individuals and groups to other human beings in trouble — often people they have never met and never will meet.

Because of the many recent global humanitarian crises, both natural and man-made, attention throughout the world has been attracted to the charity sector. The Global Financial Crisis has also highlighted the role of welfare charities. In Australia, as the demand for charitable services has risen, the number and size of donations to other causes and organisations have fallen (Falk et al., 2006). At the same time, charitable organisations are being forced to become more independent of the government as a result of government policy (because, quite simply, government funds are less available). It is then an irony that governments are increasingly relying on charitable organisations to provide services and goods that neither government nor private enterprise are either able on willing to provide. Consequently increasing numbers of charitable organisations around the World are seeking donations from broader sections of the community (Salamon et al., 2000).

This growing sense of its importance has been paralleled by the charitable sector's expansion in the last decade, opening a fertile area of investigation for researchers from different disciplines. Previously most research has examined donor behaviour. The focus of the present research is on the behaviour of charitable organisations. Nevertheless, in fundraising, charities have to understand the motivation of donors. While individuals and corporations may donate because they have deep concern for others in what is predominantly an altruistic act, they may also expect some form of benefit for themselves. These donors’ benefits can include receiving recognition from others, a more self-centred motivation. As opposed to these altruistic donors are described as being focused on the goal of benefiting others, while status seeking donors are interested in receiving higher social recognition. 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. Increasingly charitable organisations, in a wide variety of activities, understand and utilise these different motivations in their fundraising activities. This means they increasingly engage in fundraising expenditure.

Most contributions from individuals go to charitable organisations instead of for-profit organisations or government agencies. Given the difficulty of monitoring work related to social welfare, it is possible to suggest that donors may fear that for-profit firms will convert contributions into compensation for the owners. People may trust that charitable organisations have particular beliefs about the best way to provide more diverse services than is possible in the public sector. Therefore, if people are willing to make such a comparison, charitable organisations are in a position to compete for such altruistic contributions better than for-profit organisations. The question may then be one of understanding how charitable organisations operate with respect to each other, and especially how they compete with each other for donations.

In view of both the current growth and the significance of the charity sector, there is a need to understand how charitable organisations operate in a competitive “market”. Little attention has been paid to competition and the operation of markets in this sector. There seems to be potential for empirical models of the competition between charitable organisations for donations. Empirical questions of fundraising activities of charitable organisations. How fundraising expenditures determine the level of donations; how charitable organisations maximise private donations, and whether or not competition between charitable organisations affects donor behaviour and donations are important questions. It is highly likely that such competition is oligopolistic in nature, especially given the (non-profit) barriers to entry.

This thesis, therefore, investigates two research questions. Firstly how effective fundraising activities relate to the competition of charitable organisations for donations. And secondly what characteristics or other factors of charitable organisations are affected by fundraising, using the data from samples of Australian and Japanese charitable organisations. As the concluding chapter indicates, answering these deceptively simple questions is very difficult. This thesis uses the term "charitable organisations", rather than philanthropic organisations, because it is in more common usage in Australia (see 3.2.4).

1.2 Contemporary events

The charity sector has grown substantially in size and importance over the past decades, both in Australia and Japan (Srnka et al., 2003a), playing an important role in improving the quality of life in communities by providing a wide range of services to meet critical communities' needs (Guo and Brown, 2006). Salamon et al. (2003) have estimated that charitable organisations are responsible for more than 50% of the finance and delivery of social services provided in the United States. In Australia it is almost 60% (Australian Council of Social Service, 2001; Australian Government, 2001), and in Japan it is 50%. At the same time, Australian and Japanese charitable organisations are becoming less able to rely on help from government, partly as a reflection of government policy. There is also a marked impact on the economy as a result of donations and collective action (Lyons, 2001) as the service role of charitable organisations in Australia and Japan is now complementing or supplementing that of the government. Arguably it is making up for the deficiencies in government action (Salamon, 1994). There is also increasing competition of not-for-profit with for-profit organisations (Srnka et al., 2003a). It follows that charitable organisations are increasingly under severe pressure to minimise costs and deliver services in more efficient ways, while seeking donations based on wider community trust in their operations.

Two recent events in Japan and Australia stand out as affecting charities and perceptions of charities. In January 1995 the Kobe-Awaji earthquake disaster drew the Japanese people's attention to the importance of the charity sector. This earthquake brought about a death toll of over 6,400 people and the destruction of some 70,000 buildings, and in addition caused huge damage to the Japanese economy (Fujimoto, 1995). Since central governments were not prepared for this disaster, rescue work at an official level only occurred after a considerable delay (Fukushima, 1995). However, within the first three months more than 1.2 million volunteers spontaneously gathered from different parts of Japan, and the total voluntary donations amounted to JPY173 billion (AUD2.03 billion) (Hasan, 2005). This earthquake led to a marked increase in the numbers of volunteers to other charities, as well as the enactment of the NPO Corporation Law for the introduction of incorporated, purpose-specific not-for-profit organisations. This was passed in 1998 (Kawashima, 2001; Matsura, 2001). The year 1995 was also named as the year of "renaissance of voluntarism" (Tatsuki, 2000; Shaw and Goda, 2004). Since 1999, the number of Japanese charitable organisations registered with the NPO Corporation has dramatically increased reaching 26,000 NPO Corporations in January 2006 (Cabinet Office, Government of Japan, 2004, 2006).

In Australia, the Victorian Bushfires in February 2009 created greater awareness of the role of charitable support to the community in Australia. The Victorian Bushfire Appeal has now raised over AUD375 million which has been transferred to a trust account established by the Victorian Government (Australian Red Cross, 2009). Similar attention has been given to the whole charity sector in Australia (Dollery and Wallis, 2002). In 1999 the Howard government established the Prime Minister's Community Business Partnership policy. During the financial year (FY) 2006-2007, over 51,671 tax concession charities were recognised in Australia. This was up by 2.1% on the previous year, and 25,292 organisations were given the status of deductible gift recipients, increasing by 3.7% from the previous year (Australian Taxation Office, 2009). Australian charities received AUD 472 million and distributions of AUD117 million (Australian Taxation Office, 2009) were made in 2009. There are 40,976 not-for-profit organisations registered in Australia, which employ about 884,476 people with approximately 2,434,815 volunteers (Australian Bureau of Statistics, 2008a). The total revenue for the Australian charity sector during FY 2006-2007 was $74.5 billion, representing 7% of GDP, and total donations were over $6 billion. This was twice larger than the FY 1999-2000 (Australian Bureau of Statistic, 2002 and 2008). These phenomena are not restricted to Australia and Japan.

The voluntary sector was much more effective in delivering aid to victims of Hurricane Katrina in New Orleans than was the US government. The same has been true of the Haitian earthquake in 2010.

1.3 Culture and behaviour: Donors and organisations

Charitable contributions may differ in relation to political, social, cultural economic, religious and historical features of the society. In an influential comparative study of cultures Hosftede (1987, 2001) claims that donations are given according to the psychological needs of the donor rather than the material needs of the receiver. Hosftede (2001) also suggests that political differences may influence charities. Australia is based on common law, whereas Japan is a civil law code nation, so related differences are expected in the behaviour of charitable organisations. This encourages a comparison of charitable organisations between the two countries, Australia and Japan.

Nevertheless charitable organisations in Australia and Japan have similar objectives and their growth has been encouraged by their respective governments. Behind this outward similarity, they have institutional and cultural differences, as discussed in Chapter Two. Institutionally, charitable organisations in Japan are subject to relatively tighter control than their counterparts in Australia, and the latter enjoy more favourable tax incentives.

Culturally, Japan has been classified as having a strong masculine culture by Hofstede (2001), where the social consensus is that the fate of the poor is their own fault, while Australia has been classified as having a much weaker masculine culture that shows greater benevolence (Hofstede, 2001). These institutional and cultural differences are likely to influence donors’ decision-making process as, a study of which will enable Australia and Japan to share their experience, with a view to improving the efficiency of the charity sector.

There are distinct differences in the history, culture and social norms of Australia and Japan. Consequently, there is a distinct possibility that the outcome of modelling the behaviour of charitable organisations in the two nations will yield different results. This implies that one task for modelling charitable organisation behaviour lies in, if possible, accommodating those differences. There is the distinct possibility that in identical situations, their donors will behave in different ways. This could be, for example, because altruism is constructed according to different social norms. The same is perhaps even more true for the study of volunteerism that forms part of this thesis. Of more immediate relevance to differences in fundraising behaviour is the fact that the two samples of charitable organisations are constructed differently. Certainly the samples are of organisations of very different sizes in Japan and Australia. Those in Australia are much larger and have longer individual histories. Quite apart from distinct differences between organisations within the samples, examining the pattern of fundraising sources in the two nation's samples (Table 1.1) yields distinctly different outcomes. Not notable one the three sources of revenue are defined as (a) private and corporate donations; (b) all other sources of revenue and (c) government sourced revenues.

Other sources can include investment portfolio income, but the revenue comes largely from the direct business activities of the organisations. For most (but not all) charitable organisations such portfolios are negligible. Portfolios aside, business activities are of two main types. These are (a) selling services to clients, albeit often at heavily subsidized rates, and (b) selling goods to non-clients. In the Australian context this would include for example, include revenue streams for the charitable organisations St Vincent de Paul and Oxfam, that come from their high street shops.

The Japanese sample is very much more heavily biased towards these activities. As a consequence, very little of their revenues come from government and donations. The implication is that any modelling that concentrates on donation raising activities may not be applicable to Japan and would be less successful in empirical terms. In the case of the Australian organisations, which are much larger and older, there appears to be a much greater ability to gain government grants. This is perhaps recognition that these organisations perform some functions that government would otherwise be called upon to perform and/or the organisations can perform these functions more effectively and cost-efficiently. In addition there are a greater proportion of funds that comes from private individual and corporate donations – the focus of this study.

Table 1.1: Revenue sources for Australian and Japanese charities in 2003

Australia	D/TR	O/TR	G/TR	Japan	D/TR	O/TR	G/TR
World vision	0.87	0.01	0.12	UN Shien	0.92	0.08	0.00
Caritas Australia	0.86	0.03	0.11	Kyukyu Heli	0.86	0.14	0.00
WWF Australia	0.76	0.10	0.14	Futoko	0.80	0.20	0.00
Anglicare Australia	0.54	0.46	0.00	JPFI 2,3,6	0.75	0.25	0.00
RSPCA NSW	0.50	0.45	0.05	Hunger Free	0.73	0.22	0.05
Care Australia	0.45	0.39	0.16	Kids Energy	0.71	0.29	0.00
Royal Institute for DBC	0.45	0.26	0.30	Asia Environment	0.70	0.18	0.12
The Smith Family	0.44	0.52	0.04	Nippon Ryujojoi	0.67	0.33	0.00
Uniting Care QLD.	0.38	0.15	0.48	L Angel International	0.64	0.01	0.35
Oxfam Australia	0.32	0.51	0.17	Project Hope Japan	0.63	0.14	0.23
Salvation Army East	0.31	0.29	0.40	St. John Ambulance	0.63	0.26	0.11
Salvation Army South	0.27	0.30	0.43	Bramer Cm/s	0.62	0.38	0.00
Endeavour Foundation	0.26	0.35	0.38	Sougyo Shien Suishin	0.60	0.40	0.00
Royal Rehabilitation	0.25	0.19	0.56	Recycle Solution	0.57	0.43	0.00
Royal Flying Doctor SE	0.23	0.56	0.21	Japan Seijin	0.56	0.44	0.00
Spastic Centre NSW	0.23	0.15	0.62	Sport and Intelligence	0.52	0.48	0.00
Minda	0.22	0.08	0.70	RAS Fuhoutoki	0.51	0.49	0.00
St Vincent de Paul Vic	0.17	0.49	0.34	Yigi	0.50	0.50	0.00
Cerebral Palsy League	0.13	0.10	0.76	Nihon Kenpo	0.43	0.57	0.00
Multiple Sclerosis Vic.	0.13	0.63	0.24	Kokusai Kendo	0.38	0.61	0.00
Anglicare Vic.	0.12	0.18	0.69	J Karate	0.34	0.66	0.00
Anglicare NSW	0.11	0.32	0.57	J. Wheelchair Dance	0.31	0.45	0.24
Australian Red Cross	0.11	0.23	0.65	HIV	0.31	0.39	0.30
St Vincent de Paul WA	0.11	0.87	0.02	Asia addiction	0.29	0.71	0.00
Yooralla Society	0.11	0.22	0.67	Zenshichosonhoken	0.27	0.13	0.60
Scope Vic	0.10	0.16	0.74	J Toshi	0.25	0.75	0.00
Mission Australia	0.09	0.73	0.18	BHN Telecomm.	0.25	0.75	0.00
Zoological Parks &Gns	0.08	0.52	0.40	New Start	0.23	0.77	0.00
Wesley Mission Sydney	0.08	0.46	0.46	Furusato Ourai Club	0.22	0.78	0.00
Melbourne City Mission	0.07	0.17	0.75	Kiko Network	0.21	0.56	0.23
Southern Cross Care	0.07	0.28	0.65	Jutaku Seisan	0.20	0.80	0.00
Royal Freemasons Vic.	0.05	0.30	0.65	Chiiki Kyoryuu	0.18	0.82	0.00
The Benevolent Society	0.05	0.39	0.56	Nichu Engeki Koryuu	0.17	0.03	0.81
Anglicare SA	0.04	0.24	0.72	Joy Club	0.13	0.87	0.00
Baptist Community Vic	0.04	0.27	0.69	J. Kokusai Kouryu	0.11	0.89	0.00
Silver Chain	0.04	0.14	0.83	Corporate Gov.	0.10	0.90	0.00
Uniting Care Victoria	0.03	0.33	0.63	Chisistuosen	0.07	0.93	0.00
Activ Foundation	0.03	0.31	0.66	AB Free	0.06	0.94	0.00
Villa Maria Society	0.03	0.12	0.85	Kenkokagaku	0.05	0.95	0.00
Benetas	0.02	0.22	0.76	Nippon Iryo Fukushi	0.05	0.95	0.00
Annecto	0.02	0.05	0.92	Kyoikushien	0.04	0.96	0.00
Anglican Homes WA	0.02	0.45	0.53	IHMA Japan	0.04	0.96	0.00
Churches of Christ Care	0.01	0.35	0.64	Tomnet	0.02	0.98	0.00
Diabetes Australia	0.01	0.02	0.97	Japan Zaitaku	0.02	0.98	0.00
				Toyo	0.02	0.95	0.04
				We Can	0.02	0.98	0.00
				Zenkoku Kyoiku	0.01	0.74	0.25
				Aikoku	0.002	0.998	0.00

Source: Data collected from financial reports for 44 Australia charities and 48 Japanese charities for the year of 2003. This table compares the ratio of Total Donations (D), Other Sources of Revenues (O), and Government Sourced Revenues (G) to Total Revenues (TR) of charitable organisations. Charities are ordered by the percentage of their revenues coming from private donations.

1.4 Theoretical framework of the thesis

This thesis attempts to investigate the effectiveness of competitive fundraising activities of charitable organisations, developing theoretical and empirical models to answer this question.

Philanthropy is the act of given money for causes that operate for the social good. Philanthropy, especially corporate philanthropy, may nevertheless have purely self-interested motives. If a distinction is to be drawn, “charitable” giving as opposed to “philanthropy” is often used to imply that there is a “need” to be addressed. This includes people (both groups and individuals) who are in need, be it either long-term or short-term need. Here there may be a greater likelihood of altruistic donor motives but self-interest is still not only possible but plausible.

In addition, the concept of altruism and the logical possibility of an altruistic charitable organisation is also discussed. In the context of altruism, the theoretical basis for specifying the shape and content of a charitable organisation’s preferences is recognised, because embracing a substantive theory of rationality has significant consequences for economics and especially for its methodology. Therefore it is extremely important to discuss the development of theoretical models.

Lastly, bearing in mind the heterogeneity of the individual’s choices (Andreoni and Miller, 2002), some critical observations on the individual’s preference for donation are analysed. In this thesis, however, such concerns are necessarily placed in the background.

Charitable organisations compete with each other for donations. Glaeser has found that market competition for donations is a primary instrument for a charitable organisation to be more disciplined (Glaeser, 2003; Thornton and Belski, 2009). Yet it is not clear how donor markets might be influenced by variations in organisational efficiency. The effects of competition among charitable organisations may emphasise their ability to use donations (Castaneda et al., 2007). One potential avenue of inquiry is the interest on financial information shown by potential donors, as a tool for selection of the most effective and trustworthy charitable organisation for donations (Seidman, 1998). In addition, a charity's fundraising spending is important because it determines the future value of the charitable organisation and thus affects future services and aggregate to recipients.

There are two theoretical poles, of perfect competition and pure monopoly, in most productive activity (Baumol et al., 1998). This can also apply to the market of charitable organisations. The market of charitable organisations has a few organisations dominating the market. This critical feature implies oligopoly, and is vastly different from either monopoly or a perfect competition. An oligopolist assumes to be very much concerned about what other organisations in the same industry do and the resulting interdependence of their decisions (Baumol et al., 1998). However, economic theory contains many models of oligopoly (Baumol et al., 1998). This thesis investigates how the effectiveness of fundraising activities is affected by the "competition for donations market" of charitable organisations, employing a modified Cournot theory of oligopolistic competition markets.

The competition for donations is modelled as Cournot oligopoly. Oligopoly is most simply characterised as competition in a market between a few firms. More appropriately oligopoly can be seen as competition between firms in a market where the actions of the firms have discernible impacts upon the other firms. It is also the case that these firms may take counteracting actions. This means that there is strategic interdependence between the firms. This is the case within the groups of charities which have similar or identical objectives. Thus the fundraising activities of one charity will have impacts upon the fundraising efforts of the other firms in the same group. Definitions and explanations of oligopoly can be found in a wide variety of sources including Eatwell, Milgate and Newman (1998, pp. 701-708). Although there are many forms of and models of oligopoly, Cournot oligopoly is a specific form of oligopoly model that is especially appropriate to oligopolistic competition between charitable organisations. This is because it does not rely on the existence of prices for the outputs of the competing organisations. In the charitable organisation model the output level of the organisations is represented by the fundraising expenditure/ fundraising expenditure ratios of the charitable organisations.

The contribution of this thesis is made in several ways. These encompass utilising individual charitable organisation financial data, focusing on competition of charitable organisations for donations; attempting theoretical and empirical modelling and, in this area, testing empirical models with a sample of Australian and Japanese charitable organisations. In summary, this research is defined in terms of its contribution to our understanding of the relationships between the donations seeking behaviour of organisations, and the characteristics such as corporate governance and the financial reporting information. This is especially true in relation to how charitable organisations vie with each other for donations. In the political field, both Australia and Japan have shown some similarity in giving the charitable sector increasing independence in their scope of operation (Australian Government, 1999; Salamon et al., 2000; Cabinet Office Japan, 2001; Australian Government, 2005b).

This study proposes to investigate charitable organisations' approach to soliciting donations. The aim is to foster a better understanding of the charitable organisation via the role of financial reporting information. Most previous studies using the quantitative approach have focused on results of experiments, laboratory study or a survey analysis on donors, and there is little employment of financial information of charitable organisation. The analysis of financial information is necessary because as the importance of charitable organisations in the economy of Australia and Japan increases, it is necessary to understand how charitable organisations fit in the basic economic theory of philanthropy.

1.5 Limitations of the research

No thesis can cover all aspects of this topic. Consequently it is important to recognise the limitations this imposes on both the work itself and the results and conclusions that can be obtained and made. Furthermore, in order to model the competition between organisations as an oligopolistic market structure a variety of simplifications have to be made. These simplifications place their own limitations on the research. Firstly, and perhaps most importantly from a marketing viewpoint, the marketing methods employed by the charities are not examined. Secondly, it is implicitly assumed that these methods and the outputs of the charities are identical within the charity groups, and that the charities are equally efficient in their use of marketing tools as used for fundraising. In reality it is clear that the outputs of these charities are not identical, even within groups with like objectives. Thirdly, under above conditions the level of fundraising expenditure is the appropriate measure of fundraising effort. Overall this is clearly a limitation of the research in that marketing methods can vary in type and method; in quality and effectiveness.

There is a body of literature including Ball and Brown (1968), and Lev and Zarowin (1999) on the boundaries of financial reporting organisations. From these it has to be recognised that there is some uncertainty as to how far financial statements appear to be significant in their operations and the sustainability of charitable operations in the current political and economic environment. In addition, the inability of traditional financial reporting to incorporate the emerging non-financial concerns of charitable organisations has been well documented in the economics, business management and accounting literature (Aldridge and Colbert, 1997).

Consequently, the results of the empirical analyses in this research must be treated with caution.

Closely associated with the financial representations of the activities of these charities, the impacts of the governance of non-profit organisations on donations and fund raising have been largely ignored. Many researchers of for-profit organisations have demonstrated how the importance of effective corporate governance in financial affairs, including a stronger long-term financial performance (Verschoor, 2004). Poor governance standards have been blamed at least in part for the financial crisis in East Asia (Krugman, 1994; Radelet and Sachs, 1998; Sycip, 1998; Yamazawa, 1998; Rasiah, 1999) and witnessed current financial crises in 2008 and 2009 worldwide. However, Gold (2005) asserts that over the long-term, firms with poor governance outperformed the S&P/ASX 200 index by 5-13% per annum. Thus the results of corporate governance research remain somewhat controversial even for for-profit organisations but have not been treated in the same depth for not-for profit organisations. This thesis cannot pretend to shed much light on this unsettled topic. A stark question is how corporate governance of charitable organisations can be treated:

within a unitarist model, a model based on altruism or some further variations? In fact, whether or not organisations can be truly altruistic is a governance question that is ignored in favour of simplifications for modelling purposes.

Another limitation, as a piece of comparative research is that as a consequence of the problems with the Japanese data, this thesis necessarily concentrates on Australian charitable and philanthropic organisations, with the analysis of Japan having to be relegated to a subsidiary research objective. Nevertheless, this thesis aims to contribute some information to accounting studies and mixed discipline research and policy makers of not-for-profit organisations, as it will be the first analysis of results on Japanese NPO Corporations for this issues. Furthermore, it will be the first time analyses of Japanese NPO Corporations are presented and discussed on the basis of Cournot oligopoly competition theory.

1.6 Structure of the thesis

The thesis is organised into nine chapters. First Chapter One introduces the research topic, and understanding of the behaviour of charitable organisations.

Chapter Two discusses the background of charities in Australia and Japan, which may emphasise cultural and institutional differences between these two countries.

Chapter Three comprises a literature review discussing various relevant issues in charitable organisation research. The purpose of the review is to provide a basic theoretical and empirical foundation for the thesis and a detailed review of the typology of donors relevant to their decision to donate.

Chapter Four provides a discussion of the theoretical framework for the models used in the study and how these have been created from previous research.

Chapter Five details research design issues and variables designed for the models used in this study, focusing on a detailed discussion for a quantitative analysis approach.

Chapters Six, Seven and Eight outline the results of empirical research undertaken into the oligopolistic competition among charitable organisations in the similar industry types of groups. Chapter Six focuses on the analysis of the family of oligopolistic competition models using Ordinary Least Squares (OLS) and finding a relationship between the logarithm of total donations, and financial and non-financial information among a similar group of charitable organisations in Australia and Japan.

Chapter Seven also employs OLS models, however, this chapter places more emphasis on the models of shares of donations, shares of fundraising expenditures and shares of volunteers among group of charitable organisations in Australia and Japan.

Chapter Eight focuses on Two Stage Least Squares models using a group of charitable organisations in Australia and compares the results of Two Stage Least Squares models on shares of donations, shares of fundraising and shares of volunteers.

Chapter Nine concludes the thesis with a summary of the findings and discusses the general implications of the research in terms of its contribution to our understanding of the relationship between donations, and financial and non-financial information.

Chapter 2
Background of Charitable Organisations: Australia and Japan

2.1 Introduction

This chapter provides the historical and current context of charitable organisations, and a profile of charitable organisations in Australia and Japan. These two histories are very different. Some Australian charitable organisations, for example, have histories which date back to the initial European settlement. The churches guided social welfare institutions and started charitable organisations beginning in 1788. Conversely, Japanese organisations are very new, due to the Japanese government policy of restricting the establishment of community based organisations until 1998.

This late start occurred because the Japanese Government did not realise the necessity of a policy for accepting community based organisations until the Kobe earthquake hit Japan at 5:46 am on 17 January, 1995. At that time people from all over Japan came spontaneously and formed volunteer groups to help victims in the shelters (all schools became instant shelters, and victims and volunteers were accommodated there until the new school year started in April 1995). The Japanese Government delayed taking action and relied on these spontaneous volunteer groups for immediate assistance for the following few years, until the last shelter closed.

This chapter is organised as follows: The selection of the two countries is discussed in Section 2.2. The background of the charitable organisations in Australia is discussed in Section 2.3 and in Japan in Section 2.4. In Section 2.5 the sample of Australian and Japanese charitable organisations is presented. A summary is provided in Section 2.6.

2.2 Selection of countries

Both Australia and Japan are under-researched compared to other countries, especially the USA and the UK. There are also distinct cultural differences between Australia and Japan. Cultural differences seem to influence an individual's donation decisions, according to Hofstede (2001), who established a theory of culture of masculinity or femininity. Hofstede stated 'Masculinity versus femininity is about ego enhancement versus relationship enhancement' (1980, p. 18). Based on a survey of the international subsidiaries of one large multinational organisation in 40 countries (once in 1968 and once in 1972 for a total of more than 116,000 questionnaires), Hofstede (1984, 1993; 2001) found that high 'masculine' culture people do not generally care about others, while in a low 'masculine' cultures, people are more benevolent. While both Australia and Japan are grouped as masculine nations by Hofstede (2001, p. 286), Australia's masculinity score was 61 (position 16), while Japan ranked number one with a masculinity score of 95. A request for charity should trigger the norm of nurturing and a perceived moral obligation to help others (Hofstede, 2001).

O'Neill and Young (1988) argued that a high 'masculine' culture government is more likely to control charitable organisations, while those with a lower 'masculine' culture are likely to impose higher tax rates to generate revenues to look after those who are less fortunate. Solicitations for charity donations should motivate greater feelings of personal obligations in high masculine countries, but trigger greater perceptions of the government's obligation in low masculine countries (Nelson et al., 2006). The altruistic behaviour and values of the individual may be reflected in their cultural differences (Nelson et al., 2006).

Other research has been broadly applied in cross-culture studies (Kamibayashi, 2001; Brown, 2005; Sato, 2008). Hofstede's research has been criticised and the masculinity and femininity dimensions, in particular, have received the most criticism (Jandt, 2007). Yeh (1988) argues that Hofstede ignores the stage of economic development of each country: thus a country in its early stage emphasises economic growth more than the problem of environment. Sato (2008) also has concerns for Hofstede's sample validity. Sato (2008, p. 827) states that, 'It is obvious that a large multinational company's employees are not representative of the Japanese nation'. Thus, Hofstede's (2001) judgement of Japan is the judgement of employees in the sample of a multinational company, one which encourages its employees to focus on work and higher positions, rather than family or relationships with other co-workers. It requires a higher need for dominance, autonomy, aggression, exhibition and achievement (Jandt and Hundley, 2007), while the Japanese possess a totally different character (Sato, 2008). In the Japanese culture, Beatty et al. (1991) also finds a strong tradition of reciprocation and moral obligations towards the needier.

One of the subsidiary aims of this study is to examine altruism and its impacts on charitable organisations. Previous studies find that it is far too difficult to measure. Can altruism be affected by culture? Titmuss (1970) states that the blood donation is pure altruism. Titmuss (1970, p. 239) states that,

> Unlike gift-exchange in traditional societies, there is in the free gift of blood to unnamed strangers no contract of custom, no legal bond, no functional determinism, no situations of discriminatory power, constraint or compulsion, no sense of shame or guilt, no gratitude imperative and no need for the penitence of a Chrysostom. In not asking for or expecting any payment of money these donors signified their belief in the willingness of other men to act altruistically in the future.

The World Health Organisation (WHO) reports in 2001 that the blood donation rate per 1000 population was 18 times higher in countries with a high Human Development Index (HDI) than countries with a low HDI during the years between 1997 and 1999 (World Health Organization, 2001). While this is not directly cultural, it does suggest that the level of altruism can be societally determined. The HDI is a standard means of measuring well-being and the impact of economic policies on quality of life. It is a comparative measure; life expectancy at birth, adult literacy rate, combined gross enrolment ratio in education, GDP per capita of standards of living for countries worldwide. Table 2.1 presents the top ten ranking countries and their HD indices (The United Nations Development Program, 2008). Of course, the immediate methodological problems are that those nations with a high HDI will also possess greater technical and organisational capabilities for collecting blood.

Australia and Japan are only two countries in the Asia Pacific region placed in the top ten in the Human Development Index (HDI) in the world (The United Nations Development Program, 2008) and this is important for validity of comparisons.

Table 2.1: Top 10 countries in the human development index trends

Rank	Country	Human Development Index in 2006
1	Iceland	0.968
2	Norway	0.968
3	Canada	0.967
4	Australia	0.965
5	Ireland	0.960
6	Netherlands	0.958
7	Sweden	0.958
8	Japan	0.956
9	Luxembourg	0.956
10	Switzerland	0.955

Source: Human development indices (United Nations Development Programme, 2008)

2.3 Background of charitable organisations in Australia

Australian charitable organisations have become a major provider of services that the government or business sectors are either unable or unwilling to provide (Kim, 2004). The expectation for providing quality of services has risen especially in the service areas of support and community-building (Salamon et al., 2000). Thus, in recent years there has been a steady and recognised increase in expectations of the Australian community about professionalisation and maturation of the charitable sector, and the expansion of the roles of the charitable sector in the community (Sernik, 2005).

Following the previous prime minister's Community Business Partnership policy declared on 30 November 1999 at the Philanthropy Australia Conference in 2003, Gonski (2003) suggests that the Australian government would no longer be the sole engine for social innovations and national development. In the last half of the 20th century in Australia, a large number of state or local government programs provided the funding for charitable organisations to deliver services at the community level on behalf of the federal government (Australian Government, 2005a). With the significant growth in the welfare state, the federal government has taken an active role in promoting various services and assistance to individuals through community-based charitable organisations, rather than delivering them directly (Australian Government, 2001).

One reason for this is that to deliver welfare services and meet the needs of the community, community-based charitable organisations are considered to have a better understanding of individual and community needs (Lyons, 2001). Similarly can provide services in a more flexible, cost-effective and more accommodating manner than the federal government's welfare services (Lyons, 2003). In this context, examining competition in the charitable sector is appropriate. In addition, there are various concessions offered by the federal government, which include deductible gift recipient status and income tax exemptions (Australian Government, 2005b).

Charitable organisations have broadened the scope of the number and variety of the services they provide, not only in response to the diversifying and changing needs of the community (Australian Government, 2001; Garcia and Marcuello, 2002), but also in response to the changing environment of federal government policy on charitable organisations in Australia (Australian Government, 2001). Hence, diversity of service is an important element for survival, because those charitable organisations with a narrow mission and who depend only on government funding can be more vulnerable in the current environment (Liddell and Murphy, 1999). Thus, Australian charitable organisations are adopting a more business-like approach in their administration (Garcia and Marcuello, 2002). Australian charitable organisations are seemingly keen to move away from a dependency on government and to explore a market-oriented approach. This explains the recent moves of charitable organisations to appoint their managing directors from for-profit organisations (Goerke, 2003).

Currently, Australian charitable organisations face complex problems (Centre of Philanthropy and Nonprofit Studies, 2006). These include increasing federal government regulatory and legislative requirements including reporting standards for obtaining grants, the increasing importance of management leadership, increasing competition to satisfy changing individual needs and decreasing or increasing instability of funding (Australian Government, 2006).

2.3.1 History of the earliest organisations

As already indicated, from 1788 the social welfare institution affiliated to the churches created the Australian charitable organisations sector. These church organisations have taken an important role in innovating and forming social, economic and political policies in Australia (Lyons, 1993). Australian charitable organisations have diversified in various areas, including sporting and social clubs, religious affiliations, human service organisations and art institutions (Lyons, 2001). Initially, primarily social welfare institutions were affiliated with churches (Lyons, 1993) however, in the nineteenth century, secular Australian charitable organisations in the form of community service clubs, orphanages, disability services, business associations and hobby and sporting associations became more common (McGregor-Lowndes, 2000). Those established before the 1980s were mostly church-sponsored (Lyons and Nivison-Smith, 2006). Many were established by Acts of Parliament, either indirectly through church sponsorship or in their own right as charitable organisations (Lyons, 1993; Commonwealth of Australia, 1995).

The oldest religious charity still operating in Australia is the Wesley Mission Sydney, which has its origins in the first Methodist Church established in Sydney in 1812. In the early 1880s, this church was renamed as the Central Methodist Mission. In 1997 the Uniting Church was created from a union of the Methodist, Presbyterian and Congregational Churches and, subsequently, the Central Methodist Mission became the Wesley Mission (Wesley Mission Sydney, 2005). Currently the Wesley Mission Sydney operates over 200 centres and employs over 3000 staff with an annual budget of $160 million (Wesley Mission Sydney, 2008).

The second oldest charity with a religious affiliation in Australia today is the St. Vincent de Paul Society Australia, established in Melbourne in 1854. It established branches in other states: in Western Australia in 1865, New South Wales in 1881, South Australia in 1886, Queensland in 1894, Tasmania in 1899 and the Northern Territory in 1949. Home visits have been the core work of the society in the past, aiming to help disadvantaged people and families in the Australian society (St Vincent de Paul Society, 2008). In 2007, the St Vincent de Paul Society reported total revenues of AUD$207 million with 40,000 volunteer members assisting in the good works of the St Vincent de Paul Society (St Vincent de Paul Society, 2008).

The Salvation Army is also recognised as one of Australia's major charitable organisations (The Salvation Army, 2005). It was originally known as the Christian Mission. In 1883, a former Methodist minister, Major James Barker, began conducting chapel services in a prison-gate home in Carlton, Melbourne. This was the first organisation of its kind in the world. At first, the Salvation Army's main converts were alcoholics, drug addicts, prostitutes and other “undesirables” (The Salvation Army, 2005). Following its establishment, the Salvation Army grew rapidly and in 1885, a missing person’s bureau was established as one of its first social services in Melbourne and Sydney. Since then, their services have diversified to helping individuals who suffer from various social issues and various tragic events as the main focus of its operation (The Salvation Army, 2005). During the financial year 2006–2007, the Salvation Army reported its total revenues at AUD$658 million, including the financial donations of AUD$72 million and goods to the value of AUD$34 million with a staff of 10,000. (The Salvation Army Australia Southern Territory, 2008; The Salvation Army Eastern Territory, 2008).

Today, one of the largest charitable organisations in Australia with religious affiliations is World Vision Australia. World Vision was first established in the United States of America (USA) by a Baptist church missionary, Bob Pierce, in 1950. Initially, he set up orphanages in South Korea to look after abandoned or orphaned children, using money raised in the USA. In the 1960s, World Vision expanded its operations to establish refugee camps in Indochina, Bangladesh and in several African countries. In 1966, it established a charity to provide child sponsorship (World Vision Australia, 2004).

In the 1970s, World Vision expanded its program from child sponsorship to developing welfare programs to assist communities. Since the 1980s, its programs have taken a much broader outlook by expanding their programs to include minority groups and communities, in addition to the poor (World Vision Australia, 2004). The total revenue in 2007 was reported as AUD356.5 million, an increase of 13.9% compared with 2006. In 2007, 350,000 Australians sponsored 400,000 children world wide, donating AUD189.3 million in cash and AUD97.7 million worth of goods (an increase of 40.7% compared with 2006). In addition, 3,808 Australian volunteers contributed 157,056 hours of work, with a financial value of AUD3.4 million (World Vision Australia, 2007, p. 42).

The oldest secular charity in Australia is the Benevolent Society, which was established by Mr. Edward Smith Hall in 1813 with the support of its first patron, the New South Wales Governor, Lachlan Macquarie (The Benevolent Society, 2005; The Sydney Morning Herald, 2008). The society began to provide a social service for motherhood and opened the Sydney Asylum for the poor, blind, aged and infirm in Sydney in 1821 (The Benevolent Society, 2005). The society's concern for the cause of social problems has been well recognised by the community and it is still in operation, providing a wide range of services to individuals (The Sydney Morning Herald, 2008).

The second oldest secular foundation is the Wyatt Benevolent Institution, established in 1881. Dr Wyatt bequeathed an estate of nearly £50,000 in 1886. The foundation began to provide financial assistance to individuals and to improve the quality of life of people in South Australia. They still maintain the same services in South Australia and have been a major supporter of the Smith Family's Learning-for-Life scholarships since 1997.

According to a report in the July 2006 issue of the Business Review Weekly (BRW) (2006), the 12th largest secular charity out of Australia's top 200 Charitable organisations is the Australian Red Cross. This was established in 1914, nine days after the commencement of World War I, by Lady Helen Munro-Ferguson, the wife of the Governor-General Munro-Ferguson, as a branch of the British Red Cross. According to the history of the Australian Red Cross (2008b), Lady Munro-Ferguson wrote a letter to the mayors of every shire and municipality in Australia requesting the establishment of local branches. Within four months of this request, 88 city or suburban branches and 249 country branches had been established in New South Wales. Currently, the Australian Red Cross organises over 60 community services including blood donation programs, first aid projects, disaster and emergency relief services, youth and education support. Australian Red Cross has a staff of over 1,800, with 31,000 volunteers and 30,000 members (Australian Red Cross, 2008a).

The Endeavour Foundation is also a secular charity, and it was established in 1951 in Queensland by a group of parents and friends. They were responding to the need for education, care and support services for their children with intellectual disabilities. In 1986, the Department of Education took over the educational role of Endeavour, leaving it to concentrate on the provision of development and support services to adolescents and adults with disabilities. During 2006–07, Endeavour reported its total revenues at AUD112 million including donations of AUD18 million. It provides services to almost 3,000 Queenslanders with disabilities and their families (Endeavour Foundation, 2007).

2.3.2 The size of the Australian non-profit sector

At the end of the financial year (FY) in June 2007, there were 40,976 '*Economically significant non-profit organisations*'[1] in Australia (Australian Bureau of Statistics, 2008a). This has increased by 28% since 1996 (32,000 charitable organisations). The non-profit sector includes organisations such as universities that are not generally perceived as charitable organisations in Australia. At that the religious organisations accounted for 21.3% (8,743) of all non-profit organisations, followed by culture and recreation organisations that accounted for 20% (8,214) (Australian Bureau of Statistics, 2008a). A significant proportion was social welfare organisations, often recognised by their charitable status (Shergold, 2009). A major source of income for the charitable organisations in Australia is funding from federal, state and local governments, which is reported in the FY of 2007 as just over one third (34.1% or AUD25.4 billion) of total income (see Table 2.3) (Australian Bureau of Statistics, 2008a). The highest share of funding is accounted for by "education and research" organisations (32.4% or AUD8.2 billion) followed by social services organisations (26.5% or AUD6.7 billion) in the FY to June 2007 (Australian Bureau of Statistics, 2008a). Over two-thirds of total government funding (68.1% or AUD17.3 billion) for

[1] They employ staff or access tax concessions (see the Office for the Not-for-Profit Sector, Australian Government: http://www.notforprofit.gov.au/about-us/about-us-page-1).

non-profit organisations was volume based funding (for example, granted on a per student or a per client basis) (Australian Bureau of Statistics, 2008a).

Table 2.2 presents a comparison of the incomes of the non profit sector in Australia between the FY 1999–2000 and the FY 2006–2007. During the FY 1999–2000, the non-profit organisations in Australia received AUD20.8 billion in income (3.3% of the GDP) and employed 604,000 people (Australian Bureau of Statistics, 2002). The primary source of income was from funding by federal, state and local governments, which totalled AUD10.1 billion. Services brought AUD7.3 billion, and donations, sponsorship and fundraising brought another AUD3.3 billion (Australian Bureau of Statistics, 2002). During the FY 2006–2007, non-profit organisations in Australia received AUD74.5 billion in income, representing 7% of the GDP (Australian Bureau of Statistics, 2008a). The primary source of income is from federal, state and local governments, AUD25.4 billion (2.4% of the GDP), income from services at AUD21.6 billion (2.1% of the GDP), and donations, sponsorship and fundraising at AUD6.75 billion (0.6% of the GDP) (Australian Bureau of Statistics, 2008b), while GDP for the FY 2006–2007 represents AUD1,046,620 billion (Australian Bureau of Statistics, 2008b). Total employment is reported as 884,476 people (Australian Bureau of Statistics, 2008a) with an additional 2,434,815 people as volunteers (Australian Bureau of Statistics, 2008a).

Table 2.2: Non-profit sector in Australia, 1999–2000 and 2006–2007

Revenue/Employment	1999–2000 billion	2006–2007 billion
Total income	20.80	74.50
Government grants	10.10	25.40
Service fees revenues	7.30	21.60
Donations, sponsorship and fundraising	3.30	6.75
The number of employees	604,000	884,476

Sources: Australian Bureau of Statistics (2002 and; 2008a)

This growth is close to spectacular, but it remains to be seen how far this is affected by the Global Financial Crisis.

2.3.3 The Australian regulatory framework

Australian charitable organisations have received a substantial amount of government subsidy over the years. However, this has changed over the last two decades because the federal government began to seek higher public accountability from charities (Kim, 2004). The governments' large amounts of funding were never an open-ended commitment but its requirements are increasingly stringent. The federal government expects outputs and an acceptable achievement of desired outcomes for communities (Lyons et al., 1999). The onset and aftermath of the Global Financial Crisis have exacerbated this.

The Australian Securities and Investments Commission Act 1989 stated the need for accountability and the Royal Charter required organisations to register to be eligible to receive state funding (Scouts of Australia, 2003). Incorporated charitable organisations came under the Corporation Act 2001, the same regulation as for-profit corporations. Thus, incorporated charitable organisations (generally the larger charitable organisations) are regulated by the Australian Securities and Investments Commission and are subject to the same reporting and auditing requirements that apply to corporations (Australian Government Productivity Commission, 2009). It is this that creates a data source for the present study. In addition, the Australian Council for Overseas Aid has developed codes of conduct for the members of charitable organisations and other development charitable organisations to follow (Kim, 2004).

To be recognised as a charitable organisation, under common law it is necessary to have "charitable purpose," where organisations represent the advancement of health, education, social and community welfare, religion, culture, natural environment and/or other purposes beneficial to the community (Australian Taxation Office, 2002). An organisation, conducting a charitable purpose, is allowed to receive various taxation concessions and fundraising licenses (Lyons, 1993; McGregor-Lowndes, 2004). The division of government responsible for the NPO legal framework is shared primarily between the states and the federal government (Lyons, 1993, 2003) and each State in Australia has a different statutory framework for permitting the incorporation of charitable organisations under the general code of business corporations (Lyons, 1998).

In the last decade, there has been a significant evolution of the governmental structures and economic institutions by agreement between the states and the Commonwealth Government (McGregor-Lowndes, 2004). The registration of charitable organisations has been in accordance with Section 21 of the Company's Act 61 of 1973. Since 1922, the income of a charitable institution and the income of a fund established by will or an instrument of trust for a public charitable purpose have been exempt from income tax. Unregistered charitable organisations were not subjected to income tax legislation until 1977 (Philanthropy Australia, 2008); after 1997, all charitable organisations were required to register under the Nonprofit Organisations Act 71 of 1997 to receive tax exemption.

The Income Tax Assessment Act of 1997 (Division 50), imposed tax on the income of certain charitable institutions to prevent charitable organisations shifting tax-exempt income offshore. Lyons (2001, 2003) states that the charitable sectors have a tendency to limit the disclosure of their operations to their members, supporters and clients, and therefore, governments have introduced laws and regulations to prevent such practices and protect their stakeholders (Lyons, 2003). Governments can also protect and maintain the reputation of the charitable sectors through legislation and regulation to prevent dishonest individuals forming a charitable organisation with hidden agendas or engaging in illegal operations (Fleishmen, 1999).

Furthermore, in order to have income tax exemption, all charitable organisations are required to be registered as income tax exempt charitable organisations (Public Interest organisations) since July 2000 (Australian Taxation Office, 2002). At present, the government responsibility for the legal framework of the NPOs is shared between the states and the Commonwealth, with each state having different statutes permitting the incorporation of the NPOs in its general code of business corporations. The legal framework of the charitable organisations in Australia is not a rational jurisprudential structure, nor is there a uniform law for the creation of charitable organisations (Lyons et al., 1999; 2004). Instead there are a number of diverse jurisdictions (McGregor-Lowndes, 2004). Thus, currently charitable organisations face a number of difficulties in relation to the lack of co-ordination of the laws in the differing state jurisdictions (McGregor-Lowndes, 2004).

2.3.3.1 Accountability of Australian charitable organisations

In relation to financial reports, if a charitable organisation receives either government grants or philanthropic grants or donations, a charitable organisation is deemed a “reporting entity”. It is therefore necessary for the organisation to prepare a general purpose financial report and comply with the Corporation Act 2001 and Australian Accounting Standards.

The Australian Accounting Standards Board, in its project Accounting Policies, changes in accounting estimates and errors' summary, states that both reliability and relevance of data are critical to decision usefulness. Tinkelman and Mankaney (2007) stated the fair that the attributes of organisations may affect the perceived relevance and reliability of financial information and the testing of results. Tinkelman et al. found several aspects of data affect the relevance and reliability of the data to donors. These were as follows:

- Start-up organisations, organisation younger than 4 years. Organisational performance in the start-up may be seen by donors as typical and having limited relevance.
- Organisations that normally received less than 20% of their revenues from donations. For such organisations, the overall expenditure (including administration costs) will be predominant. Donors are likely to regard organisational expenses disclosures as of limited relevance.
- Smaller organisations which are not required to be audited.
- Organisations with unusual aspects, defined as zero fundraising or administration costs.

In addition, if a charity asks for fundraising in public it has to comply with regulations of various State Fundraising or Collection Acts. Table 2.3 presents legislations for fundraising in each state. The legislation of New South Wales is the Charitable Fundraising Act 1991 and its regulation is the Charitable Fundraising Regulation 2003. It requires charitable organisations to report fundraising expenditures and ratio of fundraising expenditure to total expenditures. Queensland’s Acts are the Collections Act 1966 and Collection Regulation 1998.

The behaviour of Australian charitable organisations is not only constrained by mandatory compliances of state and federal law requirementa, but also by voluntary compliance including professional and industry codes of conduct, and organisational policies and codes of conduct.

Table 2.3: Legislation for fundraising and states

State	Title of legislation
Australian Capital Territory	Charitable Collections Act (Regulation) 2003
Victoria	Fundraising Appeals Act 1998 (Regulation 2001)
New South Wales	Charitable Fundraising Act 1991 (Regulation 2003)
Queensland	Collections Act 1966 (Regulation 1998)
South Australia	Collection for Charitable Purposes Act 1939 (Regulation 1995)
Western Australia	Charitable Collections Act 1947 (Regulations 1947)
Tasmania	Collections for Charities Act 2001 (Regulation 2001)

Sources: (New South Wales, 2000; Queensland, 2000; South Australia, 2000; Western Australia, 2000; Victoria, 2001; Tasmania, 2003; Australian Capital Territory, 2005)

The Australian Institute of Fundraising [now Fundraising Institute Australia (FIA)], the major professional association for fundraisers, has amended its Code of Professional Conduct to include references to acceptable levels of cost of fundraising in various kinds of fundraising campaigns (Fundraising Institute Australia, 2000).

Many charitable organisations increasingly rely on income from sources such as merchandising, fee for service, government grants and fundraising. Fundraising is an important activity and a growing part of the Australian community and many government and semi government organisations and not-for-profit organisations have established significant fundraising programs to provide new and innovative services. To enhance fundraising trends, there are numerous bureaucratic issues at state government and federal government levels involved. As well, there is a need for greater public accountability and transparency for all fundraising which can only be achieved through the use of standardised reporting procedures.

In September 2009, the Australian Accounting Standards Board (AASB) announced that the project, “Disclosures by Private Sector Not-for-Profit Entities,” suggests including disclosure requirements or guidance to fill the gaps in relation to non-financial information and service performance (Australian Accounting Standards

Board, 2009). They argue that donors and others interested in charitable organisations be provided with financial reports that are both easier to understand and useful, donors may want non-financial information to help them make financial decisions such as whether to make a donation. Furthermore, donors most likely want to know how a charitable organisation spends its resources and the specific outputs and outcomes from those resources. AASB Chairman, Kevin Stevenson stated that, "The AASB does not wish to increase the disclosure requirements …but the matter of disclosure of non-financial information needs to be further explored" (Australian Accounting Standards Board, 2009). AASB further comments that cost-benefit approaches should be removed to meet not-for-profit specific needs (Australian Accounting Standards Board, 2009).

2.3.4 Current issues for Australian charitable organisations

Government regulators are concerned to protect consumers from bogus fundraisers and to regulate some fundraising activities which have the potential to cause problems, such as telephone fundraising campaigns. Door-to-door collections are favoured by Australian donors. As yet Australian charitable organisations have not seen corruption on the scale of some of those in the U.S.A. (Leat, 2004). However, corruption still exists in Australian charitable organisations and it is usually seen as the work of individuals, bad apples or single operators (Leat, 2004; ABC Net, 2008). Individuals who have been involved in such corrupt practices have been publicly prosecuted and imprisoned (ABC Net, 2004).

Furthermore, the low level of corruption in Australia can also be explained by the fear of scandals, which has acted as a major factor in charitable organisations improving their effectiveness, governance and accountability (Bothwell, 2001). For example, the Australian Red Cross was accused of failing to send sufficient money to Australian Bali bombing victims, revealed when the financial details of its Bali appeal were made public. An accounting firm (Price Waterhouse Coopers) subsequently established that there was no evidence of fraud or misuse of donor funds by the Australian Red Cross (ABC Net, 2008).

Currently, Australians are targeted by sham charitable organisations which send e-mails asking for donations to what are fake charitable organisations. In 2001, the Victorian State Government warned that requests had come from spam e-mail or online requests under titles such as “Express Relief Fund” or “Victims Survivor Fund” (Pro Bono Australia, 2001). In 2005 the police also reported the investigation of ‘fake’ Tsunami website ‘lncybernet’, with the Australian Red Cross symbol featured in the background in 2005 (Net Australia, 2005).

The Australian Government Agency has opened the web site, SCAMwatch, to warn Australians to be careful (SCAMwatch, 2005). Fake charitable organisations are a big problem because they divert much needed donations away from legitimate charitable organisations and causes (SCAMwatch, 2005).

Regulators have responded to recent calls (from the media and charity ‘watchdog’ organisations such as Givewell (2005) in Australia and Guidestar (2009) in the US, for controls on the proportion of donations that can be spent on administration and fundraising and for greater efforts to educate donors about such measures. One of the responses to these calls has been increased attention given to (a) the proportion of program expenses to total expenditure, and (b) the proportion of fundraising expenses to total fundraising revenue. This latter ratio is important to the modelling in this thesis.

2.4 Background of charitable organisations in Japan

This section describes the position of charitable organisations in Japan. It demonstrates that both the history and the present position of charitable organisations in Japan are vastly different to that of Australia in almost every aspect.

Recently, most municipal governments in Japan have outsourced projects to non-profit organisations including NPO corporations. Local government reported that over 40% of governmental welfare services and 20% of governmental general services have been outsourced to non-profit organisations (Oyama, 2003). This was not only because they anticipated that the outsourcing might reduce the cost, especially given the recent Japanese stagnant economy, but also to respond to the increasing diversity of community needs (Oyama, 2003).

Oyama (2003) argues that the collaboration or partnership between the municipal governments and the NPOs is to exercise their authorised government over the NPOs. This is enforced by providing funds in return to improve this new sector of the NPOs to help them become more professional organisations, and also to keep the discretional power of municipal governments to send their retired employees to the NPOs, a strategy carried out by Central Government to the Public Interest Legal Corporations[2] (PICs) (also see Pekkanen, 2000). This practice is called "Amakudari" in Japanese and is common at all levels of the public bureaucracies. The fact is that inter-organisational networks are tied to the governments. The reappearance of corruption and illegal acts in the process of providing public services may indicate the weakness of government monitoring and accountability in the NPO sector (Oyama, 2003). However, the proposed new system of the NPO sector, enacted in December 2008, is to provide all small voluntary organisations with incorporated status (Yamamoto, 2007). This also minimises the involvement of bureaucracy and keeps less discretional power in the procedure of granting corporation status (Oyama, 2003). More importantly, retired bureaucrats from the ministry will no longer be allowed to take up positions in the NPO sector (Pekkanen, 2000).

2.4.1 History of the earliest charity organisations

During the Tokugawa era (1603–1868), many aspects of social work in Japan were shaped by the ideals of Buddhism with its emphasis on the virtues of sympathy, gentleness, kindness, mercy, pity and benevolence (Higgins, 1981). Buddhism came to Japan from Korea in the mid-6th century and Buddhism has been the adopted faith of the Japanese people. It is centred on the temple[3] and the family altar[4] (Jandt, 2007,

[2], In 1898, during the Meiji era, Civil Law was enacted as regulation for nonprofit organisations, and legal foundation status was given to public interest corporations, named as Public Interest Legal Corporations (PIC or Koeki-hojin in Japanese) (Yamamoto et al., 1999).
[3] There are more than 200 sects of Buddhism in Japan, with wide differences in doctrines (2007). Most households observe some ceremonies of both religions, for example, holding a Shinto wedding and a Buddhist funeral.
[4] In 1991, overall 91% Japanese believed themselves for Buddhist, whereas South Korea was 15.4%, China, 63.3% and Thailand, 52.5% (The Los Angels Times, 1991, p. H6 October).

p. 166). Buddhist temples in village society maintained community welfare support systems (Funaki, 2002). During this period, fundraising was introduced for orphans, the elderly, and others who suffered from natural disasters (Marcure, 1985). Buddhist temples were directed to form a “danka” (Marcure, 1985), a network by which the temples were supported financially, and were formed in each village throughout the country. During the Tokugawa era, the “danka” system developed into “Chonai-kai,” local district associations in the urban areas. However, the “danka” system continued to operate in the rural areas (Marcure, 1985).

Thus, the Japanese non-profit sector has a very long history. Pekkanen (2000, p. 116) stated that “Japan has managed its non-governmental organisations with one of the most severe regulatory environments in the developed world”. It was, however, institutionalised in its contemporary sense in the Meiji era in 1896[5] when Civil Law defined the regulations governing the non-profit organisations, which were called Public Interest Corporations (PICs) (Salamon and Anheier, 1997). These corporations were strictly regulated by the government and they were required to obtain government approval for their establishment (Pekkanen, 2000), as well as being subject to government supervision for their operations (Yamamoto et al., 1999).

The Japanese Government permits ministries or agencies to handle the approval of the PICs, but this has allowed retired bureaucrats from the ministries to establish PICs with funds and operating incomes through the ministries (Pekkanen, 2004). To be recognised as PICs, Japanese bureaucrats were required to possess a capital of more than US $3 million (Pekkanen, 2000), however, it is not easy for PIC to become a corporation. Without legal status as a corporation, small groups can still operate in Japan, but they are at a significant disadvantage (Yamamoto et al., 1999). They cannot sign a contract, which means they are unable to open a bank account as a corporation, employ staff or own property (Yamamoto et al., 1999; Pekkanen, 2000). Thus, Japan has perhaps the most severe regulatory environment in the developed world for establishing and operating non-governmental organisations (Pekkanen, 2000).

[5] The Civil Code Article 34, provides the legal foundations for the objectives of worship, religion, charity, education, arts and crafts, and other activities for ‘Public Interest Corporation, and not-for-profit (PICs, or Koeki Hojin) (Yamamoto et al., 1999).

The PICs serve as complementary agencies for the government, supporting its goals in the fields of education, health and welfare. Such organisations were not recognised as collectively constituting a common non-profit sector (Matsubara and Todoroki, 2003). The government limited the content and quality of services and continually interfered in decisions regarding how these organisations' resources were to be used. Because the government generally provided a certain level of financial resources for the PICs, the PICs were not encouraged to raise funds from the public (Matsubara and Todoroki, 2003). However, the development of a system that allowed tax deductible contributions came as late as 1961, when certain organisations — special public-interest promotion corporations for the PICs, including social welfare institutions — could become eligible to receive tax-deductible contributions (Ministry of Finance Japan, 1967). Because the government was providing the funds for social services directly or indirectly through public interest corporations, the collection of donations dwindled in Japan (Matsubara and Todoroki, 2003). From the Meiji era (1868–1912) until World War II (WWII), approximately 6,700 non-government welfare institutions were recognised. These were Buddhist, or mainly Buddhist institutions (Matsubara and Todoroki, 2003). Large Japanese conglomerates also supported these non-government institutions with financial contributions (Funaki, 2002).

After WWII, during the time when democracy was supposed to have grown, many PICs, such as private schools, hospitals, social welfare institutions and others, were increasingly subjected to the control of the government (Matsubara and Todoroki, 2003). In accordance with directives of the post-war Allied Occupation after WWII, large conglomerates were broken up and government organisations were prohibited from giving public money to private, charitable, educational, philanthropic, or religious organisations (The Constitution of Japan, 1946). Following this, the national governments and local governments took full responsibility for the welfare industry (The Constitution of Japan, 1946; Hasan, 2001).

In 1947, the Central Community Chest of Japan was established by the Japanese Government, with 47 Prefectural Community Chests' branches set up to help people living in poverty (Matsubara and Todoroki, 2003; Hasan, 2005). The 47 Prefectural Community Chests have taken the responsibility for the collection of community donations since 1950. In practice, the great majority of Japanese have donated to the Red Feather Community Chest for social welfare every year since 1947, to the Green Chest for care of the environment and tree-planting since 1950, and to the White Chest (also known as the Japanese Red Cross) for medical needs, since the nineteenth century. Donations are raised every year through neighbourhood community groups (so-called Chonai-kai) and through fundraising events at primary, junior and senior schools, including public and private schools. With the enactment of the Social Welfare Services Law in 1951, the government introduced further regulations to the Community Chest Activities (Community Chest, 2003).

In 1897, the associations and foundations were permitted to become legal non-profit entities under the Civil Code 'with the objective of worship, religion charity, education, arts and crafts, and other activities for public interest, and not for profit' (The International Center for Not-for-Profit Law, 2006, p. 2). In 1949, the Ministry of Education approved private non-profit schools as legal non-profit Educational Corporations, followed by approval of the Medical Corporation in 1950, and certification to the Religious Corporation in 1951.

Currently, there are two types of civic organisations in Japan. The first is the Chonai-kai, as noted before, a traditional neighbourhood association (Pekkanen, 2004; Nishide and Yamauchi, 2005). The second is the non-profit organisation. Currently, there are approximately 298,000 neighbourhood associations in Japan (Zenkokujichi-kai, 2005), 90 per cent of them have been set up by the Japanese Government (Pekkanen, 2004). Civic communities in Japan have long fostered trust and the forming of associations among neighbourhoods, which provide assistance for health, festivals, ceremonies at public events, including fire and criminal prevention activities (Nishide and Yamauchi, 2005). Currently membership in Chonai-kai is in decline because of the reduction in the "sense of belonging" to the community, and people's busy lives (Nishide and Yamauchi, 2005). Chonai-kai is a neighbourhood association, but it has been under the guidance of local government and its participation is semi-mandatory (Nishide and Yamauchi, 2005). On the other hand, non-profit organisations as another type of civic organisation, have been dramatically increasing since 1995, because the NPO is a voluntary organisation with a civic purpose.

After the Kobe earthquake of 1995, the Japanese people recognised the need for (independent-of-government) citizen action in a crisis rather than being entirely dependent on government action. In the 1995 Kobe earthquake, the Japanese Government failed to provide immediate assistance and support for the victims, and assistance came mainly from volunteers from all over Japan (Fukushima, 1996). Almost four years later, in 1998, the Special Non-Profit Activities Promotion Law was established to certify non-profit legal status to the NPO Corporation (Kawashima, 2001; Matsura, 2001). This NPO law was established due to the need for a public commitment to society's needs (Tatsuki, 2000). The NPO law allowed charity organisations to have bank accounts under the name of the corporation, employ staff, rent or own property and engage volunteers (Yamamoto et al., 1999). Some researchers have commented that the NPO law was the first step in the long process of developing an NPO infrastructure in Japan (Okabe, 1999).

2.4.2 The size of the Japanese non-profit sector

Table 2.4 presents data on the gross domestic product (GDP) and the total income of the non-profit sector, in addition to a breakdown of the total income by; i) donations, membership fees and grants and, ii) services fees for the period from 1999–2000 to 2006–2007. It should be noted that the depreciation of the Japanese yen (JYP) against the Australian dollar (AUD) has reduced the dollar denomination revenues of these organisations, particularly during the last few years. The last column of the table gives the growth in employment over the same period.

During the financial year (FY) 1999–2000, the total income of the non-profit sector is reported at JPY 25.4 trillion (AUD 0.377 trillion) at 5.1% of GDP (JPY502.9 trillion) (Yamauchi, 1999; Statistic Bureau & Statistical Research and Training Institute, 2001; Cabinet Office Government of Japan, 2004) and total employment as 1,344,803 people (Takayanagi et al., 2002), which has increased by 3.5% since 1997 (Miyamoto and Nakata, 2001; Miyamoto, 2003). The primary source of income is the total of donations, member fees and government grants, which totals JPY 20.9 trillion (82.3% of total income of NPO), while services fees are JPY 3.9 trillion (15.4% of total NPO income) (Cabinet Office Government of Japan, 2004).

During the period 1999–2000, the total of individual contributions are reported as JPY 163 billion (AUD2.3 billion) and approximately JPY 1,561 per person (AUD22) (Statistic Bureau & Statistical Research and Training Institute, 2004).

Table 2.4: Comparison of the years between 1999–2000 and 2006–2007 for non-profit sector in Japan in AUD (JPY)

Financial year	1999–2000	2006–2007
Total income JYP (AUD) trillion	26.717 (0.377)	30.299 (0.337)
a) membership fees & government grants JYP (AUD) trillion	21.560 (0.304)	24.352 (0.271)
b) Service fees revenues JPY(AUD) trillion	4.214 (0.059)	5.421 (0.060)
GDP JYP (AUD) trillion	499.544 (7.039)	512.186 (5.692)
The number of employees	1,344,803	2,253,839
Average exchange rates JYP (= AUD1)	70.97	89.99

Sources: Cabinet Office, Government of Japan (2004; 2008)

During the FY 2006–2007, the non-profit sector in Japan receives total income at JPY30.299 trillion (AUD0.337 trillion), which has increased by 13.4% from the FY 1999-2000 (Cabinet Office Government of Japan, 2004; 2008). The main source of income is also from donations, membership fees and government grants as at JPY 33.057 trillion (AUD0.271 trillion), representing 6.4% of the GDP (JYP515.807 trillion) (Statistic Bureau & Statistical Research and Training Institute, 2008). During the year, the total employment level is reported as 2,253,839 people, which has increased by 67.6% since the FY 1999-2000 (Cabinet Office Government of Japan, 2008b).

During the FY 2006-2007, the total of individual contributions are reported as JPY 114.6 billion (AUD1.27 billion) and approximately JPY1,073 per person (AUD12). The donation per person is much smaller in Japan compared to Australia (or other developed countries). Resent studies highlight problems in relation to the various reasons for the low per capita contribution of donations in Japan. These consist of (i) the complexity of the registration procedures and the structure of the Japanese non-profit sector (Matsubara and Todoroki, 2003), (ii) the low tax incentive for charitable organisations and donors (Hasan, 2005), (iii) the difficulties of receiving tax deductibility status for donations (Matsumoto and Takahashi, 2002; Matsubara and Todoroki, 2003), (iv) the complexity of the structure in the Japanese non-profit sector

(Matsubara and Todoroki, 2003), and (v) the inadequate guidelines regarding donations to charitable organisations (Kashiwagi and Higashide, 2005). Thus, even if the charitable organisations hold tax deductible status, donors may still not receive tax benefits for their donations owing to (a) the complexity of the tax system (the tax benefits cannot be obtained unless the donation is to an NPO over JPY10,000 at a time, compared to AUD2.00 in Australia) (Matsubara and Todoroki, 2003) and (b) the absence of proper guidelines to prepare tax returns (Kashiwagi and Higashide, 2005).

2.4.3 The Japanese regulatory framework

During the Meiji era, in 1897 Article 34 of the Uniform Civil Code was promulgated and this caused heavy regulation (Matsubara and Todoroki, 2003). “Legal persons” are organisations legally empowered with an independent existence and the ability to possess rights and obligation (Yamamoto, 1997). Thus, the Civil Law enacted regulation for non-profit organisations and legal foundation status was given, as they become Public Interest Corporations (PIC or Koeki-hojin in Japanese) (Yamamoto et al., 1999). There are two types of PICs established, the Association (Shadan Hojin) and the Foundation (Zaidan Hojin). There are seven types of Japanese NPOs. They include two PICs, the Association and the Foundation, and Social Welfare Corporation (Shakaifukushi Hojin), School Corporation (Gakko Hojin), Religious Corporation (Shukyo Hojin), Medical Corporation (Iryo Hojin), and Special Non-profit Activities Corporation (NPO Hojin, hereafter NPO Corporation). Japanese NPOs are also heavily regulated by the central government and in the Civil Law (Pekkanen, 2000). For the establishment of the NPOs, they need the approval of the municipal government, and the legal structure for NPOs is governed by a separate legal provision (Pekkanen, 2000). In addition, Japanese NPOs are also subject to lifelong government supervision (Yamamoto et al., 1999).

Table 2.5 presents seven types of Japanese NPOs and the approval of government agencies. The establishment of each NPO requires approval from different government agencies. For example, in 1897 the enactment of Association and Foundation Corporation was permitted by the Cabinet Office, Government of Japan. Existing for more than 112 years, in 2007 the number of associations and foundations in Japan was 12,749 and 12,792, respectively. The establishment of the Social Welfare Corporation and the Medical Corporation require the approval of the Ministry of Health Labour and Welfare, and the laws were enacted in 1951 and 1950, respectively. In addition, the Social Welfare Corporation consists of 13,307 organisations throughout Japan, while the Medical Corporation is a little larger, consisting of 140,048 organisations in 2007.

Table 2.5: Categories of non-profit legal organisations in Japan

Categories	Enacted Year	Based law	Authorisation Agency	NPO Status	Disclosure of Financial Information	Numbers
Association (Shadan)	1897	Civil Code, Article 34	Cabinet Office, Government of Japan	Permission	Not required	12,749
Foundation (Zaidan) (12,792)	1897	Civil Code, Article 34	Cabinet Office, Government of Japan	Permission	Not required	12,792
Social Welfare Corporation (Shakaifukushi Hojin)	1951	Social Welfare Business Law Article 22	Ministry of Health, Labour and Welfare	Approval	Not required	13,307
School Corporation (Gakko Hojin)	1949	Private School Law Article 3	Ministry of Education, Culture, Sports, Science and Technology	Approval	Not required	11,765
Medical Corporation (Iryo Hojin)	1950	Medical Law, Article 39	Ministry of Health, Labour and Welfare	Approval	Not required	140,048
Religious Corporation (Shukyo Hojin)	1951	Religious Corporation Law Article 4	Agency For Cultural Affairs	Certification	Not required	183,894
Specified Non-profit Activities (NPO Hojin)	1998	Promote Specified Nonprofit Activities	Municipal Government or Cabinet Office, Government of Japan	Certification	Required	37,198

Source: Nihonkonin Kaikeikyokai (2000), Pekkanen (2000), The International Centre for Not-for-Profit Law (2006); Ministry of Internal Affairs and Communications (2005) and Cabinet Office Government of Japan (2008a).

The Ministry of Education, Culture, Sports, Science and Technology has provided approval for the establishment of the School Corporation since 1949 there have involved a total of 11,765 corporations. The establishment of the Religious Corporation required the approval of the Agency for Cultural Affairs, and enactment of this law began in 1951.

To promote locally support mechanisms (Yamamoto, 2002), the Special Non-profit Activities Corporation (hereafter refer as NPO Corporation) was introduced in 1998. Since the enactment of Promotion Specified Nonprofit Activities, 37,198 organisations have been given certification for acceptance of establishment from the municipal government. If the NPO Corporation expands beyond more than one municipal government, the Cabinet Office, Government of Japan will assist with certification.

In relation to accounting requirements for Japanese NPOs, there are seven types of NPOs in Japan (Table 2.5). Government agencies require NPOs to submit financial reports every year, which comply with the accounting standards produced by each authorised government agency. Table 2.6 presents each type of accounting guidance for Japanese NPOs. There is no one set of accounting standards for Japanese NPOs since each NPO has different government authorisation agency.

Since 2001 only the Special Non-profit Activities Corporation is required to disclose financial and other information (see the final column of Table 2.5). Other organisations are not required to disclose financial information and are required the disclose only limited information including their name, the address of the main office and the main the objective of organisation (Ministry of Internal Affairs and Communications, 2005).

Table 2.6 presents the accounting guidance for each NPO in Japan and its enactment date. Because of recent changes in social economic progress, such as falling birth rates and an increasing ageing population, the various activities in relation to NPOs have been reviewed.

Since 1998, the introduction of the Specified Non-profit Activities Corporation, NPO Corporation Law (hereafter the NPO Law) promotes numbers of NPOs to be incorporated as NPO Corporation. At the enactment of the system in 1998, the number of corporation was zero and it reached 37,198 in 2008 (Cabinet Office Japan, 2004b, 2006). The certified Special Non-profit Activities Corporation is called 'Ninsho' NPO (registered NPO). The NPO Law provides not only incorporated status to organisations, but allows the organisations to obtain legal contracts, employ staff and hold their organisations' bank accounts.

Table 2.6: A nonprofit organisation Accounting Guidance and Standards

NPOs	Authorisation Agency	Accounting Standards (Enacted Date)
Association & Foundation	Cabinet Office, Government of Japan	Public Interest Corporation Accounting Standards (17 September 1985)
Social Welfare Corporation	Ministry of Health, Labour and Welfare	Social Welfare Financial Rules (31 January 1976); Social Welfare Corporation Accounting Standards (17 February 2000)
School Corporation	Ministry of Education, Culture, Sports, Science and Technology	School Corporation Accounting Standards (1 April 1971); Partial Revision of School Corporation Accounting Standards (13 May 2005)
Medical Corporation	Ministry of Health, Labour and Welfare	Accounting Code of the Hospital (20 April 1995); Hospital Accounting Standards (22 August 1983); Accounting Code of Long-Term Care Health Facility (1 June 1989, 2001)
Religious Corporation	Agency For Cultural Affairs	Religious Corporations Law (Dec.1995); Religious Corporation Tax Accounting (18 November 1971)
Special Non-profit Activities	Municipal government or Cabinet Office, Government of Japan	Law to Promote Specified Nonprofit Activities (25 March 1998); Accounting Guidance for Certain NPO Corporation (June 1999); Disclosure requirement of financial information (2001)

Source: Summary of white paper on public service corporations (Prime Minister's Office, 2000)

The "Special Tax Measure Law" is introduced by the National Tax Agency to award "Nintei" NPO Corporation. Thus, a "Nintei" NPO Corporation is designated by the National Tax Agency to be given special tax exemption status for contributions and gifts, allowing these to be tax deductible (as with Deductible Gift status to Australian Charities). However, Yamamoto (2003) argues the complexity of the requirement of the new law makes it difficulty for many NPO Corporations to receive a "Nintei" NPO, Deductible Gift Tax Exemption status. Thus, in 2002 only 10 NPO

Corporations hold Deductible Gift Tax Exemption status under the "Special Tax Measure Law", which was just 0.11% of the total number of NPO Corporations at that time (Yamamoto, 2003).

Despite its negative impression to existing NPO Corporations, this provided hope for many small to medium-sized non-registered NPOs and they rushed to register as an NPO Corporation (Yamamoto, 2002). Table 2.7 presents the growth in the number of NPO Corporations from 1999 to 2008, showing that the total number of NPO Corporations has increased by 66% from 5,625 organisations in 2001 to 9,329 in 2002.

To simplify registration procedures on, in 2003, the NPO Law was amended to abolish the requirement for a budget plan at the time of application (Yamamoto, 2003). Table 2.7 shows the growth of NPO Corporations from 1999 to be 1,176 organisations. There wee zero NPO Corporations in December 1998.

Table 2.7: Growth of NPO Corporations (1999–2008)

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NPO Corporations	1,176	3,156	5,625	9,329	14,657	19,963	22,424	31,115	34,371	37,198
Nintei NPO Corporations	0	0	0	10	18	26	39	58	80	93

Sources: Cabinet Office Government of Japan (2004b, 2006, 2009) and National Tax Agency Japan (2006, 2009).

In 2008, the total number of NPO Corporation reaches 37,198 organisations. The second column of Table 2.7 also shows the number of "Nintei" NPO Corporations, which award Deductible Gift Tax Exemption status, however, the number of 'Nintei' NPO Corporations has not increased as dramatically as the number of NPO Corporation. Ninety three organisations were awarded Deductible Gift Tax Exemption status in 2008, which is 0.26% of total number of NPO Corporations (Cabinet Office Government of Japan, 2009).

Table 2.8 presents the legal requirements for NPO Corporations. NPO Corporations are required to have more than three members and one auditor on the board, a minimum of 10 voting members, and a minimum of one annual meeting each fiscal year.

Table 2.8: Requirements for the certified (Ninsho) NPO Corporations

Requirements	
Management and leadership	One board director More than 3 members and 1 auditor on the board More than 10 members with voting rights.
Annual meetings	At least once a year .
Profit activity	Permitted to support non-profit activities only.
Disclosure information	Activities' Report, Balance Sheet, Income Statement, the Statutes of Incorporation, the names and titles of board members and more than 10 staff members.

Source: NPO Homepage (Cabinet Office Japan, 2004a)

An NPO Corporation is required to comply with the NPO Corporation rules, which originate primarily from the NPO Law under section 27, and the Japanese Generally Accepted Accounting Standards, which include General Principle One, "Fairness"; General Principle Two, "Justice"; and General Principle Five, "Continuous Method". The purpose of these current accounting rules is to provide supporting information on the stewardship of the non-profit entities (Kashiwagi and Higashide, 2005). While there are no practical specified standards to comply with, in 2001 the amended NPO Law added the disclosure requirements for financial information.

2.4.3.1 Accounting guidance for NPO Corporations

NPO Corporations are expected to play a significant role in the Japanese community, and they require proper business management and accountability to Japanese community. As mentioned above, NPO Corporations are only the NPOs in Japan which have been required to disclose financial activities to the public since 2001. Although the the NPO Corporation is obliged to disclose financial statements, NPO law has not established its own accounting standards. Nakatuskasa, a Chairman of Japanese Certified Public Accountants, points out that "Many of NPO corporations make a skeleton copy of the sample of Cabinet Office Japan"(Nakatsukasa, 2000). The Cabinet Office Japan provides an accounting manual in a booklet titled "Guidance for the establishment and operation of a non-profit organisation", which is for public benefit entities and which is based on a budget system of Income Statements and Balance Sheets (Nakatsukasa, 2000).

However there are advantages for budgets. First, they promote coordination and communication among subunits within the organisation. Second, they provide a framework for judging performance and third, they motivate managers and other employees (Horngren et al., 2006, p. 182). Thus, budget accounting is for management but the budget accounting system may focus only on spending all budgeted amounts, and can ignore the efficiency of operation (Mizuguchi, 2001).

Nakatsukasa (2000) states that to carry out the organisational mission, it is important for an NPO Corporation to disclose any accounting information to outside stakeholders, not only to government agencies. However, many NPO corporations in Japan have already voluntarily published financial reports based on the Accounting Standards for profit organisations in addition to complying with their obligations to submit reports and returns to the various municipal governments (Nakatsukasa, 2000). Mizuguchi (2001) states that the Accounting Standards for various Japanese NPOs are not only different from the Accounting Standards for profit organisations/corporations but are also very complicated, so much so that even a member of JICPA can find difficult in understanding them. Mizuguchi (2001) argues that it is not a question of which accounting standards are theoretically correct for NPOs, but rather their understandability to the public.

In March 2009, public discussions about the Accounting Standards for NPOs began. The majority of JICPA members suggested using the same Accounting Standards as for- profit organisations. However, Accounting Standards for profit organisations are currently under re-construction to harmonise International Accounting Standards into Japanese Accounting Standards. On 7th and 8th September 2009, the Accounting Standards Board of Japan (ASBJ) held a meeting with the International Accounting Standards Board (IASB) and announced the mandatory adopting of International Financial Reporting Standards (IFRSs) by Japanese listed companies by 2012 (International Accounting Standards Board, 2009).

In September 2009, the ASBJ announced an amended “ASBJ Project Plan” for the period up to 2011, which would be followed by ASBJ Chairman, Nishikawa and other delegates to attend the World Standards Setters meeting (Accounting Standards Board of Japan, 2009). The ASBJ Project Plan was drawn up in response to the proposals contained regarding the strategy for International Financial Reporting Standards (IFRS) adoption in Japan, which may affect the accounting environment of Japanese NPOs. To date JICPA has publicly requested public comments about the disclosure requirements of other NPOs by 1st December 2009.

2.4.4 Current issues for Japanese charitable organisations

There are arguments about the changing administrative requirements, the regulations governing charitable organisations’ contributions and increase in corrupt practices by operators of charitable organisations. As a result of these changes, some people can be attracted to charitable organisations because of they feel that they become members of an important enterprise of social commitment (Garcia and Marcuello, 2002). The importance of social commitment has also spread out via the Internet where membership fees are paid through a bank without contact with other members (Garcia and Marcuello, 2002). In practice, multiple memberships of charities is common (Garcia and Marcuello, 2002). However, donations through the Internet have increased the problem of bogus charities, and donors face serious problems where collectors for some charities carry forged identification. As in Australian charities, in Japan well-known charities have been fraudulently misrepresented and bogus collectors have created problems for prospective Japanese philanthropists who with to donate to genuine charities. However, the concept of contributing to charities remains powerful, and as a consequence, there is an increasing trend for this for contributions to charitable organisations in Japan. This trend has influenced the management of these organisations to become more efficient and professional. These changes can also motivate donors to search for more reliable and effective charitable organisations for their donations in the future (Gordon and Khumawala, 1999).

2.4. 5 Summary of Japanese charitable organisations

Given the background just presented, there are clearly substantive problems in describing, analysing and understanding Japanese charitable organisations. As a consequence of these problems and data limitations this thesis focuses on analysing Australian charitable organisations. The analysis of Japan becomes a subsidiary objective as previously indicated in the first chapter, section 1.5. This thesis aims to contribute some information to accounting studies and mixed discipline research and policy makers of not-for-profit organisations. Apart from the data limitations the major problem for comparison, is the entirely different relationship of Japanese charities to their government. This means that fundraising from the public cannot be freely undertaken in the same manner that is considered natural in Australia.

2.5 Conclusion

This chapter presented the background for both Australian and Japanese charitable organisations. Charitable organisations in Japan are still in the infant stage and are still in the process of system transformation. Conversely, charitable organisations in Australia are relatively mature organisations both in size and period of operation. The governmental system is also different in the two countries. Australia has a federal system but Japan has one unitary government (central), with 47 prefectures. The Australian states have much more power and a greater budget than Japanese prefectures. Australian charities operate under the common law and they are registered at the Australian Security Investment Commission, similar to other pubic companies. This registration is recognised Australian wide. Japanese charities come under civil law provisions. Public Interest Organisations in Japan are classified, based on the various incorporation laws, and recognitions are given in different ways in each different type of organisation (see Table 2.5). However, like many other countries in the world, both Japan and Australia see the government and the charitable sector changing their roles and their interrelationships. The importance of charitable organisations in the community is increasing in both countries, and this allows for comparison of charitable organisations in the two countries.

There are significant differences. These are:

- History of charitable organisations
- Size of charitable organisations
- Funding sources for organisations

Compared to Australian charities, Japanese charities (especially same data of NPO Corporations) are relatively very young and much smaller in size. Because of the different histories, the revenue sources for organisations are vastly different (see Table 1.1). Compared to Australian charitable organisations, Japanese organisations are significantly reliant on commercial activities, which are undertaken on behalf of local government. They take this role as a government subsidiary company.

This suggests that modelling for charitable organisations in Australia does not necessarily fit that of charitable organisations in Japan. And modelling for Japan does not necessarily fit that of Australian charitable organisations.

Chapter 3

Altruism and the Market for Donations: Donors and Charitable Organisations

3.1 Introduction

This review is to help establish how charitable organisations compete for donations, and what influences potential donors in the selection of charities to which they donate. This review also serves as a background to the theoretical framework and modelling, with a discussion of altruism.

The existence of altruism creates a deep methodological problem in its own right (see Chapter 3 Section 3.2). Most immediately it creates a problem for economic models that assume that rational self-interest governs the decisions and behaviour of individuals, organisations and the actors in markets.

Charitable organisations have been forced to move away from full government funding to other financial arrangements such private donations (Lyons and Passey, 2006; Parker, 2007), due to increasing pressures on a scarce resource. However, few studies focus on how the competition of charitable organisations for donations operates. It is important to understand how charitable organisations work and their donations which influence the effectiveness of their operation (Schervish, 2006; Zappala and Lyons, 2006). But the question is, if charities compete how can they be regarded as being altruistic? This highlights an even greater methodological problem: even if it is possible to regard individuals as altruistic, can we regard organisations as altruistic? And if they are altruistic, what are the implications of this in terms of their observed behaviours.

This chapter proceeds as follows. Section 3.2 reviews the literature on the problem of altruism. Section 3.3 reviews the literature on studies of the demand and supply of charitable donations, followed by a literature review on studies of the supply side, the donors, in Section 3.4. Section 3.5 reviews studies of the demand side, charitable organisations, and Section 3.6 concludes this chapter.

3.2 The concept of altruism

Altruism is generally defined as any form of act intended to favour another without expectation of reward (Batson, 1991). In other words, altruism refers to a kind of selflessness, which is based purely on the desire to help others (Earl and Kemp, 1999). One of the major problems is that defining what is meant by "altruism" is extremely difficult.

Altruism is typically treated as a main motivation for charitable giving in various disciplines, including economics, economic psychology, psychology, sociology, human behaviour in the marketing studies and accounting research. However, in many ways it is a residual category, i.e., what is left when other explanations of "non-selfish" behaviour and choice are inadequate. Altruism is, therefore, often a descriptive and not an explanatory category. Consequently, there are limitations in the generalisation of altruism and the market model of charitable organisation in the economic theory.

Pilianvin and Charng (1990b) review altruism theory in the 1980s from various aspects, such as social psychology, sociology, economics, political behaviour and socio-biology. According to their review, socio-biologists define altruism as self-destructive behaviour performed for the benefit of others, and behaviour is altruistic if it benefits the actor less than the recipient. Economists define altruistic behaviour as that of the actor that could have done better for himself had he chosen to ignore the effects of his choice on others. Socio-biologists ignored altruistic motivation during the 1980s; they define altruism as a human act that is motivated mainly out of consideration of another's need rather than one's own, without conscious formulation of an intention to benefit the others. Piliavin and Charng (1990b, p. 27) state that "True altruism, aiming at the goal of benefiting another, does exist" (1990b, p. 56) and note, "Altruistic reasons are often given by people who volunteer time … altruism is truly a cause of voluntarism".

Hoffman (1981, p. 124) describes altruistic behaviour as “behaviour that promotes the welfare of others without conscious regard for one’s own self-interests”. He also argues, “then, it is possible when human action appeared to be motivated by an interest in the welfare of others, to adduce a hidden unconscious, or tacit self-regarding motive (e.g. social approval, self-esteem) as constituting the real source of such behaviour” (Hoffman, 1981, p. 125). Earl and Simon (1999) define altruism as an individual behaviour that helps another at a personal cost. There are a large number of studies of altruism in various disciplines and there have been various approaches that have found altruistic behaviour among charitable donors. These studies include laboratory studies in the economic and the economic psychology fields (Andreoni, 1989, 1990; Andreoni and Miller, 2002; Milinski et al., 2002; Andreoni and Petrie, 2004; Engelmann and Fischbacher, 2004; Andreoni, 2007b), theoretical studies since the 1980s in the psychology field (Piliavin and Charng, 1990b; Harbaugh, 1995; Supphellen and Nelson, 2001), and marketing surveys in marketing studies (Cermak et al., 1994; Harbaugh, 1995; Bennett, 2003).

For a long time research on altruism in sociology and economics prohibited the question of whether true altruism could exist, give the centrality of self-interest as the prime motivation (Piliavin and Charng, 1990b). They believe that donors, with no doubt all, desire to ameliorate and their person’s condition for either endocentric reasons (i.e. warm glow) or exocentric reasons (i.e. past relationship with organisation) (Karylowski, 1982). However, from the beginning of the 1960s, this changed. Many researchers have investigated altruism and philanthropy (Friedrichs, 1960; Olson, 1965; Buchanan, 1968; Titmuss, 1970; MacGill and Wooten, 1975; Weisbrod, 1975). Despite studies on altruism dramatically increasing over the decades, the analysis using both laboratory and survey data has focused exclusively on individuals as donors. The role played by charities is largely unexplored (Andreoni, 1998).

Individual acts of altruism, each of which may be of no benefit (or of possible harm) to the actor, may nevertheless be beneficial when repeated over time. However, because each selfish decision is individually preferred to each altruistic decision, people can benefit from altruistic behavior only when they are committed to an altruistic pattern of acts and refuse to make decisions on a case-by-case basis

(Howard, 2002). Whatever the difficulty of involving donors in the altruism on research matter, the limited research on altruism studies can also be explained (Piliavin and Charng, 1990b). Because altruistic donors are generally motivated by a desire to help others and generally prefer to remain anonymous, it is difficult to find a driver for this type of person. The altruism model is complex and difficult to make predictions for and to draw generalisations from (Andreoni, 1989). Importantly Andreoni (1990, p. 467) notes that "the absolute magnitudes of the altruism coefficients cannot be measured with current empirical models".

Andreoni (1989) in a series of laboratory studies, establishes a general model for defining charitable giving as being what of two types of altruism; pure and impure altruism. He describes impure altruism as "warm-glow giving" (1990, p. 464). He argues that people donate with altruism simply because of demands for the public good, while a warm glow is people's intention for earning some private goods or benefit from their giving, or is based on a self-centred motivation (Andreoni, 1989, 1990, 1998; Piliavin and Charng, 1990b; Ireland, 2000).

Andreoni and Miller (2002) also test the utility function model to measure altruistic behaviour and find inconclusive results from a preference-based approach because people behave unselfishly in laboratory experiments. They state that altruistic preferences are not one single belief that individuals follow, rather a range of preferences from perfectly unselfish to completely selfish. Evidently they could capture a significant degree of rationally altruistic behaviour, however, 98% of the total subjects choose to donate to specific charities, whilst a quarter of the subjects are classified as selfish money-maximisers. That is, most of them choose to give only if they receive a benefit in return; either prestige or social status. The remainder of the subjects show varying degrees of altruism mixed with status-seeking behaviour. "Something in return" may not be enough to induce altruistic behaviour but it may direct its specific directions.

Sometimes people are motivated by a desire to gain respect and recognition from others (Piliavin and Charng, 1990b; Vesterlund, 2006). In his study, Andreoni (1989) explains this phenomena as people's warm glow feeling for donation, and labels it as impure altruism. Andreoni and Miller (2002) show that, in their laboratory studies, 98% of the total participants are likely to show impure altruism for their donation. Similarly, Kumru and Vesterlund (2005) find that impure altruism seems to dominate as a reason for most donations. Andreoni and Payne (2008) argue that, to fulfil donors demand for their donation, a typical charity in the US publishes the names of donors, and finds that charitable organisations spend up to 25 percent of their donation for fund-raising purposes. Glazer and Konrad (1996) find that people may simply have the intention of gaining status through donation, and this can be used to signal their wealth to the public (Rose-Ackerman, 1996).

Andreoni (2007a) argues that the way in which altruism fits in a market model is still unclear. Some research states that the focus on impure altruism is much more visible in the literature, because most donors make donations in the category of impure altruism (Andreoni, 1990). The number of donors making donations out of altruism is small and, at the same time, there is very limited research on the motivations of altruistic behaviour in donors. People also contribute to charitable organisations through voluntarism (Gidron, 1983; Smith, 1983; Unger, 1991), which, according to some studies, has significant monetary value (Callen, 1994).

3.2.1 Donors and altruism

The primary motives for donating especially money and goods, vary. The reasons may include social responsibility, social status and the good image giving has, satisfaction from giving and helping, and also continuing need and requests from charitable organisations for donations (Hsieh, 2004). The motives do not have to be entirely altruistic. Although investigations into donors overall levels are plentiful, research into charitable organisations and what make individuals choose to give to particular charities is relatively limited. Previous studies in the economics of charities are focused on the theory of the utility function of donors and limited study has used charitable organisational data for the empirical study.

Callen (1994) describes private donors as being likely to respond to the quality of goods and services. However, because private donors do not directly consumer of goods or services which are provided by charities, the donors are not usually in a position to judge the quality of services and therefore have to rely on the organisation to provide this information. She investigates whether charitable organisations recognise the effect of volunteer labour on their operations and whether they recognise the work of volunteers in monetary value and include this in their financial reports (Callen, 1994). Conducting an empirical test for a relationship between monetary donations and volunteer labour (in hours) on the 276 charities in the Specific Health Focus Organisations in Canada for the years 1986–1987, Callen (1994, p. 218) finds that volunteer labour is significant and there is a positive correlation to financial donations. She states that some charitable organisations have already begun to report these as "value-added information" in their financial reports.

3.2.2 Volunteerism and altruism

The altruistic behaviour of donors is also considered in Chou's (1998) study where he finds a correlation between altruistic behaviour and frequency of participation in volunteer activities. Bekkers (2001) finds that volunteers donate more often to charities than non-volunteers, using the survey to donors on the database of Giving in the Netherlands in 1997. Bekkers (2001) also finds that a person who retains a higher altruistic value is more likely to volunteer.

Furthermore, Bekker and Graff (2005) find that the act of volunteering increases the behaviour of helping others at a cost to the individual and that subsequently, this behaviour increases donations to charities. This is possibly a form of self-reinforcement.

Because of a preference to remain anonymous, altruists are difficult to employ for research purposes (Andreoni, 1990). The volunteer is generally a person who provides services or benefits to others for motivations other then financial or material reward. Voluntarism is linked to "good works" where the reward is intrinsic to the altruistic act itself (Gidron, 1976; Wu et al., 2005).

A number of studies on voluntarism cite altruistic reasons among the primary motivations for volunteering (Gidron, 1983; Smith, 1983; Unger, 1991), such as helping others (Gidron, 1983; Rehberg, 2005), showing care (Jenner, 1981) and serving the community (Wu et al., 2005). Gidron (1983) describes volunteer work as, by definition, an act of free will which individuals engage in it or discontinue at their will. Alternatively, in paid work, for most people the pay element represents the necessity to work, given that an individual has to work to live (related to the individual's survival).

Guy and Patton (1989) find that an individual's previous experience with a charity organisation enhances future helping behaviour; typically, those who work as volunteers are more likely to give donations. Unger (1991) describes volunteers as essentially "free" labour, while Smith (1983) calls it a fundamentally altruistic act. Hoffman (1981) argues that volunteer activities are associated with altruism. Rushton et al. (1984) show that altruism is predicted in a variety of laboratory and naturalistic criteria to determine the community volunteers.

Similar to Bekkers (2001) study, Rehberg (2005, p. 110) finds that, in volunteer work, "altruistic motivations" play a key role in an individual involvement as a volunteer. Conducting a survey of young volunteers' primary motivation as volunteers, he finds that 77% of the respondents chose "achievement or changing something positive for others" as their primary motivation (Rehberg, 2005, p. 113).

As with monetary contributions, many charities take volunteers into account as critical in carrying out their missions (Wymer and Starnes, 2001). Despite the fact that the estimation of the dollar value of the volunteer contribution would provide would be useful information, this is rarely reported in the financial statements of charities, because they are not easy to value in terms of monetary figures (Mook et al., 2005). Mook, Sousa, Elgie and Quarter (2005) argue whether the volunteers' contributions (in time and effort) bring a benefit or significant value to the charities. Conducting a survey of 156 charitable organisations in Canada, Mook et al. (2005) find that 37% of organisations keep records of volunteer contributions and the means of 250.6 volunteers equivalent to 10.8 full time employees. Furthermore, their findings suggest that 68% of respondents agree that reporting the value of volunteer contributions in the financial statements would provide a complete picture of the charitable operation and increase the quality of that organisation. They (2005) conclude that including the monetary value of volunteer contributions in the financial report are necessary and important, and inform the quality of the organisation.

Gittell and Tebaldi (2006) investigate the correlation between total donation and the volunteer to total population in 50 states of the USA for the financial years 2000 to 2002. They find that the volunteer percentage is positively correlated to the total donations and furthermore, on average, a 1% increase in a state's volunteer population increases USD4 in total donations. Peloza and Hassay (2007) discuss the typology of the charitable supporters' behaviour using data in the USA and they suggest that volunteerism is a form of helping behaviour that typically results from the increased levels of involvement within the charities. Thus, a number of studies have shown that volunteering is associated with individuals' altruistic behaviour (Gidron, 1983; Smith, 1983; Unger, 1991) and subsequently, this has a positive effect on the total donations (Wu et al., 2005; Gittell and Tebaldi, 2006).

3.2.3 Can Charitable Organisations be Altruistic?

In the "unitarist" view organisations are treated as single entities – as if they were individuals. Therefore, they take decisions, take actions and behave as if they were single persons. The neoclassical model of the profit maximising firm is the most appropriate example here. Consequently it is possible to attribute to them some of the same motivations as humans. Those motivations can include "altruism."

However, it has long been argued that the lack of a profit motivation alters behaviour and induces excessive spending on internal administration by managers of charitable organisations. This study is in line with previous studies which examined fundraising by charitable organisations, incorporated in a single model to find the effect of both the cost of operational expenditure and the opportunistic costs on donors' behaviour, and competition among charitable organisations (Rose-Ackerman, 1982 and 1996; Marcuello and Salas, 2001; Castaneda et al., 2007). Rose-Ackerman (1982) develops a model that examines fundraising by charities and how competition leads efficiency of charitable organisations by inducing excessive spending on marketing costs. Bilodeau and Slivasky (1997) also investigate how rival charities allocate donations to various services to recipients, ending up by specialising in one type of service. However allocation of donation differs in several respects. One possibility is that competition “forces” charitable organisations to behave as if they are altruistic – even when they are not.

3.2.4 Cultural difference in altruistic behaviour

People from different cultures may have different levels of empathic feeling towards charity recipients. The word altruism, which comes from the Italian *altrui*, was coined in 1851 by August Comte to refer to benevolence. Even when a language is shared, these differences are sometimes simply reflected in the meaning of words.

For example, Wright (2002, p. 7) discusses a comparison of recognition of giving in the United States and United Kingdom and states that

> the negative connotations applied to the concept of philanthropy in the UK are very similar to the meanings that the term charity carries in the US. The terms are used almost as minor opposites in the two countries. Moreover, philanthropy is viewed in Britain as a somewhat dubious *attitude* or *stance*; charitable giving on the other hand is a comparatively positive act. In the United States the situation is reversed. Philanthropy is an act, and an increasingly commanding one, while charity is dismissed as patronising and somewhat out of date attitude.

There are as many definitions of cultures as there are researchers on the subject, thus “it is unlikely that a universally-accepted definition will ever be agreed on” (Brown, 2005). For example, Parson’s (1954) definition states “Culture consists in those patterns relative to behaviour and the products of human action which may be inherited, that is, passed on from generation to generation independently of the biological genes” (Parson, 1949). Hofstede was “Culture is the collective programming of the mind which distinguishes one group or category of people from another” (Hofstede, 1993, p. 89).

Some of the most widely-cited works on culture, developed from the study of cultural differences between nations, are those of Hofstede (1987, 2001) (Sato, 2008). Hofstede has long argued that cultures around the world can be measured in terms of a set of cultural values (Franke, Hofstede and Bond, 1991). Hofstede proposes that the set of values used in such a measurement scheme is irrelevant. Whether using a set of traditional western values or an oriental values survey, the differences in the values are correlated to economic growth. The work on the cross-cultural studies that has been broadly applied is that of Hofstede (Kamibayashi, 2001; Brown, 2005).

As mentioned, a comprehensive analysis of cultural diversity has been carried out by Hofstede (1980, 1984, 1987 and 2001). Hofstede finds four dimensions of national culture, (1) individualism versus collectivism, (2) power distance, (3) uncertainty avoidance and, (4) masculinity versus femininity. Among these values, this study uses the masculinity (femininity) that may influence an individual's donation behaviour.

Masculinity/femininity refers to the individuals' roles in social activities and emphasises behaviour and attitudes towards the common welfare. As Hofstede defines, a country with a masculine culture is striving for a tough performance society, with a larger proportion living in poverty and a relatively higher percentage of the proportion of those living in poverty earning less than half of the average income, whilst feminine cultural countries strive for the welfare of the whole society. Solicitations for charity donations should activate greater feelings of personal obligations in masculine countries, but greater perceptions of the government's obligation in feminine countries (Nelson et al., 2006). The altruistic values reflected in the messages should align with caring values, according to the culturally predominant sex-role ideologies. A charity request should activate the norm of nurturing and a perceived moral obligation to help others (Hofstede, 2001).

According to Hofstede, the value system of the feminine culture is based on a high amount of aid for poverty and the amount of money transferred is determined by the needs of the donors; whereas, a country with a masculine culture regards being poor as the fault of the poverty stricken and that the rich do not have to support the poor. Hofstede classifies Japan as a masculine culture with a rank of 1 and a value index of 95 in the masculinity index out of 40 countries, while Australia is classified as a little above average, a lower masculine country ranking 16 with a 61 on the value index (Hofstede, 1987, 2001). Sato (2008) questions Hofstede's sample validity and exercisability. Hofstede's research has been criticised and the masculinity and femininity dimensions, in particular, have received the most criticism (Jandt, 2007). Hofstede judged Japan as having the highest masculinity culture by the higher needs of its population for dominance, autonomy, aggression, exhibition, achievement and endurance (Jandt and Hundley, 2007). Hofstede's research was based on the survey of Japanese employees in a multinational company. Sato stated that it was obvious that a large multinational company's employees were not representative of the Japanese nation (2008, p. 827).

In Australia, people prefer to view themselves as equal to others in status; whereas, in Japan, people may focus on complying with the authorities to enhancing the cohesion and status within their own groups, even when that entails sacrificing their own personal goals (Shavitt et al., 2006, p. 326). Those priorities are also reflected in the different national spending patterns for the welfare of the people and the different personal obligations in the form of income taxes.

Some researchers found that government policy changes may create institutional differences that have an effect on the levels of donations. Jones and Marriott (1994) conducted a survey of 6,968 households in 1990 in the United Kingdom (UK) to find out how government policy changes had impacted on charitable giving. These results were compared with the results of the survey conducted using the sample data in 1984 (Jones and Posnett, 1991b) and in 1985 (Jones and Posnett, 1991a). They concluded that there was a significant difference in the level of donations before and after an enactment of the generous tax exemption policy by the UK Government in 1990. Beatty et al. (1991) conducted a survey using a sample of 240 university students in the US and found gift-giving behaviour was different depending on individual values and cultural differences and found a strong tradition of reciprocation and moral obligation in relation to the donations existing in the Japanese culture (Beatty et al., 1991, p. 155). A range of tax concessions is available to Australian charitable organisations, provided they are Public Benevolent Institutions (PBIs). These concessions include income tax exemptions (ITE), Goods and Services Tax (GST) concessions, Fringe Benefit Tax (FBT) concessions and the deductible gift recipient status (DGR). The DGR has been designed to facilitate fundraising. Organisations with a DGR status have a fundraising advantage, because the members of the public that make donations of two dollars and over to these organisations can claim the donation as a tax deduction. When a charitable organisation is registered as a public interest corporation, these tax concessions are given.

In contrast, only 0.2% of the NPO Corporations in Japan are given a DGR status. In addition, no GST concessions, FBT nor ITE are available for Japanese charities. Thus, it is difficult for charitable organisations in Japan to be eligible for the deductible gift recipient status (DGR). The DGR is entitled to tax benefits only when the individual makes a donation of more than 10,000 yen (AUD$125 (AUD$1 = 80yen)) per donation, whereas in Australia every $2 donation can be claimed for a tax benefit. In addition to this, for Japanese donors it is very complicated, and additional work is required to receive any tax benefits[6].

However, Jones and Marriott (1994) conducted survey of 6,968 households in 1990 in the United Kingdom (UK) to find and how institutional change had impacted on charitable giving compared with the results of sample data in 1984 (Jones and Posnett, 1991b) and in 1985 (Jones and Posnett, 1991a). They found a significant difference from the previous studies after the introduction of a generous tax exemption policy by the UK government in 1990.

An economic relationalist political climate and high demand of service quality needs in Australia and Japan have led to increasing public interest in the operation of charitable organisations (Bonyhady, 2008).

3.2.5 Provision of public or private goods

The role of charitable organisations is often related to two theoretical constructs: the theory of public goods (Weisbrod, 1975) and the theory of contract failure (Nelson and Kranshinsky, 1973). In the first, charities arise to meet the residual demand by

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[6] Under the Japanese tax payment system, employers are responsible for the submission of tax returns and the payment of taxes on behalf of the employees. As a result, any individual donor wishing to claim tax benefits is required to submit a separate return to the tax office to receive such benefits.

providing public goods in amounts supplemental to those provided by government (Hansmann, 1980). However, in contrast to the theory of public goods, one can argue that the services provided by many charities do not seem to be public good but rather appear to be private ones (Hansmann, 1987). For example, aged care organisations providing charitable nursing homes are difficult to recognise in their services to elderly individuals as being in the public good. The second case can exist, therefore, in charities when markets cannot provide certain private goods.

In the latter theory, when the government or the market fail to provide satisfactory services, charities resolve these problems more effectively than other types of organisations (Kranshinsky, 1997). In addition, the non-distribution (of profits) constraint is thus said to make charities more trustworthy (Steinberg, 1997). Some charitable organisations may, therefore, have comparative survival advantage over for-profit organisation. However, another argument suggests that this also makes them inefficient (James, 1990), although charitable organisations do not follow a profit motive and this in turn allows them to provide social services to the recipients. There is a built-in inefficiency that can result in a lack of this profit focus. The force of competition for donations is intense in these current times, thus fundraising strategies are increasingly becoming a way to sustain operations. Donations can be seen as an exchange in which charitable organisation provide public/private goods, in return for donations. Steinberg (1986) finds that if donors are provided with true facts about the distribution of their donations, then total donations will rise. Buchanan et al. (2004) also discusses ethical behaviour and honesty behind the fundraising of charitable organisations. They suggested that donors cannot be certain of the result of their donations, total donations are therefore lower. Consequently the value of such protection offsets/covers inefficiencies such as limited access to capital and poor incentives for cost minimisation that evidently/or inevitably accompany the form of charities (Hansmann, 1987).

Charitable organisations exist in the mixed economy (Ben-Ner and Van Hoomissen, 1991). Thus demand and supply factors partly determine the size of the charitable sector relative to other forms of economic and social actors (Steinberg, 1997). With the exception of important role of charitable organisations that previous researchers described as the demand for provision of services by charitable organisations, there is only a limited study of organisational supply, which plays a critical role in the existence of charitable organisations (Ben-Ner and Van Hoomissen, 1991).

Nonetheless, the "non-distribution of surplus" constraint on charitable organisation does serve as a useful criterion (Parker, 2007). There are three actors involved in the provision of public goods-donors, the government and charitable organisations, and these three influence each other in a mixed market (Payne, 1998). Ambiguity lies in the market of charitable organisations (Burlingame, 1997), questions arise such as "what is the market?" and "what is the price" or whether charities play as suppliers when donors play as consumers (Schervish, 2006; Andreoni, 2007b).

3.3 The Demand and Supply of Charitable Donations

Charitable giving involves three sectors donors and volunteers, charitable organisations, and government, all involved in the monetary donation market, representing either the demand side and/or the supply side of the monetary donation market. Donors and government supply public good directly or indirectly through charitable organisations to recipients, while the charitable organisations act on the demand-side of the donation market, demanding from a donor or from government for their contributions (Schervish, 2006). The charitable organisation then supples the collected public good to the recipients as in the supply-side of market (Payne, 1998). Thus, charitable organisations are presented both in the supply side and the demand side of the market (Parker, 2007).

Ben-Ner and Van Hoomissen (1991) state that the most important supply factor for the charitable organisations is the ability to satisfy some demand side of stakeholders by showing their quality performance and meeting objectives under the economic feasibility constraints. Burlingame (1997) believes that both the demand and supply side of of charitable organisations are productively creating philanthropic activity. Similarly Ben-Ner and Van Hoomissen (1991) and Burlingame (1997), Schervish (2007) describe how, when charities take the role of the supply side on a satisfactory level, subsequently wealthy donors provide a large portion of the wealth to the charitable organisation. However, the purpose of this donation is to obtain a tax benefit, and large donations are likely to be generated to charities to successfully meet the demand side of the role.

On the demand side of the market, charitable organisations attempt to persuade donors and government that their particular organisations are trustworthy, and can be relied on completely to fulfil their role (Ben-Ner and Van Hoomissen, 1991). Of distributing the contributions to the needy, as in the supply side of market (Schervish, 2006). Thus, when charitable organisations represent the demand side of the market, they employ strategic fundraising for donation collection (Parker, 2007). Donors and the government determine the demand, the donors supply the money and the volunteers supply their time to charity (Andreoni, 2007a). Parker (2007) suggests that the role of the supply side of charity is mainly to focus on the changing environment of recipients rather than requesting money for the varying needs of the organisation.

The government is involved in various ways in the philanthropy sector, directly as a supplier in the form of grants to charities or indirectly by providing tax benefits to individuals for the amount of their donation to charities when these charities are awarded tax deduction status by the government (Andreoni, 2007a).

Weisbrod (1975) believed that charitable organisations have a distinctive set of roles in a mixed economy as suppliers of public goods where for-profit (markets) and government fail to satisfy individuals' needs. Charitable organisations satisfy a demand for public goods and act as the main suppliers of collective goods (Weisbrod, 1975). Using the utility function model, Weisbrod and Dominquez (1986) find that in welfare services areas, charitable organiations provide the extra high quality or tailored services to meet individual requests, while for-profits or government cannot deliver (Weisbrod, 1988). Similarly, Steinberg (2006, p. 120) discusses the "three-failures theory", in which for-profit sectors fail to provide adequate quantities of collective goods or government undersupplies the levels of pubic service goods to diversified needs (Hansmann, 1980). Hansmann (1980) also stated that charitable organisations take advantage when the quantity or quality of service cannot be verified.

On the other hand, Salamon and Anheier (1992) argue that charities are expected to fail due to the restriction of the distribution of profits. The other two sectors, the for-profit market and government take an important role in providing public goods (Salamon and Anheier, 1992). The demand side of charities competes for private donations and government grants from for-profit orgnisations, however, they need to finance their activities in the provision of collective goods (Marcuello and Salas, 2001). Willner (2001) finds that political intervention in government organisations may outperform an oligopolistic market under reasonable conditions, even if government is biased in favour of output and/or employment. This type of organisation may turn out to be misguided as far as cost minimisation is concerned, which is not always socially beneficial for the particular type of government organisation.

Castaneda, Garen and Thornton (2007) argue that charitable organisations compete for donors in two ways. Their study is corresponding demand for donation and supply to recipients. The first form of competition is the provision of information. Here, donors gain utility from more information about the organisational objectives and services to donors such as knowing management strategic operation, financial reports, or free gifts with logos. Competition in this form, however, raises the expenditure of charitable organisations.

The latter is related to the cost of operational expenditure including administration expenditure. However, managers of charitable organisations cannot retain profits or obtain their profits in cash; they are able to consume some of the residual income of the charitable organisation in kind. Because donors value the charitable provision of the goods, the cost of the operational expenditure of donating a dollar increases with the portion of donations taken out and not distributed to program services and goods to recipients.

3.4 Studies of the supply side: (Donors)

The decisions to donate are sometimes driven by altruism, or by the non-altruistic preference of donors. Although no single theory garners universal support regarding the motivations for donations (Milhaupt, 2003), there is, however, a tendency in the literature to explain such motivations in the context of an internal faith for commitment (Guy and Patton, 1989). Rose-Ackerman (1996) finds that some donors believe in the moral value of reciprocity, which is influenced by pure altruism (Andreoni, 1989), whereas Pollach et al. (2005) states that donors are motivated by material or non-material rewards from donations, which is impure altruism (Andreoni, 1989).

The donors in the latter category are referred to as status seekers; they are influenced by the potential benefits that can be derived from making donations to charitable organisations. These include, (i) prestige gained by giving private good (Olson, 1965; Beatty et al., 1991), (ii) signalling of wealth or status (Glazer and Konrad, 1996) and taking a leadership role in the community (Bac and Bag, 2003), (iii) religious beliefs of the charitable donations (Bekkers, 2001), (iv) social desirability (Piliavin and Charng, 1990b) and, (v) tax benefits (Okten and Weisbrod, 2000).

3.4.1 Types of donors

The theory of three typologies of donors was established by Supphellen and Nelson (2001). From their interviews, they developed a classification of donors according to the different styles of decision-making, namely, internal and external styles, with the external category further divided into analysts and relationists.

Supphellen and Nelson (2001) found that internalists believe all charities have a good cause. As a consequence, they respond positively to nearly any request for donation, while the relationists mainly base their decisions on a personal relationship with a particular charity. They donate to a few organisations that they can trust and support without further evaluation.

Supphellen and Nelson (2001) also find that relationists are the youngest group of people, whereas the internalists are the eldest group among the three typologies and these findings are consistent with the previous studies of Rushton et al. (1986)[7] and Srnka et al. (2003b) who also find that the elderly groups are more frequent givers. In certain studies, the age and gender of the donors are considered important in the decision to donate (Cermak et al., 1994; Srnka et al., 2003b), although Supphellen and Nelson (2001) find no evidence to distinguish the relationship between gender and donation and also no significant differences exist between genders amongst the three typologies. Furthermore, they find that almost half of the participants are analysts, one-third relationists and one-fifth internalists.

Supphellen and Nelson (2001) argue that analysts tend to evaluate the causes emphasised in donation requests, in addition to the organisational operation and make their final decision on the basis of their evaluation. Thus analysts are putting more effort into the evaluation and involvements of charities rather than the other categories. The analysts show a higher level of subjective knowledge of charities than the others and have high scores in response to provocative advertising and an interest in the type of programmes, whereas the internalists have low scores and they believe charities should not advertise. Supphellen and Nelson (2001) also find that internalists donated the smallest annual donations on average, but support the largest numbers of charities amongst the three typologies. Internalists also focus on the act of giving, or altruism, as such. Therefore, they raise the concern that internalists, who tend to accept any request from any charity, would be susceptible to deceptive practices.

The internalist category draws on Adreoni's theory (1989) of pure and impure altruism. Impure altruism reflects Glazer and Konrad's theory (1996) of the status-seeking category of individuals who signal their wealth through donating. Rose-Ackerman (1996) also argues that the motivations for giving are inextricably linked to status and recognition; people could gain prestige from making a donation only if others view their action as worthy.

[7] Rushton et al. (1986) found that age showed significant relationship with people's qualities of altruism, empathy, nurturance and assertiveness.

3.4.2 Status-seeking donors

Despite economic theory predicting that charitable donations/contributions would be the largest when donors are uninformed about others' contributions (Andreoni, 1988; Varian, 1994), the experience of many charities find it otherwise. Donors must be motivated by something more than the provision of a public good in making donations to charitable organisation (Kingma, 1997). Publicity of large donations is a powerful fundraising tool (Romano and Yildirim, 2001; Vesterlund, 2003). Piliavin and Charng (1990b) and Beatty et al. (1991) describe the important motives for some donors as being social desirability, recognition and respect from others. Rose-Ackerman (1996) also argues that motivations for giving are inextricably linked to people's gain of social status, recognition or prestige from making a donation only if others view their action as worthy. Thus, various studies report that donors use charitable donations to maximise their own benefits and their own benefits include a "warm-glow" feeling, which Adreoni (1989) describes as impure altruism (Andreoni, 1989 and 1998), recognition and reputation (Harbaugh, 1995 and 1998; Glazer and Konrad, 1996; Ireland, 2000; Seinen and Schram, 2001; Milinski et al., 2002; Engelmann and Fischbacher, 2004), a signal of wealth (Glazer and Konrad, 1996; Nowak and Sigmund, 1998), the publicity of donations or charities' strategic fundraising (Wright, 2002; Andreoni, 2006) or tax benefits (O'Neil et al., 1996; Okten and Weisbrod, 2000).

Andreoni (1990) finds that most private donors give a donation only to receive the warm-glow, or an individuals' preferences including both altruism and egoism. He (1989, 1995) argues that the pure altruistic gift to public good can be a perfect substitute for showing off personal wealth, rather than the individual consuming the private good, gift to the public good or the payment of tax (Andreoni, 1989).

The economic theories of impure altruism are explored in the theory of "indirect reciprocity" (Alexander, 1987). Alexander (1987) defines indirect reciprocity as the indirect interaction between a donor and a recipient. He argues that the individuals' caring behaviour toward others is influenced by the observation of others, and indirect reciprocity is built on a basis of moral systems prescribing cooperation in order to gain reputation or status from others. Thus, indirect reciprocity means that the donor may not expect a return from the recipient, but will receive a benefit from someone else in the form of prestige, social status (as a leader), access, relief of guilt, control over the charity output, or a warm glow from giving (Alexander, 1987; Andreoni, 2006).

Harbaugh (1995, 1998) describes two effects of impure altruism as a warm glow effect of internal satisfaction and a prestige effect from the publicity of donation. A number of charitable organisations are already aware of the prestige effect from the publicity of donation, which persuades donors to increase the amount of their donations (Harbaugh, 1998). He states that donors derive no value in return from their contribution at all but they receive benefits such as a warm glow and prestige. Similarly, Seinen and Schram (2001) in carrying on Alexander's study in conduct an experimental helping game, in which a donor can help a recipient at a smaller cost than the recipient's benefit. They find that most donors' major determinants of donation is a desire to build a reputation as a philanthropists.

The impure altruist theory may be inconsistent with the public good theory of charitable organisations (Kingma, 1997), where in theory, impure altruists are motivated solely by private goals, such as social status, in donation to a charitable organisation without receiving utility from the public good (Kingma, 1997). Hochman and Rodgers (1969a) find that donors are more likely to attempt to achieve higher social status than they currently had in the community, and Ireland (1994) finds that private donors are conscious about others' view towards the act of giving and donation. Similarly, Cermak et al. (1994) and Glazer and Konrad (1996) find that some donors donate more if their donations are seen by others, especially their friends, because their donation motivation is a desire to "signal their wealth" (Glazer and Konrad, 1996, p. 1019). Glazer and Konrad (1996) state that wealthy donors are more likely prefer visible donations to achieve their social status in the community. For example, large charitable giving can be more visible than buying real estate (Glazer and Konrad, 1996). Those donors can be described as "status-seekers" (Congleton, 1989, p. 175). Glazer and Konrad (1996) find that less than 1% of donations are from anonymous donors.

Similarly, Gordon and Khumawala (1999) develop a model of donor and charity interactions, a social exchange theory, which economics and socio-biology describe as all people being exclusively self-status seekers. They find that the way in which charities dedicate themselves to the community is largely influenced by the donors' preference of charitable giving, where donors can earn more social status from donating to charities highly recognised in the community (Gordon and Khumawala, 1999). Similarly, using experimental computerised helping games, Engelmann and Fischbacher (2004) examined the possible motives of choice in helping others in relation to indirect reciprocity and strategic reputation building. The donors' choice seem to be influenced at least as much by strategic players who do better than non-strategic players, while non-reciprocal players do better than reciprocal (give and take) players (Engelmann and Fischbacher, 2004).

3.4.2.1 Tax benefits of donations

Having tax benefits for donation provides an incentive for donors to donate to a charity (Hansmann, 1980). Thus for a charity, a tax deductive status seems to provide a financial advantage to a charity that qualifies. Whether the donation a charity receives is deductible or not depends upon whether the donee organisation falls into the category of a certain class of charitable organisations, as defined by government8. Hansmann (1980) argues that in the case of the exemption of charitable donations from taxation, the charitable deduction has more of an impact on the charity's activity than on its distribution. He finds that a charity without a tax deductible status leads to a significant decrease in donations to the charitable organisation, and also it increases its ability to survive over time. In many ways tax deductibility status is a signal of the charity's worth.

Some research finds that government policy, especially tax policy changes may create institutional differences in each country, Australia and Japan, which have an effect on the levels of the donations. Jones and Marriott (1994) examine whether the level of donations has an impact both before and after the enactment of the generous tax exemption policy by the United Kingdom (UK) government in 1990, using a UK

[8] A certain class that is a subset of the class of charities that quality for exemption from Corporate tax.

survey of 6,968 households in two years, in 1984 (Jones and Posnett, 1991b) and 1985 (Jones and Posnett, 1991a). Using these survey data, they discerned that government policy changes in 1990 had impacted on charitable giving.

O'Neil, Steinberg and Thompson (1996) conducted the OLS regression analysis on function of donations and after-tax price. They employed a sample of 70811 individual tax returns in 1985 in the USA. They found that donations appear to have an effect on the after-tax price of giving only among the two highest income ranges (income is greater than $200,000 or $500,000) and donors are most responsive to an increase in charitable giving resulting in significant tax savings.

Okten and Weisbrod (2000) examine the effect of before and after changing of the tax policy, the Tax Reform Act of 1986, in increasing the level of tax deductibility, on total donations in the USA. A negative effect is found on the total donations in some charitable groups such as higher education and scientific research organisations, while a positive effect is found in other charitable groups, including art exhibitions, museums and zoos, hospitals and organisations supporting the handicapped.

3.4.3 Social relationships and donors

As Gordon and Khumawala (1999) note, the influential factors for donation to a particular charity are varied and they include a personal internal faith or external influences, such as religious belief, a social relationship, a sense of belonging to a community and for a religious organisation. Beatty et al. (1991, p. 154) label some donors as "relationship givers" (also see Supphellen and Nelson (2001)), or people who maintain a relationship with a charity. Pilianvin and Charng (1990b) find that the maintenance or enhancement of the relationships within the community and friends is the motivation for some donors. Thus, some donors donate to ensure being or becoming a member of a desirable social set (Piliavin and Charng, 1990b).

Cermak et al. (1994) find that social ties with charities impact on the total donations. They (1994, p. 124) define a social tie as an "affiliation with individuals, either friends or business connections, who are tied to the non-profit". They (1994, p. 126) find that the affiliators are relatively young (67% of them are younger than 65) and well-educated (33% of them hold a graduate degree). The findings about affiliators in Cermak et al.'s (1994) research are similar to the relationists found by Supphellen and Nelson (2001). Ireland (2000) also finds for social desirability is an important motivation for some donors, for instance, their donations are motivated by a desire to be invited to elite parties.

Arnett et al. (2003) assume that developing long-term relationships with donors is the key strategy in the current competitive charity environment and find that many charity organisations adopt this strategy, namely "relationship marketing" (2003, p. 89). Conducting a survey of university graduates in three classes, 1954, 1974 and 1994, with a total sample of 953 and roughly even gender differences (55% male and 45% female), they identify salience play as a key role in charity relationship marketing by mediating the relationships between participation and prestige, and donating behaviour. Similarly, Pollach et al. (2005) find that charitable organisations have to pay particular attention to their relationship with donors to receive more donations. Bekkers (2004) also investigate the determinant effect of social conditions in respect to social incentives and psychological characteristics of behaviours, which generate inherent rewards for certain social behaviours. He finds many social groups take social contributions into account positively, and the members within a group make donations to avoid disapproval within their group.

Rose-Ackerman (1996) states that the motivation of some donors' for charitable donations stems from their religious beliefs or a desire to be involved with a religious group, and concluded that the motivations for these charitable donations come from the donors' close personal ties with religious (or educational) groups.

Using the data base from the USA Internal Revenue Service in 2000 and 2001, Gittell and Tebaldi (2006) investigate the determinants of the donations including religious affiliated charities, and find that all religious groups do not give equally. The results are consistent with previous findings, however, that Catholics' donation rates are one third to one half of donations from Protestants. On the other hand, using experimental data from 168 participants, Eckel and Grossman (2004) find that there are no significant differences in the amount of giving to secular charities from religious to non-religious people. They also find that religious participants have a tendency to give regularly and are more sensitive to income changes than the participants who are non-religious.

Reitsma et al. (2005) find no significant differences in the willingness to donate between church members and non-members from interviewing 9315 individuals in the seven European countries: Belgium, Great Britain, Hungary, Italy, the Netherlands, Poland and Portugal. They find that religious people are more likely to donate more to their own religious institutions, and that church attendees are positively influenced by their religious network to increase total donations to religious affiliated organisations.

The findings from empirical research on the relationship between religious and charitable giving provide a positive relationship (Lyons and Nivison-Smith, 2006). Using 6,209 survey data from the Australian Giving and Volunteering dataset in 2005, Lyons and Nivison-Smith (2006) investigate the contribution behaviour of adult Australians and find that the average amount of donations from religious donors is AUD$518; whereas, that of non-religious donors in AUD$268. They also find a positive relationship with attendance at religious services and the amount of the donations in Australia.

3.5 Studies of the demand side: (Charitable organisations)

Charitable organisations are important providers of public good in the economies of Australia and Japan (Ben-Ner and Van Hoomissen, 1991). Various studies recognise the importance of monitoring quality of services provided by charities (Yamamoto, 1997) and efficiency of their operations (Weisbrod and Dominquez, 1986) and sustainability (Tuckman and Chang, 1991; Trussel, 2006).

Most studies of charitable organisations focus on key factors such as: (a) operational efficiency (Weisbrod and Dominquez, 1986; Posnett and Sandler, 1989), (b) views regarding the fundraising activities of these organisations (Posnett and Sandler, 1989), (c) sustainability of the operation (Tuckman and Chang, 1991), (d) government grants (Tuckman and Chang, 1991; Khanna and Sandler, 2000; Andreoni and Payne, 2003),

(e) organisational size and history (Posnett and Sandler, 1989; Callen, 1994; Tinkelman, 1999; Trussel, 2002), and (f) organisational corporate governance (Fama and Jensen, 1983).

Charitable organisations differ from for-profit organisations in several ways, and perhaps the most perceivable distinction is the "non-distribution of profits" constraint. In other words, charitable organisations unlike business firms cannot distribute their residual income to owners, in ways such as dividends in the for-profit organisations (Parsons, 2003). Charitable organisations do not have the same incentives as the commercial sector (maximise profits) (Trussel and Greenlee, 2004), but rather advance a charitable objective (Rose-Ackerman, 1996), which includes maximising the level output to recipients (Trussel, 2003).

According to the philanthropy study in the US, donors increasingly rely on financial information reported by Internal Revenue Service (IRS) Form 990 for allocation of their donations among charitable organisations. Thus, numerous past economics, marketing and accounting studies using the data from US in relation to donations to charitable organisations, have examined financial information, such as the efficiency and the stability or other non-financial information of the organisations (Hood et al., 1977; Weisbrod and Dominquez, 1986; Weisbrod, 1988; Tuckman and Chang, 1991; Callen, 1994; Tinkelman, 1998; Parsons, 2001; Tinkelman, 2002; Anthony and Young, 2003; Parsons, 2003; Trussel and Greenlee, 2004; Trussel and Parsons, 2004, 2008). These previous studies conclude that potential donors evaluate financial information reported by the organisation (Weisbrod and Dominquez, 1986; Posnett and Sandler, 1989; Tuckman and Chang, 1991; Gordon et al., 1999; Gordon and Khumawala, 1999; Tinkelman, 1999; Trussel, 2003; Trussel and Greenlee, 2004; Trussel and Parsons, 2004, 2008).

3.5.1 Empirical models of the level of donations

Charitable organisations compete for private donations (Marcuello and Salas, 2001), which are necessary for their operations, and to achieve their objectives. Rose-

Ackerman (1982) argues that competition for donations leads charities to engage in excessive fundraising.

Weisbrod and Dominquez (1986) establish that competition will always be a disciplinary instrument for charitable organisations. Market competition should be an external factor promoting the charitable organisations' efficiency. They argue that fundraising has two distinct effects on donations. Fundraising has a positive effect on donation by increasing awareness of the charity and its activities; on the other hand fundraising expenditures have a negative effect on donation by reducing total output of charities. Donors dislike excess fundraising expenditure because it could reduce total distribution to recipients. Thornton (2006) finds that competition among charities creates an incentive for managers to report efficiency of their management (Thornton, 2006).

Weisbrod and Dominquez (1986), Posnett and Sandler (1989), and Callen (1994) use different approaches, but they all use "output price" to measure the efficiency of the donor dollar to produce the output of a charitable organisation. They also employ a fundraising expense ratio, administrative expense ratio, or/and revenue sources (programs or other) and the organisations' operational year as age of organisation. Weisbrod and Dominquez (1986), Posnett and Sandler (1989), and Callen (1994) all describe competition for donations of charitable organisations as enhancing effectiveness of charitable organisations. This is a competition disciplinary instrument. However their models are not focused on competition, but other characteristics of charitable organisations.

Employing the logarithmic transformation of the variables is to reduce the impact of the outliers (Callen, 1994). A common assumption is that the donors prefer to donate to charities where a higher proportion of their money is used for "output price". Weisbrod and Deminquez (1986) define "price" as the cost to a donor to purchase one dollar of output from a charity and the output "price" as one of the variables of the measurement of inefficiency of the charitable organisation. And they assume that the "price" may also depend on either the rate of tax deduction available to the donor. Donors use the most recently available price information which is from the end of the previous financial year. The operational definition of the price of donating a dollar's worth of output to organisation *i* is

$$Price_i = (1 - t)/(1 - f_{it-1}) \quad (3\text{-}1)$$

where f = (Fundraising expense $_{t-1}$/Donation $_{t-1}$) and t = marginal tax rate

The term "*f*" is calculated as the proportion of fundraising expenses divided by total donations rather than total expenses. This is based on their assumption that potential donors normally compare marginal fundraising expenses per dollar of donations. They assume that donors do not favour high fundraising spending, which may reduce contributions to the recipients. They expect higher fundraising spending to indicate inefficiency of the charity operation so that the level of the donation goes up if the level of the fundraising and administrative spending go down, and the total "price" will decrease if the level of the fundraising expense increases. Using IRS data from 1973 to 1976, they estimated the model below:

$$\ln D_i = C_0 + a_1 \ln Fund_{-1i} + a_2 \ln \Pr ice_i + a_3 AGE_i + a_4 AGE_i x \ln Fund_{-1i} + \varepsilon_i \quad (3\text{-}2)$$

where D = total donation;
Tax rated effect absorbed into the constant term; $C_0 = a_0 + a_2 \ln(1-t)$;
Fund = fundraising expenses;
Price = output price (see 3-1);
AGE = the number of organisational years; and ε = error term;
All variables are logged (ln)

Using the 300,000 tax-exempt organisational data from seven groups of charitable organisations; libraries, art museums and zoos, supplying goods and services, hospitals, aid to the handicapped and scientific research and higher education, they find that the elasticity of fundraising spending is insignificantly positive in the range from 0.68 to 1.14 and the elasticity of the price has significantly negative correlation ranging between -2.65 and -0.73. They state that the results of the fundraising imply a very small total revenue-maximising behaviour, whereas the price has no revenue maximising behaviour.

Posnett and Sandler (1989) test financial year 1985-1986 data for a sample of the 300 largest United Kingdom (UK) charitable organisations in four types of groups (health, religious, social welfare and overseas charities), using a log-log model consisting of price, fundraising expenses, government grants, age, autonomous income and legacy donations. The price of obtaining charitable output is assumed to increase based on the fraction of the organisation's expenses diverted from program spending to either administrative or fundraising purposes. However, ignoring any tax benefits, Posnett and Sandler (1989) defined price as follows:

$$\mathrm{Price} = 1/(1 - f - a) \tag{3-3}$$

where f and a are the fractions of total expenses spent on fund-raising and administration expenses.

If all of an organisation's expenses are either fundraising, administrative or program, then algebraically price reduces to the inverse of the program expense ratio (Tinkelman and Mankaney, 2007, p. 44). Thus, their output "price" has two significant differences from that of Weisbrod and Dominquez (1986). Firstly, they do not include the marginal tax on the calculation of price because their sample of UK charities rarely has tax exemption status at that time. Second, Posnett and Sandler (1989) employ both the ratios of fundraising and administrative expenditure to total expenditures for the calculation of price, whereas Weisbrod and Dominquez (1986) had to treat administration costs ratios as zero, due to unavailability of data. Therefore they use the ratio of fundraising expenditure to total donations for price. Third, in the estimated model, they have additional variables included; legacy donation, central and local government grants and other revenues using data from four types of groups; health, overseas, religion and social welfare. Fourth, all of the variables used in the regression relate to the current period due to the sample availability, however they acknowledge that it is preferable to use lagged values of the independent variables. Their estimated model is

$$\begin{aligned} \ln D_i &= b_0 + b_1 \ln Fund_i + b_2 \ln \mathrm{Price}_i + b_3 AGE_i + b_4 \ln(AGE_i x Fund_i) \\ &+ b_5 \ln Leg_i + b_6 \ln CenG_i + b_7 \ln LocG_i + b_8 \ln OR_i + u_i \end{aligned} \tag{3-4}$$

where D = total donation (excluding legacy donations);
Fund = fundraising expenses;
Price = output price (see equation (3-3));
AGE = organisational age;
Leg = legacy donation;
CenG = grants from central government;
LocG = grants from local government;
OR = other revenues, rent income, service fees and investment incomes;
u = error term; Variables are logged (ln).

The results from Posnett and Sandler (1989) are broadly consistent with the results of Weisbrod and Dominquez (1986). The results of output "price" with industry specific groups are significantly negative elasticity in their full sample (-2.018), health (-1.422), religious (-3.044), and social welfare (-1.549), but not significant in their overseas sample (-0.0096). They find charity age is a significantly positive elasticity (full samples at 0.006, religion at 0.004 and welfare at 0.007), while government grants have an insignificant and mixed effect on donation except in the social welfare industry (0.045 at 5% significant) and rather increase the charitable donations. Their contribution includes other revenues – rent, investment income fees from services and other income, and isolation of legacy donations from other donations on the basis of the argument that such revenues may crowd-in or crowd-out donations. However, legacy donations on total donations is insignificant due to the fact that legacy donations may take much longer to reflect on total donation. The findings are significantly positive elasticity of other revenues on the total donations (at 1 % level), in their full sample (0.078), health (0.190), social welfare (0.152) and overseas (0.445) but not in religion (0.061), implying a revenue-maximising behaviour because they are not significantly different from zero (Weisbrod and Dominquez, 1986). These results also indicate that central government grants do not crowd-out in the groups of health, religion and social welfare and not for overseas, whereas the local government grants show crowding out, insignificant and negative elasticity on total donation, in all groups – health, religion and social welfare.

Callen (1994) employs the price without the marginal tax following Posnett and Sandler (1989) and conducts an OLS regression analysis of the years 1986 to 1987 data for a sample of Canadian 72 registered charities with a listing on the Specific

Health Focus Organisation. Her investigation is focused on output price as the organisational efficiency measurement without legacies donation but adding other technical efficiency variables (service fees and other revenues ratio) in the OLS regression model (Callen, 1994, p. 221) as follows

$$\ln D_i = \alpha_0 + \alpha_1 \ln Fund_i + \alpha_2 \ln Price_i + \alpha_3 AGE_i + \alpha_4 \ln(AGE_i x Fund_i) + \alpha_5 \ln OR_i + \alpha_6 \ln G_i + \mu_i \qquad (3\text{-}5)$$

where D = total donation;
Fund = fundraising expenses;
Price = output price (use of Posnett and Sandler's (1989) price, see (3-3));
AGE = organisational age;
Leg = legacy donation;
OR = other revenues, rent income, service fees and investment incomes;
G = government grants;
µ = error term; and all variables are logged (ln).

Callen (1994) finds that price (-0.302) to be significantly negative to the total donations and government grants to be insignificantly negative, while fundraising, age and the cross-product term (fundraising is a multiple by age) are all insignificantly positive to total donations. Theoretically, fundraising should have a negative correlation to the donations (Weisbrod and Dominquez, 1986), however, after adjusting the heteroscadasticity in the residual of the OLS regression model (using White's (1980) test[9]), the fundraising is positive and significantly correlated to the total donations.

Khanna, Posnett, and Sandler (1995), using the period 1983-1992 for a sample of UK 159 charities in the four groups, health, overseas, religion and social welfare (from the Charities Aid foundation Statistics and Trends data), follow the study of Posnett, and Sandler (1989) model (see Equation 3-4). They argue as to whether marginal tax needs to be included in output price[10], because in the period up to 1990 in total, tax deductible donations are granted only less than 15% of the total individual giving. Therefore, Khanna et al. (1995) arguably, drop off the marginal tax in the calculation

[9] White (1980) tested the consistent estimator of the covariance matrix and fixed the possible heteroscedasticity problem.
[10] Khanna, Posnett, and Sandler (1995) employ in "price", marginal tax from Weisbrod and Dominguez's (1986) study, and from Posnett, and Sandler's (1989) study, including administration expense ratio. This ratio uses the proportion of total expenses assigned to the fundraising expense and administrative expense.

of output price (see Equation 3-3) and test a log-log linear regression with a time lag for independent variables. They (1995) find that output price is significantly negative (-1.28) in the full sample but not significant in any of four groups sample. They also find that the fundraising expense to total expense ratio is significantly positive. In other words, as the implicit price rose from the higher fundraising and administrative expenses in the previous period, the charitable donations decrease in the current period; whereas subsequently higher fundraising expense increases the total donations in the current year. They also (1995) argue that fundraising expense has two opposite effects on donation: one is to reduce the resources available to the recipients and the other is to increase the donations as an advertising effect, similar to the for-profit organisations (see also Weisbrod and Dominquez, 1986). Furthermore, the administrative expense is insignificantly negative, while the government grants and organisational age have positive and significantly correlated to the total donation. They conclude from the fundraising elasticity falling between one and zero that their results imply a mixture of budget-maximising and revenue-maximising behaviours.

Balabanis, Stables and Phillips (1997), working in the marketing framework, conduct a survey of the top 200 British charities to find a relationship between the charities' performance and the level of the present donor-market orientation using data from two different point years, 1989 and 1994. They find that the efficiency measurement of the percentage of the administrative expenses to the total donations shows a strong influence factor on donors which reflects on management attitude towards the usage of their donation. They conclude that the findings indicate that charities are aware of how the donors put pressure on charities to make use of their donations in better ways.

Tinkelmann (1998) also employs a log-log linear regression analysis once using a modified Weisbrod and Dominquez (1986) "price", including the marginal tax. He then decides to adapt Posnett and Sandler's (1989) "price" excluding the marginal tax in the calculation of the price because the different tax rates for comparison studies makes it more complex and difficult to compare. In addition to the study of Posnett and Sandler (1989), Tinkelman (1998) includes joint costs such as program, administrative and fundraising expenses, total assets, the organisational age, government grants, program and other revenues as control variables in the period

1990 to 1992 data for a sample of 191 large charities from the New York State's Charity Database[11.]

The estimation model is

$$lnD_i = f(lnPrice, lnAGE, Rations, InFund, lnAssets, Control) \qquad (3\text{-}6)$$

where D = total donation;
Price =output price (Posnett and Sandler's (1986) price, see Equation 3-3);
AGE = organisational age;
Fund = fundraising expenses in prior year;
Assets = total assets at the beginning of year; explained variables are logarithm (ln);
Controls = other types of revenues, government grants, program fees, and investment;
Rating rate by the council of Better Business Bureaus (CBBB) or the National Charities Information Bureau (NCIB)

Tinkelmann (1998) separates donation into four categories – individuals, corporations, foundations and legacies from deceased individuals. The price elasticity on total donation is statistically significant and negative on individual donations in each year (-0.89 for 1991 and -1.48 for 1992), whereas the fundraising elasticity is a positive (0.58 for 1991 and 0.59 for 1992) which shows slightly below ranging than that of Weisbrod and Dominquez's (1986) findings. He finds that the age is negatively correlated to total donations and argues that the organisational age may not be relevant information for donors to judge the quality of the organisation. He also tests whether financial statement users are affected by joint-cost disclosures by charities and finds that donors are affected by these variables and private rating information as an indicator of the quality of the organisation. Tinkelman (1998) concludes that large donors appear to penalise an organisation that includes high levels of spending on expenditures, but this does not affect small donors. He finds that individuals generally tend to give very small amounts after a very quick decision process but, in total, individuals give 81% of the funds, while the three other types of donations, foundation grants, corporate grants and legacies, are large amounts with a careful decision-making process in each, for about 6% of total donations.

Similar results are obtained by other researchers, using the large samples of charities in the US. Khumawala and Gordon (1997), Greenlee and Brown(1999), Frumin and

[11] New York State charities soliciting over US$25,000 are required to file annually.

Kim (2001) and Roberts et al. (2003), each find evidence that the relatively higher costs of fundraising are not a significant factor which affects the levels of the donations. Khumawala and Gordon (1997) find evidence to support the proposition that a higher expense in fundraising seems to increase exposure of the charities and results in higher levels of donations in subsequent years.

Using household data, including the marginal tax effect on the log of price, Andreoni and Sholz (1998) also conduct a log-linear regression analysis to investigate whether preferences to donate from each household are influenced by the knowledge about donations by the neighbours. Using a sample of 3,373 households data in 1985 from the Bureau of Labour Statistics in US, they find that price and the donation show a negative elasticity.

Tinkelman (1999) tests the period 1993 and 1994 data for a sample of 9,625 charitable organisations from the New York States' Charities Database, using the Tinkelmen's (1998) a log-linear model, but without agency ratings. He compares the results between the audited and the non-audited data and finds output price to be significantly negative in each year (-0.55 for 1993 and -0.53 for 1994), consistent with the previous studies in that price from both data are significantly negative and the fundraising ratios from both data are significantly positive.

Furthermore, Tinkelman (1999) investigates the organisational size and finds that relatively young organisations are more likely smaller in size and have more financial problems (see also Lyons, 2001).

Greenlee and Brown (1999) test a sample of 700 US charities for each year from 1991 to 1994 using a semi-log model consisting of lagged donations to function of administrative ratio and fundraising ratio. They separate the effects of these two expenses ratios but omit price in their model. They define administrative ratio as administration expenses divided by the sum of administrative and program expenses, and fundraising ratio as fundraising expenses divide by total donations. Their semilog model is:

$$Ln(D_t) = f(AR_{t-1}, Fund_{t-1}, D_{t-1}) \tag{3-7}$$

where: D = total donation;
AR = administration expenses;
Fund = fundraising expenses

Because they employ a lag period of time for fundraising and administrative ratios and their model requires 2 years of data, Greenlee and Brown (1999) separately performed regression for 1992, 1993 and 1994. They find that a lagged administrative expense has significantly negative correlation to the current total donations for all three years, while the fundraising ratios has a positive correlation at a 5% level of significance for all three years. The results of a positive relationship in all three years for fundraising ratios may indicate that donations tend to favour spending more on fundraising expenses to expose publicity of charities as an advertising effect on for profit-organisation. However, the theory does not support its relationship (Weisbrod and Dominquez, 1986), the results indicate that increasing fundraising ratios in the current year appears to enhance future donations (Greenlee and Brown, 1999).

Okten and Weisbrod (2000), employing a similar model to Callen (1994), investigate the relationship between total donations and financial variables, fundraising expenses to total expenses and fundraising expense to total revenues using the IRS data for 1982–1983 and 1985–1994 using seven groups; libraries, arts museums/zoos, services to the poor, hospitals, services to the handicapped, scientific research and higher education. Their model is different from Callen's (1994) model (see 3-5) that used Program Service Revenues (PSR) whereas Callen (1994) employed Other Revenues (OR, including Program fees, rent revenues and investment). They notice that donors are sensitive to expense ratios, implying a downward sloping demand curve for charity services (fewer people ask for help). They find efficiency of fundraising to obtain mixed results but generally it finds a positive and insignificant correlation to total donations and that fundraising elasticity for six groups are not significantly different from zero.

$$\begin{aligned} \ln D_i &= \alpha_0 + \alpha_1 \ln Fund_i + \alpha_2 \ln Price_i + \alpha_3 AGE_i + \alpha_4 \ln(AGE_i x Fund_i) \\ &+ \alpha_5 \ln PSR_i + \alpha_6 \ln G_i + \mu_i \end{aligned} \tag{3-8}$$

where: D = total donations;
Price =output price (Posnett and Sandler's (1986) price, see Equation 3-3);
AGE = organisational age;
Fund = fundraising expenses in prior year;

Okten and Weisbrod (2000), however, expect that the organisational age represents the organisational reputation and increase the organisational wealth, they find that the effect of age on donations is a negative. They state that "an unobservable quality may not be fully captured by the regression model"(2000, p. 268). These results are consistent with previous studies (Callen, 1994; Tinkelman, 1998; Greenlee and Brown, 1999). Furthermore, they also investigate whether other revenues, such as project revenues, have any effect on total donations. They find positive effects on donations; in other words, other revenues encourage donors to donate in the groups of higher education, scientific research, arts and hospitals. These findings are consistent with previous studies which show that private individual donations have a positive but self-directed project income (Khanna et al., 1995; Khanna and Sandler, 2000).

Barber, Roberts and Visvanathan (2001) use the program spending to total spending ratio to evaluate the organisational strategy and objectives of charitable organisations using a sample of six environmental charities. They define two types of organisations as revenue maximisers and cost minimisers. Revenue maximisers' charities use direct mail solicitation or professional fund-raisers to increase the awareness of charities and consequently increase donations. On the other hand, cost minimiser charities do not use fundraising techniques. However, those two types of organisations use a different strategy, but their program expenses are similar on average among the six charities. They note that the organisational financial profiles need to be investigated in detail before drawing definitive conclusions about performance, because there are considerable strategic differences among the charities.

Similarly, Frumkin and Kim (2001) test a log-log linear regression on a balanced panel of 2,359 charities. To avoid an issue of serial correlation, Frumkin and Kim use a one-way generalized least squares approach to the function of administrative ratio, program expenses, level of fundraising expenses, total revenues, government grants for a sample data from the Internal Revenue Service (IRS) Statistic of Income (SOI) databases for the 11 years from 1985 to 1995 in the US. The IRS encompasses the data for all charitable organisations with more than USD10 million in assets of six groups of charitable organisations; arts, education, health, human services, public benefit and others to control for possible different effects by sector. Their model excludes a variety of other variables found to be significant in other research including fundraising ratio, organisational age, and other revenue sources, and leaves unclear why donors should dislike the administrative ratio which no longer represents a diversion of funds from programs as it does in the two previously discussed models. Not surprisingly, they find no statistically significant and negative correlations between the overheads and total donations for their sample of charitable organisations. However, they do not take the log of administration expense ratio and they exclude age, program service revenues. In five groups out of six, they find that fundraising expense has shown a significant positive effect, whereas administration expense has no significant effect on donation, which is inconsistent with the result of Greenlee and Brown (1999). Frumkin and Kim (2001) conclude that donors seem not to pay attention to the efficiency of the organisation to which they are donating.

Carrying on the study of Okten and Weisbrod (2000) and using their modified model, Marcuello and Salas (2001) examine a behavioural model, in the line of competition of charitable organisations, in the context of markets with monopolistic competition. They test 50 Spanish Nongovernmental Organisations of Development Aids data for the period 1992 to 1993. Their main objective is to compare the determinants of time donations, which are volunteers' work, with the determinants of money donations using a two stage least square regression – price and operating expenditure as instrumental endogenous variables.

The empirical model produced by Marcuello and Salas (2001) is formulated taking into account the total income received in a given year, operating expenditures, and some characteristic that can be related to reputation indicators, such as age, ownership, and legal form. The assumption that charities use donations to deliver output Q and to cover expenditures F and A is equivalent to assuming that they follow a pricing policy of price equal to average cost c_i. In this model they take logs in Equation (1), the empirical model with a log-linear function as follows:

$\ln D_t = a_0 + a_1 \ln F_i + a_2\, Rep_i + a_3 \ln c_i + u$ (3-9)

where: Rep_i is the vector of reputation indicators of organisation i;
p_i,: price is substituted by average unit cost,
c_i; and u_i is the error term

They find that fundraising expense and output price have a positive effect on monetary donation but the age and religious variable have no significant effect on monetary donations, whereas the age and religious control of organisations have a positive effect on time donations, but operation costs have no sign of effect on time donation and price elasticity of time donations is lower than for monetary donations.

Jacobs and Marudus (2003) examine the data from Statistic of Income (SOI) database, using the modified Frumkin and Kim (2001) model, on the log form of administrative expense ratio and a two-way random effects model. They find significant negative correlations in 2 of the 6 groups (education and other), whereas in the other four groups the correlation remains insignificant. Furthermore, Marudas and Jacobs (2004) examine a panel data of 838 large US charities for the period 1985 to 1994 using a two-stage least squares model, similar to the Okten and Weisbrod (2000) model, excluding the age-fundraising interaction term due to multicollinearity problem and also similar to Tinkelman’s (1998) model without a size control. They find their specified price (total expenses/program expenses) to be significantly negative (-1.32) in their scientific research sample, significantly positive (0.08) in their hospitals sample, and not significant in their education sample.

$$\ln D_i = C_0 + a_1 \ln Fund_{-1i} + a_2 \ln \Pr ice_i + a_3 AGE_i + a_4 \ln G_{-1i} + a_5 \ln PR_{-1i} + e_i \quad (3\text{-}10)$$

Where: D = total donation;
C_0, as $C_0 = a_0 + a_2 \ln(1-t)$ (same with Weisbrod and Dominquez (1986));
Fund = fundraising expenses in prior year;
Price =output price (Posnett and Sandler’s (1986) price, see Equation 3-3);
AGE = organisational age;
G= government grants;
PR = program revenue;
e = error term; ln = logged

Parsons (2003) examines the value of accounting information to donors and discusses the current accounting practices of charitable organisations. She finds that the accounting reporting practices from charities are varying and diverge greatly. She states that the needs of the different accounting standards and the reporting structures for charitable organisations reflect significant differences between the business and non-business operations. She provides some evidence of charitable accounting information to donors and suggests further research to examine the relationship between stability measures and efficiency measures that incorporate fundraising costs and donations.

Tinkelman (2004) also investigates the managers' fundraising strategies using IRS data from 1982 to 1994, which is the data used in the Okten and Weisbrod (2000) model. He finds a negative correlation between vulnerable organisations and organisational age and size. He also find the typical fundraising elasticities in seven groups of charitable organisations to be between zero (indication of the net revenue-maximising level) and one (as the budget-maximising level). These results are consistent with the previous results (Posnett and Sandler, 1989; Khanna et al., 1995), most managers in charitable organisations following the strategies between pure program service maximisation and pure organisational size maximisation. However, his findings of the fundraising elasticities for seven groups are different from the results of Oken and Weisbrod (2000), which shows elasticity for six groups is not significantly different from zero.

Trussel and Parsons (2004) examine the financial information on charitable organisations and establish four factors in a conceptual framework. Of these four financial factors, they identify financial information as the key to understanding the efficiency, stability, quantity and quality of the operations of charitable organisations. The four factors used in the analysis are, (i) efficiency of the organisation in allocating resources to its programs, (ii) financial stability of the organisation, (iii) quantity of information available to the donors and, (iv) quality of information. Their efficiency model with efficiency factors is employed as a combination model from the Weisbrod and Dominquez's study (1986) and the Posnett and Sandler's study (1989). For their other factors, Trussel and Parsons (2004) employ their theoretical foundations from the combination of various previous studies including the studies of

Weisbrod and Dominquez (1986), Posnett and Sandler (1989), Tuckman and Chang (1991), Baber et al. (2001) and Parsons (2003). Trussel and Parsons (2004) test the four factors[12] with the ordinary least squares (OLS) regression model and conclude that the donations are significantly related to each factor's independent variables at the 0.1% level.

More recently, Thornton (2006), using panel data from seven groups of charities covering more than a decade of observations, finds that fundraising expenses are directly and positively correlated to charitable donations. These results also indicate that, as an indirect effect, a higher price lowers the total donations. He finds that some charitable organisations, such as libraries and hospitals, are less interested in fundraising, whereas religious organisations are very keen to engage in fundraising to maximise their resources.

Tinkelman and Mankaney (2007) investigate whether when and if a charitable organisation reports increased spending on administration costs, donors stop supporting it. They employ the efficiency variables on the modified models from the previous studies, comparing the results from Posnett and Sandler's (1989) price model, Greenlee and Brown's (1999) model and Frunkin and Kim's (2001) model. They test three samples. The first sample is for 27,602 observations from the National Center for Charitable Statistic database for 2000 and 2001 (NCCS). Two additional samples are obtained to replicate the prior studies, which are conducted on data from the 1980s or early 1990s, one from 1992 to 1994, 1,962 observations from New York State data (NYS) and one from 1982 to 1994 of 1,373 observations from the Statistics of Income data (SOI). They also test the residuals using the White's test (1980) to reduce the impact of heteroscedasticity.

Furthermore, Tinkelman and Mankaney (2007) also use Tinkelman's (1998) "four price lower factors" to examine whether the association between donations and administrative ratio may change signs at different levels of organisational size, age, administrative spending or administrative ratios. However, they find no evidence of

[12] EFF: the total of price, program expense ratio and administration expense ratio. QUN: the total of the ratio of the fundraising expense to the total expense and the ratio of the fundraising expense to the total contributions. QUL: the total of the number of the operation years, the logging of the beginning assets and the ratio of the grant revenue to the total revenues.

an effect on a change of sign in the above circumstances of the association of the administrative ratio. The coefficients of fundraising ratio are positive, as expected because activities of fundraising increase publicity of charities and consequently donation to charities increase, while the coefficients for the administrative ratio give mixed results. Using the price model, the administrative ratio is constantly negative in the two NCCS samples (the full and the restricted sample[13]), and the full and restricted NYS and SOI samples. Whereas in the NCCS full sample, using Greenleen and Brown's (1999) or Frumkin and Kim's (2001) models, the coefficients in both models are statistically positive and significant. In the NCCS with restricted sample regressions, the coefficients become negative but significant. Tinkelman and Mankaney (2007) conclude that mixed results or weaker associations exist when (i) the data is from smaller organisations (also see Tinkelman, 1998) in a start-up phase (the organisational age is less than four years), (ii) the administrative or fundraising ratios are too small or, (iii) the organisation is not able to rely on donations.

Thornton and Beiski (2009) find that using the IRS Form 990, competition among charities creates under-reported management and fundraising costs to make their organisations more efficient and use. They also find that donors have a higher opinion of charitable organisations with accurate financial report, thereby donating more. Additionally they find that pricing of donation is sensitive to higher quality financial information from charitable organisations.

Marudas and Jacobs (2007) examine whether the charities' level of fundraising is excessive, insufficient or unrelated to maximising net donations using a sample of 606 arts charities in the US. They employ a model similar to Marudas and Jacobs (2004) but they use normal constant term and additional variable, Y, which is calculated on the ratio of net assets / (total expenses – fundraising expenses). Their estimation model is

$$\begin{aligned} \ln D_i &= d_0 + d_1 \ln Fund_{-1i} + d_2 \ln Price_i + d_3 AGE_i + d_4 \ln G_{-1i} + d_5 \ln PR_{-1i} \\ &+ d_6 \ln Y_{it} + d_7 \ln Assets_{it} + \varepsilon_{it} \end{aligned} \tag{3-11}$$

[13] Their restricted samples were to meet the following conditions: fundraising and administrative expenses must both exceed US$1,000, age must exceed three years, prior year donations must exceed both US$100,000 and 10% of the total prior year revenues (Tinkelman and Mankaney, 2007, p. 51).

Marudas and Jacobs (2007) find that the effect of a 1% increase in fundraising on net donations is varied among the arts charities in the sample data, for instance, giving an increase in net donations of 8.91% of gross donations to a decrease of 3.82% of gross donations. On the other hand, they find that the top 100 largest donations in all the sampled charities may narrow their variance of the effect level. In the top 100 samples, the effect of a 1% increase in fundraising on net donations indicates from an increase in net donations of 0.27% of gross donations to a decrease of 0.32% of gross donations. Of these 100 NPOs, they find only 3 engaged in excessive fundraising but 83 engaged in insufficient fundraising, and 14 do not engage in excessive or insufficient fundraising. They also provide evidence that reported organisational efficiency does not affect donations to arts NPOs.

Amirkhanyan, Kim and Lambright (2008) test two separate organisational outcomes, for the level of charitable organisational quality and organisational access. They examine two separate organisational outcomes on two regression equations of quality model and access model. Their purpose of examinations is to achieve the efficiency of the estimations, which are addressed as some of the problem associated with the data. To correct this problem, they employ the seemingly unrelated regression to estimate the two equations jointly (Griffiths, Hills and Judge, 1993). Also they analyse the data in a two-stage-least square model, on a system of equations in which the dependent variable in the quality model is used as an independent variable in the access model and “vice versa” (Amirkhanyan et al., 2008, p. 499). As a result, they find that measures of quality and access are endogenous rather than exogenous and become correlated with the error terms, which results in biased and inconsistent estimates (Amirkhanyan et al., 2008, p. 499)

Measuring charities’ inefficiency in the previous studies mainly uses price as a proxy. The most recent study by Jacobs and Marudas (2009) examines the charities inefficiency using both administrative and price ratio on donation, which is based on the argument of misspecification of the model by using only one of these two inefficiency measures that may create substantial bias. The effect of administrative inefficiency on donations varies substantially across groups. They employ data from the periods 2000 and 2001 for a sample of 5,493 observations from the Statistics of

Income database developed by the National Center for Charitable statistics in five industry types (arts, education, health, human services and philanthropy).

They employ a modified model of Marudas and Jacobs (2007) by adding a variable, a log of administration expenses. Jacobs and Marudas (2009) state that they include all variables currently known to affect donation using five different groups of charitable organisations - arts, education, health, human services and philanthropy.

Their empirical model is as follows:

$$\ln D_t = d_0 + d_1 \ln \mathit{Fund}_{\,t\text{-}1i} + d_2 \ln \mathit{Price}_{\mathrm{i}} + d_3\, \mathit{AGE}_{\mathrm{i}} + d_4 \ln G_{-i} + d_5 \ln \mathit{PR}_{-i} \quad (3\text{-}12)$$

$$+d_6 \ln Y_{it} + d_7 \ln \mathit{Assets}_{it} + d_8 \ln \mathit{AR}_{it\text{-}1} + \varepsilon$$

where: *i*, indicates NPO, *t* indicates year,
D = donations,
Price = total expenses/program expenses,
Admin = administrative expenses/total expenses,
FR = fundraising expenses,
GOV = government support,
PREV = program service revenue,
AGE = years since first filing a federal tax return,
Y = years of available assets at the beginning of the year, considered to be a measure of wealth and specified as net assets/(total expenses-fundraising expenses),
TOTASS = total assets at the beginning of the year and; *u* = error.

Jacobs and Marudas (2009) use Equation 3-12, however, they test the three models: that which includes Price only, that which includes Admin only and that which includes both Price and Admin. Other than these two variables they use the control variables. They believe that the previous studies, unfortunately, provide confusing results of the effect of organisational inefficiency variable on donation (see Jacobs and Marudas, 2009, p. 38).

Jacobs and Marudas (2009) find that administrative inefficiency has a significantly negative effect on donations to charities in the full sample and in the philanthropy sample, but other groups; arts, education, health, or human services groups, find an insignificant effect on donations. They find that “price” has shown statistically significant but negative effect on donations in the full sample and the group samples with the exception of two groups, the arts and philanthropy samples.

In summary, various dependent variables have been employed in the empirical models on the demand side of the donations "effort." The results suggest that donors are cautious with respect to spending ratios of charitable organisations, responding with a downward shift of the donations demand curve, presumably if those ratios are either considered inappropriate or are seen as representing inefficiency (Callen, 1994). Fundraising expenditure commonly exhibits a significantly positive effect on donations (Posnett and Sandler, 1989; Khanna et al., 1995; Frumkin and Kim, 2001; Tinkelman, 2004; Thornton, 2006; Marudas and Jacobs, 2007; Tinkelman and Mankaney, 2007). For some studies, however, there were mixed results (Callen, 1994). Administrative expenditures were mostly found to have either a significantly negative correlation to donations (Jacobs and Marudas, 2003), or to have no significant effect on donations (Frumkin and Kim, 2001; Tinkelman and Mankaney, 2007); or to exhibit mixed results (Tinkelman and Mankaney, 2007; Jacobs and Marudas, 2009). Such results might indicate fundraising activities increase awareness and generate publicity for charities, and consequently donations to charities increase (Tinkelman and Mankaney, 2007). Most managers in charitable organisations would, therefore, be keen to establish strategies between pure program service maximisation and pure organisational size maximisation (Tinkelman, 2004).

Inconsistency and mixed results appear to be associated with weaker associations (Tinkelman, 1998) or start-up phase organisations within four years of their establishment (Greenlee and Brown, 1999). Organisational age seems to be a proxy for organisational reputation and increase the organisational capital (Okten and Weisbrod, 2000), but was found to be a negative effect on donations (Callen, 1994; Tinkelman, 1998; Greenlee and Brown, 1999; Okten and Weisbrod, 2000). As stated by Okten and Weisbrod that "an unobservable quality may not be fully captured by the regression model" (2000, p. 268). Other commercial revenues were found to have a positive effect on donations, encouraging donors to donate within the groups (Khanna et al., 1995; Khanna and Sandler, 2000; Okten and Weisbrod, 2000). It may be that donors wish to see revenues generated on a more sustainable basis than just donations.

3.5.2 Government grants and the market for donations

This section discusses the literatures which examined correlation between donation and government grants, which could be grouped as some type of other revenue.

Charitable organisations also compete for government subsidies which they use to finance their activities in the provision of collective goods (Marcuello and Salas, 2001).

Some studies consider that government grants have a significant effect on donations as a quality measurement of the charity (Warr, 1982; Roberts, 1984; Kingma, 1989; Andreoni, 1990; Payne, 1998; Khanna and Sandler, 2000).

Khanna and Sandler (2000), Posnett and Sandlar (1989), Khanna et al. (1995) and Okten and Weisbrod (2000) find that government grants encourage private donors to donate more, whereas others have found that government subsidies crowd out the private giving (Warr, 1982; Roberts, 1984; Kingma, 1989; Payne, 1998), or a partial government assistance can crowd out donations (Kingma, 1995; Payne, 1998), or any increased government assistance can partially crowd out charitable donations (Schokkaert and Ootegem, 1998). Kingma (1995) and Kigma and McClelland's (1995) survey of individuals who are on the list of the national public radio stations across the US found that more tightly the crowd-out parameter gave a crowd-out of 15 to 19 cents for every dollar of government funding. There are several reasons why government grants to charitable organisations might discourage private donations. For example, the donors may think their donations are less important, which leads them to give to other organisations (Warr, 1982; Roberts, 1984). Charitable organisations might also be less interested in more aggressive fundraising strategies after receiving a government grant (Bergstrom et al., 1986). Using a 10-year panel data of 430 charitable organisations in the U.S., Payne (1998) finds that government grants lower private donations by 50%. Schokkaert and Ootegem (1998) also find government grants discourage private donations, whereas, Tinkelmen (1998) and Callen (1994) find no evidence or any significant effect of government grants crowding out private donations. In other words, government grants have negative and insignificantly correlation the total donation. They conclude that insignificant relationship of government grants occurs because the formal grants proposal procedure may not relate to private donations and therefore has no influence on private donations.

On the other hand, using a sample data from 159 charities in the United Kingdom, Khanna, Posnett and Sandler (1995) and Khanna and Sandler (2000) find that receiving government grants have positive correlation to private giving. This may reflect UK and US attitudes to government. They conclude that government grants provide some kind of quality approval for charitable organisations, because most donors are unsure about the quality of charitable organisations (Andreoni, 1998). Similarly using financial data from the US, Okten and Weisbrod (2000) find that government grants and program service revenues have a positive effect on total donations in higher education and scientific research, arts and hospitals. Government grants and program revenues do not crowd out private donations in their seven groups (Okten and Weisbrod, 2000).

Financial and theoretical research on donors' behaviour towards charitable organisations uses utility function modelling, while research on charitable organisation uses a variety of estimated models. Economic modelling of the two is discussed in the following paragraphs.

In this context, Marcuello and Salas (2001) also find no evidence of the crowding out of private donations by government grants. Marcuello and Salas (2001) assume a market with N varieties of a public good, each one produced and sold by a single charity. Donors purchase quantity "Q_i"(of variety i (i =1,…,N)), paying a price "p". Therefore, the total income received in donations by charity i, D_i $(p_i; b_i)$, will be equal to price time quantity.

This equation for donation is:

$$D_i(p_i;b_i) = p_iQ_i = Bb_i p_i^{\beta} \tag{3-13}$$

where: B = a positive constant common to all varieties and
μ = the price elasticity of demand, also common to all varieties, with $\mu,<0$

The donations, D_i $(p_i; b_i)$ to organisation i all reciprocated by output equal to

$D_i\ (p_i;\ b_i)$-F_i-A_i. This means donors pay price p_i,, akin to the results of Wesbroad and Dominguez (1986)

where

$$p_i = \frac{D_i(p_i;b_i)}{D_i(p_i;b_i) - F_i - A_i} \tag{3-14}$$

where: p_i = price,
F_i = the fundraising expenditure,
A_i = the operating cost per unit of output

The output of quantity of charity i

$Q_i = D_i\ (p_i;\ b_i)$-F_i-A_i, i =1,…,N

$$c_i = \frac{Q_i + F_i + A_i}{Q_i} = \frac{D_i(p_i;b_i)}{D_i(p_i;b_i) - F_i - A_i} = p_i \tag{3-15}$$

This result is consistent with the argument in the sense that such crowding out would not occur because government grants may serve as a quality signal for donors (Khanna et al., 1995; Khanna and Sandler, 2000; Okten and Weisbrod, 2000) and rather provides donors with a secure quality qualification of the organisation. Marcuello and Salas (2001, p. 202) conclude that "the fact that government grants do not affect donations may indicate that crowing out effects cancel out with quality signal effect." This is also consistent with predictions from the public literature that such crowding out may not occur when a government grant comes from the collection of revenues of a whole population, including donors (Bergstrom et al., 1986; Marcuello and Salas, 2001).

Andreoni and Payne (2003), for charitable organisations in US, predict that an increase in government funds should decrease fundraising efforts (charitable giving), namely government grants crowding out private donations. They use

$$C_j = \sum_{i=1}^{n} y_{ij} + G_j - F_j(\theta_j) \tag{3-16}$$

where: Cj = cost of services of a charity j;
x_i = an individual's consumption of private goods;
y_{ji} = a person i's contribution to charity j (y_{ij}: ≥ 0);
θ_j = the probability that a charity j solicits an individual i.

The cost of fundraising sets as $F_j(\theta_j)$, where $F' > 0$ and F''>0.

In addition, if charity *j* receives government grants as G_j then charity *j* can be described as: $L_j \in [0,1]$; and $L_i^* \in [0,1]$.

The utility function if the i^{th} person is $U_i = u_i(x_i, C_j; \ell_{ij})$, where

$$\frac{\partial u_i(x_i, C : \ell_{ij}) \big/ \partial C}{\partial u_i(x_i, C : \ell_{ij}) \big/ \partial x} \geq \frac{\partial u_i(x_i, C : \ell_{ik}) \big/ \partial C}{\partial u_i(x_i, C : \ell_{ik}) \big/ \partial x} \text{ if } \ell_{ij} \geq \ell_{ik} \qquad (3\text{-}17)$$

where $\ell_{ij} = 1 - d(L_i^*, L_j)$, when $d(L_i^*, L_j) =$ some distance function

Andreoni and Payne (2003, p. 794) state that "All else equal, this will imply that not only will an individual prefer to give to a charity that is closer to its ideal quality, but it will also want to give more to it than one farther away." They describe the fundraising model (2003, p. 802) as:

$$F_{ist} = \alpha_i + \gamma_t + \beta G_{ist} + O_{ist}\eta + \; + Z_{st}\lambda + \varepsilon_{it}, \qquad (3\text{-}18)$$

where *F* =s fundraising expenditure spend in year *t* by charity *i* located in state s;
G = the government grants in year *t* received by the charity *i*.

Andreoni and Payne (2003) explain that there are several issues suggesting that the OLS results may be biased due to endogeneity or omitted variables in the specification, and they estimate equation using a two-stage least squares (2SLS) specification. In the first stage, they estimate government funding based on a set of exogenous measures used as instruments. In the second stage, they use the estimated level of government funding to measure the coefficient of G (*β*) using panel data set for up to 15 years from the arts and social services organisations. They find strong evidence that government grants to charities reduce the total donation, expressed as crowding out donations. The variety and contradictions of these results suggest that:

(a) we cannot be certain about the "crowding out" hypothesis and (b) it may vary from place to place.

3.5.3 Characteristics of charitable organisations

Increasing numbers of researchers are suspicious about accuracy of information provided in an IRS Form 99014 from charitable organisation in the US.

Krishnan, Yetman, and Yetman (2006) find that the NPOs reported the under-value of fundraising expenses owing to managers' incentives to show more efficient organisations. They find that many charities reported zero fundraising in the IRS filings, even though they have fundraising personnel and report fundraising costs in their audited financial statements. Their findings are similar to Tinkelmen's price for the lower four factors (Tinkelman, 1999). They argue that the four attributes of the organisations might have an effect on lowering the price. The attributes of the organisations are; (1) organisations with a lower operational age - younger charities (less than four years in operation) may have a limited relevance between price and donors' decision to donate to them, (2) organisations with a ratio of charities' donations out of total revenue of less than 20%, therefore the small size of organisations with no requirement to have an audit15 of their financial reports, and (3) organisations with a zero level of either fundraising or administrative expenses. Various researchers have questioned whether it is plausible that more than half of all charitable organisations report spending nothing on fundraisings in US (Tinkelman and Mankaney, 2007). A recent study argues that charitable organisations have little incentive to accurately expose functional expenses. Potentially this could explain why researchers into donations of charitable organisation fail to find a significant negative relation of administration costs, because donors penalize organisations with high administration costs (Tinkelman and Mankaney, 2007).

[14] Federally tax-exempt organizations in US must file with the Internal Revenue Service (IRS) which is the U.S. government agency responsible for tax collection and tax law enforcement.
[15] In New York the charitable organisations were not required to have audits with less than US$100,000 in their total donations.

The use of financial information is only partly contractible in the charitable organisation (Castaneda et al., 2007), and non-financial reporting may be important as a source of trustworthiness information to donors, for example the age of the organisation that donors may take as “a signal of quality charity” (Weisbrod and Dominquez, 1986, p. 94).

Non-financial information has also been found to have a significant effect on donations, including the quality measurement of the charity, such as organisational age (Callen, 1994) and size (Tinkelman, 1999; Trussel, 2002), or the corporate governance information of the charitable organisations (Callen et al., 2003; Abbott et al., 2004) and objectives (Anthony and Young, 2003; Parsons, 2003). Recently more charities set their mission statement as a measurable goal by taking a similar strategic plan to profit organisations to judge progress against goals (Sawhill and Williamson, 2001). Charitable organisations are focusing primarily more on areas where government’s attention is limited and inadequate (Salamon, 1994; Salamon et al., 2000).

O’Neill and Young (1988) discuss the characteristics of charitable organisations looking at the ambiguity of their performance criteria, the technical difficulties of measuring complex mission statements and the political difficulties of designing measurement systems that accommodate the various stakeholders in these charitable organisations. Sawhill and Williamson (2001) investigate charitable organisational performance in relation to mission statement. They state that over the decade, the number of charitable organisations that have applied a traditional profit organisational business model to improve their effectiveness and efficiency has increased.

Bennett (2003), in relation to the selection of a particular charity, states that donors are heavily influenced by the promotional image of the charities. He claims that for charities to survive, they should recognise the power of the material image to emphasise their work in increasing private donations. He also finds that donors seem to use the opportunity to select a particular charity for their donations that express their personal values. Additionally, he finds that people with a materialistic disposition are more generous and this generous group of people seems to prefer to donate to charitable organisations financially sound in practice (Bennett, 2003).

For the Netherlands, Bekkers (2003) points out that donors have neither legal rights nor any control over the allocation of donations and this is also true of other jurisdictions. Also in the Netherlands there is no legal obligation for charitable organisations to publish their financial information or annual reports to donors, but they may possess an accreditation status seal. Bekkers finds significant correlations between public trust and the charitable donations. Donors gradually recognise the significance of accreditation seals and donated more to those organisations that have them than to the organisations without, as can be seen in the increased donations from 16.5% in 2000 to 31.5% in 2002 (Bekkers, 2003).

3.5.3.1 Age, size and other information of charitable organisations

Weisbrod and Dominquez (1986), Posnett and Sandler (1989), and Callen (1994) Khanna, Posnett, and Sandler (1995), and Tinkelmann (1998) employ the operational age of the charity for expectation of positive effect on donation and they state that the result indicates a stock of goodwill which enhances the quality of the charities, subsequently, age is positive and significant on donations for all groups of charitable organisations. They conclude that the age of a charitable organisation provides the quality assurance to donors. Similar findings are suggested by various other studies (Lyons, 2001). However, a number of studies have investigated the association between the operational age of the charitable organisations and total donations, finding mixed results (Pink et al., 2006; Zappala and Lyons, 2006). Some research suggests that younger organisations have greater difficulty in getting funds from the government or other organisations, compare to the longer-established organisations. This is because the former may not have adequate capital to attract donations (Pink et al., 2006; Zappala and Lyons, 2006) and donors may see a smaller organisational performance - that is not required to have an audit - as less reliable (Tinkelman, 1999). Similarly, recently established charities may not have had enough time to build a reputation in order to receive grants or donations from the government or donors. By contrast, longer-established organisations are more likely to receive grants or subsidies from local government or large for-profit organisations through contracting partnership programs and thus, they are likely to have established alternate sources of revenues (Guo and Brown, 2006).

Organisational age is often associated with size (Herman and Renz, 1999; Lyons, 2001). It takes time for charitable organisations to earn trust and gain a reputation, which may generate greater revenue and the ability to grow larger (Herman and Renz, 1999). Trussel (2002) employs as a financial indicator total assets to measure the size of charities in a logistical analysis, and finds a negative correlation between the financially vulnerable organisation and the size of an organisation. Larger organisations may expand their services to receive revenues or raise larger amounts of funds from fundraising (Lyons, 2001). In contrast, relatively younger and newer organisations are likely to be smaller and more prove to initially be highly dependent on fundraising, whereas the large organisations have a lower dependency on fundraising (Zappala and Lyons, 2006).

Increasing the importance of charitable organisations to the world economy, charitable organisations need to be responsible for their operations and their management (Drucker, 1990). Information asymmetries within charitable organisations was a result of consumer or donor demand for information products (Kingma, 2006). As the charitable sector continues to grow, it will need to understand its role in improving the social well-being of the needy, the psychological impacts of aid on recipients. At the same time, they need to understand their funding needs in order to sustain their contributions to the community (Parsons, 2003).

3.5.3.2 Corporate governance

Notwithstanding that governance literature of charitable organisations is very small with different concerns to for-profit corporate governance literature, Jensen (1983) argues that the size of the corporate board is an important element in the effectiveness of the operation of the board (see also Beasley, 1996; Beasley and Salterio, 2001). Callen, Klen and Tinkelman (2003) also find that the size and the composition of the board is an indicator of the board's efficiency in charitable organisations. Fama and Jensen (1983) explain the theory of the organisational decision process in consideration of management decisions and decisions to control the organisation in various forms. They argue whether or not the board of directors is responsible for the internal control of the monitoring of the actions of top management; and whether or not the non-executive directors are more likely to have a secret agreement with the top managers whose interest lies in maximising their profits rather than the shareholders wealth. They conclude that the most influential member of the board with respect to the organisational activity is the internal manager, and that the inclusion of outside directors will enhance the board's role to monitor top management and decision control effectively.

Similarly, in a study of the board's involvement with top management teams and corporate board directors by Daily and Schwenk (1996), notice is taken of the importance of role of non-executive directors in their empirical investigation of interdependencies of top management teams. They find that when organisations are transitional or when the knowledge of the chief executive is specialised, the distribution of power shifts from the board to the chief executive.

Miller-Millesen (2003) argues that when the organisation is stable, the charities' boards may be more likely to engage in monitoring activities. However, when the executive staff are professionals, the boards are less likely to engage in monitoring. She also comments that charities' boards are more likely to be influenced by a board's recruitment strategies to reduce environmental uncertainty.

Beasley (1996) investigates whether or not the inclusion of outside members in a board reduces the risk of financial statement fraud, based on Fama and Jensen (1983). Employing a regression model with data on 75 fraudulent and 75 non-fraudulent organisations, he examined whether or not the board members have the authority for internal control or to act as an agent of the organisations. The study consists of an examination of the effectiveness of the board's mechanisms, including the size of the board the percentage of outsiders on the board; the ownership percentage of the outsiders on the board and the manager's cumulative ownership percentage of the firm. The variables also include the average growth rate of the total assets in the two years after the restatement of the firm's financial statement and if the CEO also acts as a chairman of the board. They find that the occurrences of financial statement fraud are reduced with the inclusion of outside members on the board of directors, but much less so with the presence of an audit committee.

Other research finds donors are influenced by the corporate governance information on the charitable organisations' board committee composition (Klein, 1998; Callen et al., 2003; Abbott et al., 2004) and the committees effectiveness (Abbott et al., 2000; Beasley et al., 2000).

Abbott et al. (2000) focus on an investigation of the effectiveness of the audit committee in relation to the audit committee's independence and level of activity, adopting Beasley's (1996) measurements. They study 156 firms, including 78 in the list of Security Exchange Commission Accounting and Auditing Enforcement Releases, and 78 non-sanctioned firms. They find that audit committees that consist of entirely outside members, and the boards that meet with members at least twice per year, show a significant positive correlation to a non-fraudulent financial statement. Beasley et al. (2000) examine whether the audit committees' effectiveness relates to the characteristics of the members. They find audit committees formed entirely with outsiders are positively correlated to non-fraudulent financial statements, even though the members of the audit committee rarely meet more than annually.

Callen, Klen and Tinkelman (2003) conduct a survey of 473 selected charitable organisations from 7,000 charities on the New York State database (NYSD) to investigate the association between the governance board composition and organisational efficiency. They also employ financial data from the financial reports of charities in the NYSD. The financial reports of these organisations are compiled with generally accepted accounting principles (GAAP). The selected organisations in the NYSD were based on two criteria, (1) charities with more than US$2.5 million in direct contributions in 1992 and, (2) the direct contributions[16] exceed 10% of the total donations in 1992. The reasons for the selection of these two are, (1) to examine the effect on major donors of charitable governance and, in particular, to examine whether or not donations to the charitable organisation need to be large and, (2) to understand whether smaller charities would be less useful for a study of the efficiency of the board. They state that smaller charities might rely less on donations. Callen et al. (2003) also found that the backgrounds of board members and board committee members also have some influence in the board's efficiency. They found that 37% of

[16] Direct contribution is obtained from private donation minus the funds raised by other organisations (Callen et al. 2003, p. 499).

charitable organisations have a professionally skilled member on the board; 26% of them have a major donor on the board, and 18% of them have a well-known person as a board member. They also found that all the variables have a significant positive association to the donations. One of the problems this thesis seeks to overcome is the unintended bias of current research efforts to the USA. It is always possible that the USA is atypical. This is reinforced by the results of the thesis suggesting large differences between charities in Australia and Japan.

Abbott, Parker and Peters (2004) examine the association between the possible financial restatements and audit committee characteristics in a multivariate setting, and the impact of audit committee expertise. Abbott et al. (2004) used a sample of for-profit firms with the restatements of the annual reports in the period 1991–1999, using a multivariate model with 15 variables. Four dummy variables relevant to corporate governance are included. These are (1) being 1 for having at least one accounting expert on the board; (2) having the board meeting at least four times annually; (3) making a loss three times within the past six years and, (4) taking a founder of a charity role of a chief executive officer (CEO), and ‘0’ otherwise. They found that having an accounting expert on the board and the frequency of the board meetings (more than four times per year) dramatically reduced the occurrence of a fraudulent financial restatement. They conclude that the members of corporate committees may enhance the quality of financial reporting.

The organisational corporate governance independency seems relatively important in the charitable organisations’ corporate boards to achieve their missions and objectivity, and to enhance internal control and reporting practices (Abbott et al., 2004). Corporate governance is concerned with ensuring that managers operate the organisations honestly and effectively (Child and Rodrigues, 2004). The word “governance” is used to describe a system of control or regulation (Turnbull, 1997). However, a large body of literature investigates the composition of the board of management for for-profit organisations, though little is still known about the charity sector (Callen et al., 2003), but an identifiable subfield of board research and evidence suggests its importance (Ostrower and Stone, 2006). Corporate boards are charged with ultimate responsibility for the charitable organisations that they oversee. Within the charity sector, they serve as an important channel for civic participation and play a critical role in connecting individual institutions to their larger organisations.

3.5.4 Fundraising strategies of charitable organisations

Bekkers (2003) found that trend the public availability of financial information of charitable organisations impels donors to collect information and evaluate of charitable organisations. Charities are aware of the impact of announcement of names of donors, especially large donations from leaders and well-known persons.

Charitable organisations use publicity of the donations strategically to distinguish themselves from other charitable organisations. Generally they report accordingly in the dollar categories rather than exact amount (Harbaugh, 1998). Harbaugh (1995) finds that if charities reported their donors' donation in a graded list, donors would be likely to increase their donation in order to be listed in a higher position. For example, if donations are listed as "under $500" or "above $500", donors are likely to donate a little more than $500 to be in the "above $500" category. A charity uses the donation listing strategy to push donors to increase their donations to get into the higher prestige group (Harbaugh, 1995). Glazer and Konrad (1996) find that many successful charities use expensive fundraising activities such as invitations to dinners or concerts to cultivate such donors.

Nowak and Sigmund (1998) and Cooter and Broughman (2005) also find that the amounts of charitable giving are doubled when the amount of the donation is discussed among donors. Donors are more likely to be eager to earn higher social status from giving larger amounts of donations. Similarly, Cooter and Broughman (2005) find that if a donation registry is to publish the ratio of an individual's donations to annual income, the donors would be likely to increase their donations.

In the US, there are about 115,000 charities that employ professional fundraising consultants or fundraising specialists (Andreoni, 1998). Andreoni (1998) states that charitable organisations larger spend approximately 2 billion US dollars a year on fundraising. It will now be in the period of 1995, the twenty five largest charitable organisations spent on average over 25 million US dollars on fundraising (Andreoni, 1998). Andreoni (1998) also finds that charitable organisations use a strategic announcement before a major fundraising event, such as an announcement that they have received large amounts of donations or government grants, which may provide some kind of guarantee of the organisations, or trustworthiness, to potential donors. Andreoni (1998) states that in a way some people may aspire to be a leader of donors by providing enough “seed money” to assure others to follow, as his finding of the announcement of larger donations brought much larger potential donations. However, his findings are contrary to the economic theory that donors prefer to be anonymous.

Vesterlund (1998) observes that fundraising often relies on leadership givers, as fundraisers initially solicit wealthier people in the population. She investigates how the announcement of donations influences the donations of others as signal of the quality of the organisation. She found that reputable charities prefer to announce a major donation, and this increased not only potential donors but also encouraged continuous donors. Therefore, she concluded that strategic announcements of donations was optimal, and also revealed the charity’s quality. Vesterlund (2003) argues that the reason why charities choose to announce past contributions is to reveal the charity’s quality, and that an announcement strategy may be optimal for both the charities and the donors. She suggests that initially contributors obtain costly information (in terms of time, money or effort) about the charity’s quality and charities are able to signal this information, or make it common knowledge, by announcing the amount of the first/earlier donation, which may influence subsequent donors (2003, p. 628). Bac and Bag (2003) investigate fundraising strategy by comparing the announcement and the non-announcement of a donation in the scales of the number of donors and the size of the donations, being large, average or small. They state that the announcement of a large number of donors with large donations may have a positive impact on potential donors or enhance the credibility of the organisation. By contrast, the announcement of a small number of donors with small donations may have a negative impact, because the charity seems to be insignificant for having only a few donors and small donations. However, they do not release any significance to the announcement of large donations, nor to the large number of donors of donations, nor to the enhancement of the credibility of the organisation. They conclude, inconsistent with the previous arguments, that there is no effectiveness to be gained by the announcement of a donation.

Romano and Yildirim (2001) model two agents with utility functions to investigate the effect of the charities' frequent announcements of contributions on donors. They conclude "these announcements are a means of inducing a sequential game among donors as an alternative to having them contribute simultaneously" (Romano and Yildirim, 2001, p. 439), and suggest that the charity may benefit from taking this proactive role. Milinski et al. (2002) state that donors are influenced by the fundraising strategies of charitable organisations. They find that the announcement of the donation increases continuous donations and future donations. Romano and Yildirim (2001) and Vesterlund (2003) also find charities frequently chose to inform the public of their recognition of donors' past contribution to increase their current contribution.

Kottasz (2004) in the UK investigated donor's behavioural characteristics in young, (under 40 year old) affluent (earning more than GBP50,000 (AUD124,377[17])) a year professionals and the differences between male and female of young affluent professionals. Kottasz (2004) found significant differences in behaviour and found that young affluent males prefer to receive an invitation to social events as a reward, while females prefer personal recognition from reputable charities in return. Sixty-six percent of interviewees agreed that their charitable donations provided them with a warm feeling and personal satisfaction. However, 14% prefer to receive some practical benefits and 5% prefer recognition in return. Forty-seven percent donate out of a desire for a sense of belonging to a prestigious level of society.

Andreoni and Petrie (2004) conducted an experimental study into how the public appearance of donation affected the collection of donations, and found that donors preferred to be listed in a higher position by increasing their donations. They stated that "leaders emerge most strongly when the charities can voluntarily report their contribution to the rest of the group" (2004, p. 1620). Similarly Kumru and Vesterlund (2005) found that the listing strategy in the order of the amounts of donations influenced potential donors, because generally people desire to be in the rank of the wealthier group. They also found that donations from respectable, well-

[17] AUD1 = 0.402003 GBP (average rate in 2004).

known individuals triggered donations from others. Wright (2002) argued that the publicity of individual philanthropy could demonstrate their personal wealthiness most effectively to the public, and this satisfied those people's social status. Some wealthy individuals seek to be a leader of their community by donating large amounts of money.

Thornton (2006) empirically investigated charities' fundraising effects for both donors and charitable organisations. He explained that charities might increase awareness and donors could gain valuable information about specific services of a particular charity. The fundraising activities could either increase or reduce the overall charitable collections. Therefore, they needed to take into consideration the cost effectiveness of their operations. Similarly, Andreoni (2006) investigated whether or not donations such as "leadership giving" might provide a signal of the high quality of the charity to all other potential donors. He found that leadership donations had two positive effects on donations: (a) leadership donations draw public attention to the quality of the charity, and (b) They provide public awareness of the charity or project. However, Andreoni (2006) warned that to convey a creditable signal of the quality of the charity, the potential leader may have to encourage enormous amount of contributions to signal quality. Andreoni (2007b) found large donation behaviour related largely with a desire to earn recognition as a leader in the community. On analysing a Bayesian two-stage model, Bag and Roy (2008, p. 60) said that, "announcement of donations appears to increase the incentive for donors to add to their donations and contribute a higher total amount to the charity than they would have had they not learnt about the donations made by others."

The impact of the announcement of a donation can also be seen between nations. Following the earthquake that struck a southwest Chinese province on 12 May 2008, various countries made an offer to help the millions of people severely affected by this event. On 16 May 2008 The Consulate of the People's Republic of China announced these various countries' pledges (Consulate of the People's Republic of China, 2008). The media release by the Minister for Foreign Affairs in Australia announced on 20 May 2008, "The Australian Government doubled its assistance to China". However, Australia had already donated $1 million (USD 950,00) through the International Federation of the Red Cross. A report in the ABC News soon announced on 30 May, “Japan has announced it’s doubling the emergency aid to China to almost USD10 million to help with the earthquake recovery effort (ABC News, 2008a).” Furthermore, the then Foreign Minister, Stephen Smith, told reporters on 20 June that the Australian Government provided further assistance of up to $750,000 to help disaster recovery and risk and up to $500,000 to assist reconstruction (ABC News, 2008b). The above is one example of a large number of fundraising drives by recipients or charities, where donors may contribute multiple times by adding to their pledges, when they learn about the contributions made by other donors.

As an increasing number of charities seek donors’ support, fundraising is becoming a dominant issue (Vesterlund, 1998; Bac and Bag, 2003; Srnka et al., 2003b; Andreoni, 2006; Thornton, 2006). In the USA, fundraising has become a large and sophisticated business (Andreoni, 2006). The demand for strategic fundraising has been recognised (Andreoni and Petrie, 2004). Charities use fundraising events strategically to increase their donations by publicly rewarding donors, for instance, by giving stickers, badges, pins and coffee mugs in proportion to the donors’ generosity (Srnka et al., 2003b; Andreoni and Petrie, 2004). Donors also often respond to this recognition by giving more (Harbaugh, 1998; Srnka et al., 2003b). Consequently, to compete in gaining more donations, charitable organisations are likely to publicise individual donations. Fundraising events are often used to increase the public recognition of organisations (Cooter and Broughman, 2005; Thornton, 2006).

3.5.5 Financial sustainability of charitable organisations

Tuckman and Chang (1991) propose that the conceptual framework for identifying the charitable organisations’ vulnerability includes four specific indicators, which are commonly used in the for-profit sector to test for stability, for and assessing a charitable organisation’s financial stability. Tuckman and Chang (1991) examine these four indicators, adequacy of equity, revenue concentration, level of administrative costs and operating margins. They use the sample data from five types of charities; a religious affiliated organisation, education, health care, charitable support institutions, and government-formed organisations. They find that very few organisations are in a stable condition for their operating margins (surplus), and health care and charitable support organisations show instability in their financial positions.

Greenlee and Trussel (2000) employ Tuckman and Chang's (1991) four indicators. They define as financially unstable organisation having a reducing dollar value to recipients for three successive years. And they find that a significant relationship exists between the financial instability of the organisation and three of the four indicators; including revenue concentration index, margin ratio and administration cost ratio. Greenlee and Trussel (2000) differentiate, using these indicators, predicting 65% of charities are financially unstable and 58% are financially stable. In addition, using other sample data with these indicators, they correctly indicate 61% of charities as being financially insecure organisations.

A distinguishing feature of charitable organisations compared to for-profit and government organisations is that they can obtain their revenue from a much wider range of sources (Lyons, 2001). Such sources of revenue include income from providing service fees, selling goods, membership fees, government grants and other revenue including interest or rents from investments and other organisations. Lyons, Hocking, Hems and Salamon (1999) find that 30% of revenue in charitable organisations in Australia comes from government, 17% from service fees and charges, 39% from selling goods, and 7% from fundraising, with the remainder coming from a variety of other sources.

Trussel and Greenlee (2004) also use Tuckman and Chang's (1991) four indicators of stability to predict the financial distress of charitable organisations using a developed logic model. This is commonly used for predicting financial distress in for-profit organisations. Trussel and Greenlee (2004) employ the sample data of financially distressed charities and non-distressed organisations from the IRS Statistics of Income database developed by the National Center for Charitable Statistics in the USA. They define the financially distressed organisations as having significant declines in net assets from 1992 to 1995. However, they conclude that although the margin and the size variables have a large impact on the probability of financial distress, their classification of financial distress organisations suffer from misclassification problems, i.e. both Type I and Type II errors.

Liquidity is also commonly employed in the financial management analysis for-profit organisations (Zeller et al., 1997; Pink et al., 2006). Zeller et al. (1997) employ liquidity for the factor analysis on a sample of 2,189 non-profit hospitals to find their short-term debt payment ability. They find that high values for the current ratios have often been viewed as a positive sign of enhanced liquidity, but the factor analysis results suggest that the high current ratios may not be a positive sign of good financial performance. Pink et al. (2006) also find that liquidity is a good indicator of measuring the ability to generate a surplus to meet the increasing demands of the variety of services. Trussel (2006) employs liquidity ratios to analyse the financial performance and vulnerability of five charity organisations in the health service sectors and find that liquidity of the organisations indicates the ability to meet cash obligations in a timely manner, which can be a measure of the vulnerability of the charities.

3.6 Summary

The studies on charitable organisations find that assisting donors’ decision making processes for their donation is an important function of financial reporting (Parsons, 2003; Parsons and Trussel, 2003). Potential donors are increasingly interested in the financial information of charitable organisations (Anthony and Young, 2003; Parsons, 2003; Trussel and Greenlee, 2004; Trussel and Parsons, 2004; Pink et al., 2006; Trussel and Parsons, 2008) as well as non-financial information (Roberts, 1984; Rose-Ackerman, 1996; Khanna and Sandler, 2000; Roberts et al., 2003; Shoham et al., 2006).

The following chapter shows the theoretical modelling for the behaviour of a charitable organisation for donation in an oligopolistic competition market.

Chapter 4

Theoretical Framework for Understanding Charitable Organisations

4.1 Introduction

This chapter describes the theoretical framework of this study and its theoretical modelling. Two issues, both partly arising from the literature review, require attention. They are:

1) the problem of understanding altruism in the context of organisational behaviour rather than just individual human behaviour; and

2) the problematic of constructing a competitive market model of charitable organisation which distribute goods for free and which does not operate for profit.

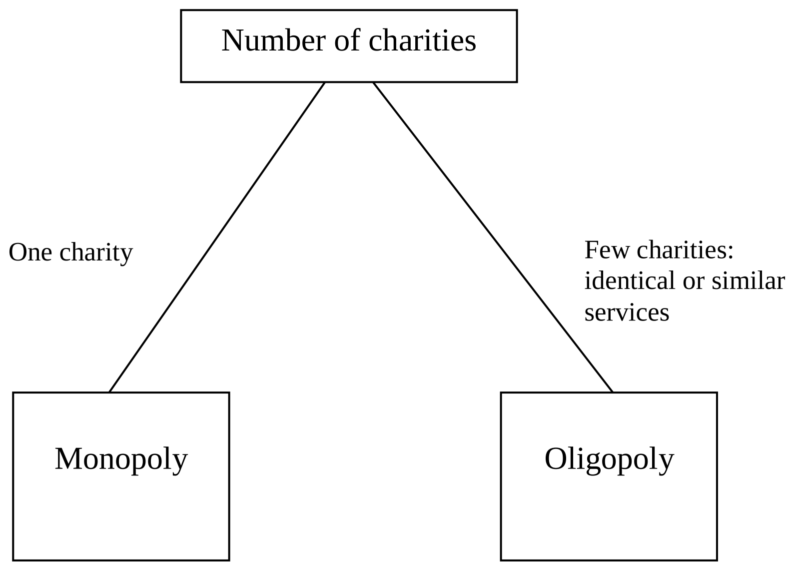
The two problems are closely linked although they can be separated for analysis and discussion. This chapter concentrates on the second of these issues, taking into account the more general problem of altruism, particularly as applied to organisations.

In the organisational modelling context, altruistic behaviour is considered as the case where it is only the level of consumption of the recipient provided for by the charity which enters the utility function of that charity. In other words the charity is only interested in maximising the utility of its recipients (Roberts, 1984). One reason for this analytically is because we model the charity as if it was an individual, for the sake of simplicity. A less direct but more interesting possibility is that altruistic behaviour in the real world can arise from organisations whose membership is of incompletely altruistic individuals (member, employees and donors). Each has their own utility function which contains both selfish and altruistic components, but within the organisation the altruistic components create a dominant coalition. If this latter is the case it is the external behaviour that is being described as altruistic rather than the mental states of individuals that gave rise to it. As a consequence of this definition the behaviour is determined in part by external circumstances and any internal mental states cannot be inferred with, nor do they need inference.

Two external states influencing organisational behaviours are monopoly and competition. What may look like altruism under monopoly may look very different under non-altruistic competition.

Consequently, two market situations for charitable organisations are constructed and compared. The first one is where the charitable organisation is a monopoly provider of the charitable good (private good in the hands of the recipients); therefore, it is not competing with similar charitable organisations for private donations. In the case of a monopoly, the assumption of altruism may be able to be maintained. However, it becomes more difficult when competition is assumed. In the second case the charitable organisation is not a monopoly provider and is, therefore, competing for donations with those similar organisations (see Figure 4.1). It is the competitive model that forms the basis of the empirical modelling.

Figure 4.1: Economy market



Under a monopoly it is also possible to consider the impact of the objectives of the charitable organisation on these situations. The two main situations are where the charitable organisation is (a) entirely altruistic and (b) not purely altruistic but also seeks to further (in some way) its own interests. We, therefore, move from modelling charitable organisations as altruistic monopolists to non-altruistic monopolists to oligopoly. Competition between perfect altruistic charitable organisations is considered a contradiction.

This study examines the effect of the competition on a group of similar service provider charitable organisations in Australia and Japan. It is noted that the concepts of monopolistic competition and perfect competition are not employed.

Which of these forms of competition dominates is important in determining how greater competition affects the delivery of program goods and services to recipients. The maximising of the provision of program goods and services to recipients is crucial in this regard. The ability to maximise the value on program goods and services enables the charitable organisation to credibly lower its cost of expenditure, thereby attracting donors. In the absence of this ability, the competition is only in the form of fundraising spending, which does not directly improve the provision of the good or service. For a variety of reasons, principally date limitations, charitable organisations are considered as providing identical goods. If the charitable organisation is an altruistic organisation, donors can trust that their donation directly goes to the program services or goods to recipients. Charitable organisations compete for donors by providing information, services and promotion to potential donors. In the assumption that if donors gain utility from more information about the organisational objectives and services to donors, such as knowledge management strategic operation or financial reports, competition in this form may increase, however, this also raises the expenditure of charitable organisations. The latter is in relation to the cost of the operational expenditure including administration expenditures. A prevailing assumption in the charitable organisation is that donors view administration costs negatively, as a diversion of funds from program expenses (the amounts of providing services and goods for recipients) (Tinkelman and Mankaney, 2007). Weisbrod and Dominquez (1986) argue that higher levels of administration costs increase the price to the donor of obtaining a dollar's worth of program output. They suggest higher prices discourage donations to particular organisations, for the same reasons that higher price in for-profit markets encourage consumers to seek out substitute products. It is also possible that high administrative and other costs indicate a non-altruistic organisation.

Thus managers gain utility from both providing services to recipients and using administrative monies to increase their own utility. Managers of charitable organisations cannot retain profits or obtain their profits in cash. However, they are able to consume some of the residual income of the charitable organisation in kind. Because donors value the charitable provision of the public good, the cost of the operational expenditure of donating a dollar increases as the portion of donations reduce, and are not distributed as program services and goods to recipients.

This chapter is organised as follows: In the introduction theoretical framework of this study is explained, followed by the problematic market model of charitable organisation in Section 4.2; and theoretical modelling in Section 4.3. A summary concludes Section 4.4.

4.2 The problematic market model of charitable organisations

The importance of a theoretical basis for specifying the arguments of the utility function is recognised because embracing a substantive theory of rationality has significant consequences for economics and especially for its methodology (Simon, 1986). Therefore it is extremely important to discuss the development of theoretical models. In the following section, on attempt to develop theoretical models of the utility function of charities is informed by the utility of donors function models by Andreoni (1989, 1990). Rose-Ackerman (1982) develops a model that examines fundraising by charities and how competition may induce excessive aggregate spending on marketing costs. Bilodeau and Slivasky (1997) investigate how rival charities allocate donations to various bundles of public goods and may settle in specialising in one public good. Note that this thesis is concerned with the charitable provision of private goods such as food and shelter (see Chapter 1). This study incorporates the charitable operational information effect on donation, competition among charities, the role of altruism, theoretical and empirical modelling and provides the results of testing empirical models with sample of Australian and Japanese charities.

4.3 Theoretical modelling and their interpretation

4.3.1 Monopoly charitable organisations

4.3.1.1 Altruistic monopoly charity organisation model

We assume a charity donation market with one entirely altruistic organisation. This means the organisation is only interested in the utility of the recipients of its aid. Let subscript *i* represent monopoly charity with no interactions.

$$U_i = U_i\,(U_R) \qquad (4\text{-}1)$$

So U_i = the utility of the monopoly deliverer of aid; and

U_R = the utility of the recipient(s) of aid

To find optimum level of $Max\ U_i = U_i\,(U_R)$

Maximising utility of the charity U_i converts into utility of recipients, U_R, via a monotonic technology and also each can be expressed in units of dollars.

Hence

$$U_i = U_i\,(U_R) \qquad (4\text{-}1)$$

$$U_R = U_R\,(R_i) \qquad (4\text{-}2)$$

$$R_i = T_i - M_i \qquad (4\text{-}3)$$

From (4-1), (4-2) and (4-3)

$$U_i = Ui(R_i) \qquad (4\text{-}4)$$

Where:

R_i = recipient received from charity *i* in dollars;

T_i = total dollars charity *i* received;

M_i = marketing/fundraising cost for charity *i* in dollars

To solve for optimum $Max\ U_i$ solve for the first and second order derivatives such that:

The first order condition: $\dfrac{dU_i}{dR_i} = 0$ (4-5)

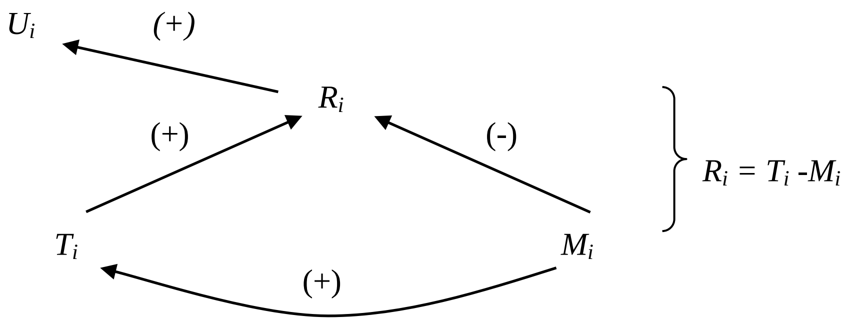
The second order condition: $\frac{dU_i^2}{d^2R_i} < 0$ (4-6)

Assumptions include:

1) $U(R = 0) \leq 0$ then $U(0) = 0$
2) U is a strictly monotonic increasing function, then as: $\frac{dU}{dR} > 0$.
3) There is diminishing marginal utility of R to organisation *i* would be the second order of derivative: $\frac{dU^2}{d^2R} < 0$

Therefore, for a simple altruistic organisation model it is considered that marketing / fundraising cost, *M*, has a positive effect on total dollars to a charity, where marketing / fundraising costs *M* take an informative role and simply tells greater numbers of donors that the charity exists.

Figure 4.2: Simple altruistic organisation model



Where
U_i = utility of charity *i*, (*i* = a monopoly charitable organisation);
R_i = recipient received from charity *i* in dollars;
T_i = total dollars charity *i* received;
M_i = marketing/fundraising cost for charity *i* in dollars.

As presenting in Figure 4.2, therefore, total dollars *T* to a charity is function of marketing costs *M* is proportion of total dollars to a charity *i*.

Hence,
$T_i = T_i(M_i)$

Therefore
$R_i = T_i(M_i) - M_i$ (4-7)

Substitute *R* in (4-4) for (4-7)

$$U_i = U_i(T_i(M_i) - M_i) \tag{4-8}$$

Let marketing expenditure be the only control variable, from (4-9) to produce

$$\frac{dU_i}{dM_i} = 0 \tag{4-9}$$

$$\frac{dU_i}{dM_i} = \frac{dU_i}{dR_i} \cdot \frac{dR_i}{dM_i}$$

$$= \frac{dU_i}{dR_i} . (\frac{dT_i(M_i)}{dM_i} - 1) = 0 \tag{4-10}$$

Then equation (4-10) brings as follows:

$$\frac{dU_i}{dR_i} = 0 \tag{4-5}$$

$$\frac{dT_i(M_i)}{dM_i} = 1 \tag{4-11}$$

Equation (4-5) can be interpreted in two ways. One is that there is no further utility to the organisation to increase the dollars to recipients but recipients might still need money. Alternatively the other is that there no further use for money by recipients and recipients no longer need charity aid. Equation (4-11) can be interpreted as by each spending one extra dollar on marketing cost a charity raises extra one dollar. Equation (4-11) is a standard economic result and is a necessary condition for maximum, but also for minimum of utility function. Therefore, the second order to find maximum utility function point is required.

4.3.1.2 Altruistic monopoly charity organisation model with admin costs

A charity is an altruistic monopoly organisation and its objective concerns utility of recipients. Thus, utility of this charity is utility of recipients. Let us assume utility of charity *i* is a function of utility of recipients U_R as: $U_i = U_i(U_R)$.

Utility of recipients is supposed to be a function of the total dollars to recipients:

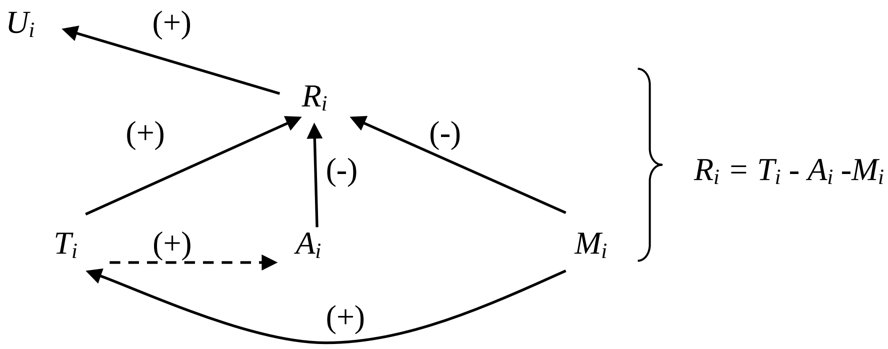
$$U_R = U_R(R, A_i) \tag{4-12}$$

Utility of this charity can be written as

$$U_i = U_i(R, A_i). \tag{4-13}$$

However, A_i has a positive effect on total dollars of charity received, but a negative effect on the dollars of recipients received. Figure 4.3 presents these phenomena, 'Simple Altruistic Organisation model with Administrative costs' as follows.

Figure 4.3: Simple altruistic organisation model with administrative costs



where U_i = utility of charity *i*, *i* = a monopoly charitable organisation*;*
R_i = recipient received from charity *i* in dollars;
T_i = total dollars charity *i* received;
M_i = marketing/fundraising cost for charity *i* in dollars;
A_i = administrative cost for charity *i* in dollars.

Also assume that a charity organisation *i* must necessarily spend administration costs, A_i, to survive its operation of charity, consequently, the total dollars recipients receive will be less in the dollars of administrative costs as shown in equation**:**

$$R = T_i - A_i - M_i \tag{4-14}$$

Total dollars to a charity is a function of administration cost:

$$A_i = A_i(T_i) \tag{4-15}$$

Marketing cost is function of total dollars to a charity:

$$T_i = T_i(M_i)\,. \tag{4-16}$$

Assumptions draw from equations, (4-15), (4-16) and (4-17) as

$$R = T_i(M_i) - A_i(T_i(M_i) - M_i) \tag{4-17}$$

The optimum of utility of this charity and total recipients are

Max $U_i = U_i(f(R, A_i))$

$U_i = U_i\,(f(R, A_i))$

Rewriting as

$U_i = U_i\,(M_i, A_i\,)$

To find the maximum utility of organisation,

$\frac{dU_i}{dR_i} = 0$ and $\frac{dU_i}{dM_i} = \frac{dU_i}{dR} . \frac{dR}{dM_i} = 0$

$$= \frac{dU_i}{dR_i} . (\frac{dT_i(M_i)}{dM_i} - \frac{dA_i(T_i(M_i))}{dM_i} - \frac{dM_i}{dM_i}) = 0 \qquad (4\text{-}18)$$

Let $\frac{dU_i}{dM_i} = 0$ then equation (4-18) can provide as follows

$$\frac{dU_i}{dR} = 0 \qquad (4\text{-}5)$$

$$\frac{dT_i(M_i)}{dM_i} - \frac{dA_i(T_i(M_i))}{dM_i} = 1 \qquad (4\text{-}19)$$

Again, Equation (4-5) has two interpretations. The first is that no further utility arises to the organisation by increasing aid money to recipients, but recipients are still in need. The other interpretation is that recipients have sufficient money. This theoretical possibility can be ignored in the real world. Equation (4-19) shows spending an extra dollar for marketing to raise more, but for marketing issues, the charity needs to cover administration cost as well.

4.3.2 Competing charitable organisations

In the following section, the models are considered based on the assumption of the existence of two charities within the same economy, which are targeted at helping the same recipients. They collect donations from the same potential donors.

4.3.2.1 Completely altruistic model

Let us assume, there are two charities, *i* and *j* in an economy as:

(i) $MaxU_i = U_i(R)$ and $MaxU_j = U_j(R)$ where $R = R_i + R_j$

(ii) $T_i = R_i + M_i$ and $T_j = R_j + M_j$

(iii) $T_i = T_i(M_i)$ and $T_j = T_j(M_j)$

In this simplest model there are no interactions between charities *i* and *j*, except that the shape of the $T_i(M_i)$ and $T_j(M_j)$ functions are assumed to be identical and can indicate that either one or two charities are more efficient and effective. If there are economies of scale in marketing for donations then one charity is best. If there are constant returns to scale then one or more charities is not important. However, if there are diseconomies of scale at certain ranges this indicates there should be many charities. If two perfectly altruistic charities exist and serve exactly the same clientele and have economies of scale, the two charities should amalgamate to better serve the clientele.

The possibility exists that charities behave differently (e.g. some charities exist just for charitable purposes). But some charities exist just from a parent organisation with its own objectives, which the charity will share to some degree (e.g. religious charities). Here, scale refers to scale of the marketing effort.

4.3.2.2 Altruistic with interaction of marketing efforts

Here we assume that there are two charities, *i* and *j* in an economy with an interaction of marketing efforts.

(i) $MaxU_i = U_i(R)$ and $MaxU_j = U_j(R)$ where $R = R_i + R_j$

(ii) $T_i = R_i + M_i$ and $T_j = R_j + M_j$

(iii) $T_i = T_i(M_i, M_j)$ and $T_j = T_j(M_j, M_i)$

This opens up several possibilities.

If for example, there is $T_i = T_i(M_i, 0)$, then charity *j* does not market for donations, Are there (i) economies of scale, (ii) constant returns to scale, (iii) diseconomies of scale? Are the marketing efforts, competitive, complementary or most probably a combination of both?

This suggests that the charities might not only amalgamate, but possibly coordinate or compete in the recipients' interests. However, complete altruism indicates they will (must) coordinate as they have the same argument (R) in their objective functions.

An implicit assumption in this model is that the charities have exactly the same group of recipients and they compete among the same potential donors.

Charities *i* and *j* are:

(Interactions of marketing efforts) + (Economies of scale diseconomies of scale of marketing)

e.g. (1)

Interactions are **always competitive**	+	Economies of scale marketing (fundraising)

Imply just one organisation is more efficient

e.g. (2)

Interactions are complementary	+	Economies of scale marketing (fundraising)

1 or 2 charities would be more efficient

e.g. (3)

Charities, *i* and *j* are

(Complementary; Competition**;** Complementary & Competition) + (Economies of scale; Diseconomy scale; or Constant return scale) + (Coordination; or Independency)

4.3.2.3 Completely altruistic but own contributions matters

Let us assume there are two charities, *i* and *j*. They are completely altruistic charities but only with respect to their own contributions. This means they value their own existence for its own sake, against the interests of their recipients.

(i) $MaxU_i = U_i(R_i)$; and

$MaxU_j = U_j(R_j)$ where $R = R_i + R_j$

This differs from the previous in that the charity gets utility from either:

a) its own donations or
b) a specific group that it caters to, but which donors treat as perfect substitutes for donations between *i* and *j*.

(ii) $T_i = R_i + M_i$ and (4-20)

$$T_j = R_j + M_j \quad (4\text{-}21)$$

(iii) $T_i = T_i(M_i, M_j)$ and (4-22)

$$T_j = T_j(M_j, M_i) \quad (4\text{-}23)$$

The use of R_i in the objective function, as opposed to R, indicates that the charities will be competitive in behaviours. It therefore becomes of less importance for determining charities' behaviour as to whether or not the charity and its interactions are economies of scale etc, but whether or not the marketing interactions between M_i and M_j are complementary or competitive.

4.3.3 Two competing charitable organisation models

This section considers two oligopoly charities in a market. Assume that they might compete in the market place for donations. In other words each organisation is interested in increasing utility of recipients and their control over utility of recipients is determined by the level of coordination among them (Dimand, 1988). This means increases in total dollars to recipients affect oligopoly charities' utility favourably (Hochman and Rodgers, 1969a). This distinguishing characteristic of an oligopoly charity is that there a few mutually interdependent charities that allocate either identical collection of donations to recipients or heterogeneous collection to recipients. Mutual interdependent charities are aware of the effects of their actions on rivals and the reactions such actions are likely to elicit. For example, a mutual interdependence means that charities such as Red Cross and Salvation Army realise that drops in their collection of donations are more likely to be caused by a counterpart's annual fundraising appeal than its own decision not to increase collection of donations.

4.3.3.1 Comparing charity at the oligopoly market (duopoly)

Oligopolies would like to act like monopolies, but if there is an inability to cooperate, then self-interest drives them closer to competition. Thus, oligopolies can end up looking like either monopolies or more like competitive markets. Firms may benefit from cooperation, but in standard oligopoly theory cooperation causes deadweight losses. This provides a motive for policy makers to regulate the behaviour of oligopolists through competition laws. This need not be the case with cooperating oligopolistic charities in their fundraising activities.

4.3.4 Cournot quantity competition

In Cournot quantity competition each firm believes that its rivals will always act to maintain their current quantity of fund raising activity.

For simplicity, consider two charities; *i* and *j*, are assisting the same group of recipients (R) in an economy such that $R_i + R_j = R$. Assume that *i* and *j* are both purely altruistic charitable organisations and these charities matter only in utility of recipients, but these two charities are competing at same time. In other words, each of them likes to compete with their counterpart to raise their own donations for recipients. Figure 4.4 presents each organisation as an altruistic charity and the utility of each charity, *i* and *j*, is not only a positive in total dollars recipients receive from them but is also a positive to dollars recipients receive only from either charity, where equations present as (4-24) and (4-25).

Figure 4.4: Comparing a monopolistic charity with oligopolistic charities (duopoly)

$$U_i = f(\overset{(+)}{R_i + R_j}, \overset{(+)}{R_i}) \qquad \text{Altruistic behaviour} \qquad (4\text{-}24)$$

$$U_j = f(\overset{(+)}{R_i + R_j}, \overset{(+)}{R_j}) \qquad \text{Competitive behaviour} \qquad (4\text{-}25)$$

Where Utility of a charity *i* and a charity *j*

The change in total dollars to recipients resulting from a transfer between any two charities, *i* and *j*, such that

$$dR_i = -dR_j = dR$$

Also when they maximise each utility, it can be converted into the utility of recipients by a linear technology so that each can be expressed in units of dollars.

Thus, utility of recipients are a total of the unit of dollars (T) of charities, *i* and *j* are:

$U_R = U_R(T)$,

$T = T_i + T_j$ and $U_R = U_R(T_i + T_j)$,

Therefore $U = U(U_R(T_i + T_j))$

Interdependence is present because U_i depends on R_j and because U_j depends on R_i and at the same time they are competing with each other. As marketing/fundraising costs from charity *i* (M_i) increase total dollars to charity *i*, but marketing/fundraising costs from charity *j* (M_j) is otherwise. This happens identically in charity *j* and this is presented in equations (4-26) and (4-27), respectively.

$$T_i = R_i + M_i$$

$$T_i = T_i(\overset{(+)}{M_i}, \overset{(-)}{M_j}) \qquad (4\text{-}26)$$

$$T_j = R_j + M_j$$

$$T_j = \overset{(+)}{R_j} + \overset{(-)}{M_j} \qquad (4\text{-}27)$$

Combining the two equations (4-26) and (4-27), equation (4-28) can be produced

$$T = T(\overset{(+)}{M_i}, \overset{(+)}{M_j}) \qquad (4\text{-}28)$$

where $T = T_i + T_j$

Assume marketing / fundraising costs from each charity increase total dollars from each charity, as total dollars are combined from duopoly charities.

Thus, the proportion of total dollars for charity *i* to total dollars for charity *j* can be a function of marketing cost from charity i and j.

$$T_i / T_J = f(\overset{(+)}{M_i}, \overset{(+)}{M_j}) \qquad (4\text{-}29)$$

Using Cournot Oligopoly Competition theory, assuming the two charities compete, their total dollars to recipients (R_i , R_j), where $R_i = F(R_j)$ and $R_j = G(R_i)$.

The characteristics of these charities are:

(i) If they cooperate to create a monopoly, the optimum level of utility achieved $MaxU_R$ depends on whenever marketing/fundraising costs *M* is optimum for $M = M_i + M_j$;

(ii) Competing with each other is shown as two charities as duopoly organisations.

For example, if two charities have characteristics of both cooperation and competition, and the counterpart has spent an optimum level on marketing costs bringing a positive effect, but one of the parties has spent too much on marketing / fundraising, this will create a utitity lowering effect. Figure 4.5 presents their situation, which is based on Elementary Game Theory also known as the Prisoner's Dilemma. In these cases, the two charities choose their decisions, either choosing to cooperate or compete against each other, or both are neither cooperating nor competing with each other. The Prisoner's Dilemma addresses the decision making of two individuals suspected of a crime. The two suspects are being questioned in separate rooms by police. By looking at the outcomes for Figure 4.5, the decisions deduce the best strategy for the two charities to take.

Figure 4.5: Cooperate and Compete charities

Charity *i* \ Charity *j*	Cooperate	Compete	
Cooperate (as if a monopoly)	Optimum $M_i + M_j$	Bad for charity *i* Good for charity *j*	Optimal for recipients
Compete	Bad for charity *j* Good for charity *i*	Sub-Optimal Marketing too much $M = M_i + M_j$ (Nash equilibrium)	Optimal for charities

Figure 4.5 can be explained, for example, if a charity chooses to cooperate, charity *j* either faces an optimum level of spending, marketing and fundraising costs and each acts as a monopoly if charity *j* cooperates. If charity *j* decides to compete, this brings bad results for charity *i* and good results for charity *j*. If charity *i* chooses to compete, charity *j* will be either bad/good for charity *i*, will be sub-optimal or in the Nash equilibrium situation.

Under what conditions does a Nash equilibrium situation occur? Two possibilities exist:

(i) Economies of scale in marketing;

(ii) Competing marketing.

The Nash equilibrium has each charity choosing output optimally, given the equilibrium output of all competitors.

The first order conditions are:

$$f\,(M_i + M_j)\,M_i + \mathrm{Q}\,(M_i + M_j) - \mathrm{c} = 0$$

$$f\,(M_i + M_j)\,M_j + \mathrm{Q}\,(M_i + M_j) - \mathrm{c} = 0$$

At equilibrium, both conditions are satisfied. The total dollars received in the charities *i* and *j* can be draw against marketing costs as shown in Figures 4.6, 4.7 and 4.8.

Figure 4.6: Economies of scale: shape of marketing/fundraising costs (charities *i* and *j* are competing separately)

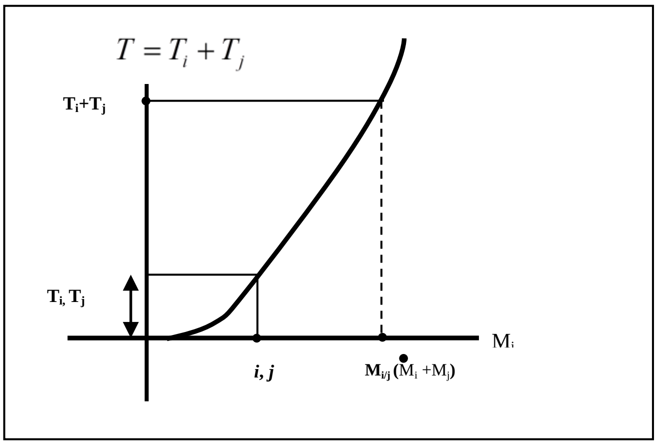


Figure 4.7: Economies of scale: shape of marketing/fundraising costs (increasing)

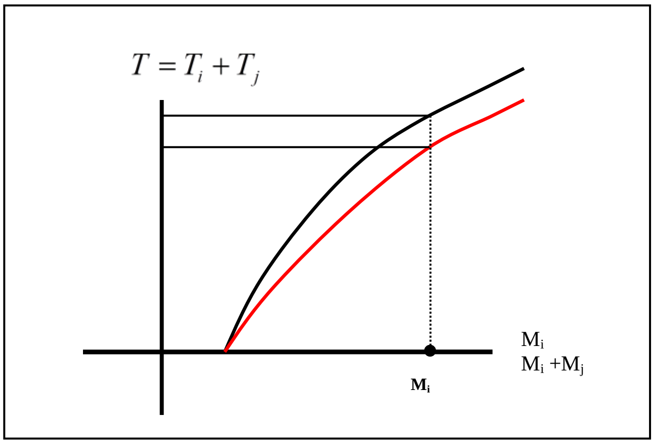
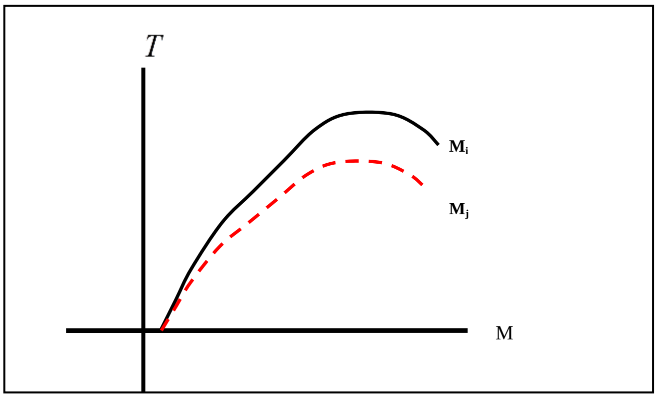


Figure 4.8: Diseconomies of Scale: Marketing/fundraising costs (diminishing)



These charities can be seen as altruistic monopoly charities. The first derivative for each charity should be**:**

$$\frac{dU_i}{dM_i} = 0 \ \ and \ \ \frac{dU_j}{dM_j} = 0$$

where M = Marketing/fundraising costs; *i* = charities *i* and *j*= *charity j*

For charity *i*

$$\frac{dU_i}{dM_i} = \frac{dU_i}{dR_i}.\frac{dR_i}{dM_i}$$

where U = utility of charitable organisation,
M = Marketing/fundraising costs;
R = total dollars to recipients;
T = total revenues of charitable organisation; and
i = charities i and j= *charity j*

Substitute
$U_i = f(R_i + R_j, R_i)$,
$T_i = R_i + M_i$ and
$T_i = T_i(M_i, M_j)$

Rewriting
$R_i = T_i(M_i, M_j) - M_i$

$$\frac{dU_i}{dM_i} = \frac{dU_i}{dR_i}.\frac{dR_i}{dM_i}$$
$$= \frac{dU_i}{dR_i}.(\frac{d(T_i(M_i, M_j)}{dM_i} - \frac{dM_i}{dM_i})$$

$$= \frac{dU_i}{dR_i}.(\frac{d(T_i(M_i)}{dM_i} - 1) = 0$$

Let $\frac{dU_i}{dM_i} = 0$ then

$\frac{dU_i}{dR_i} = 0$ or

$(\frac{d(T_i(M_i)}{dM_i} - 1) = 0$

For charity *j* **:**

The same procedure is taken with charity *i* obtaining

$$\frac{dU_j}{dM_j} = \frac{dU_j}{dR_j}.\frac{dR_j}{dM_j}$$

Let $\frac{dU_j}{dM_j} = 0$ then

$\frac{dU_j}{dR_j} = 0$ or

$(\frac{d(T_j(M_j)}{dM_j} - 1) = 0$

Assume two charities are competing each other, which can be expressed with equations 4-26, 4-27, 4-28 and 4-29 as constraints of the optimum of two charities.

From equation 4-29

$$\frac{T_i}{T_J} - f(M_i, M_j) = \lambda_1 \quad (4\text{-}30)$$

From equation 4-28

$$T - T_i - T_j = \lambda_2 \quad (4\text{-}31)$$

$$T(M_i, M_j) - T_i(M_i, M_j) - T_j(M_i, M_j) = \lambda_2 \quad (4\text{-}32)$$

Substitute from equations, 4-26 and 4-27

$$T_i - R_i - M_i = T_i(M_i, M_j) - R_i - M_i = \lambda_{i3} \quad (4\text{-}33)$$

$$T_j - R_j - M_j = T_j(M_i, M_j) - R_j - M_j = \lambda_{i1} \quad (4\text{-}34)$$

This can be written as:

Max $U = U(U_R(T_i + T_j))$

Equation as follows:

$L = U\,[U_R\,(T_i\,(M_i, M_j) + T_j\,(M_i, M_j))] + \lambda_1[T_i/T_j - f(M_i, M_j)]$

$+ \lambda_2\,[T\,(M_i, M_j) - T_i\,(M_i, M_j) - T_j\,(M_i, M_j)\,] + \lambda_{3i}\,[T_i\,(M_i, M_j) - R_i - M_i\,]$

$+ \lambda_{3j}\,[T_j\,(M_i, M_j) - R_j - M_j]$ (4-35)

where: s.t. $T_i/T_j - f(M_i, M_j) = \lambda_1$

$T\,(M_i, M_j) - T_i\,(M_i, M_j) - T_j\,(M_i, M_j) = \lambda_2$

$T_i - R_i - M_i = T_i\,(M_i, M_j) - R_i - M_i = \lambda_{3i}$

$T_j - R_j - M_j = T_j\,(M_i, M_j) - R_j - M_j = \lambda_{3j}$

Set the partial derivatives of the Lagrangean equal to zero such that:

1. $\frac{\partial L_i}{\partial M_i} = 0$;

2. $\frac{\partial L_j}{\partial M_j} = 0$;

3. $\frac{\partial L}{\partial \lambda_1} = 0$;

4. $\frac{\partial L}{\partial \lambda_2} = 0$;

5 $\frac{\partial L}{\partial \lambda_{3i}} = 0$;

6. $\frac{\partial L}{\partial \lambda_{3j}} = 0$

These yield as follows:

$$\frac{\partial L_i}{\partial M_i} = \frac{\partial U(T_i + T_j)}{\partial M_i} - \lambda_1 + \lambda_2(T - T_i - T_j) + \lambda_{3i}(T_i - 1) + \lambda_{3j}T_j = 0$$

$$\frac{\partial L_j}{\partial M_j} = \frac{\partial U(T_i + T_j)}{\partial M_j} - \lambda_1 + \lambda_2(T - T_i - T_j) + \lambda_{3i}(T_i) + \lambda_{3j}(T_j - 1) = 0$$

$$\frac{\partial L}{\partial \lambda_1} = \frac{T_i}{T_j} - f(M_i, M_j) = 0$$

$$\frac{\partial L}{\partial \lambda_2} = T(M_i, M_j) - T_i(M_i, M_j) - T_j(M_i, M_j) = 0$$

$$\frac{\partial L}{\partial \lambda_{3i}} = T_i(M_i, M_j) - R_i - M_i = 0$$

$(\partial L / \partial \lambda_{3j}) = T_j (M_i, M_j) - R_j - M_j = 0$

4.3.4.1 Two competing altruistic charities model alternative modelling

For simplicity, assume two charities; *i* and *j*, are both altruistic charities and maximise the value deliveries to recipients.

Charity *i* can be expressed as the objective function:

Maximise $V_i = R_i$

and the budget constraint

$T_i = R_i + M_i$,

From substituting R_i by ($R_i = T_i - M_i$), brings

Maximise $V_i = T_i - M_i$ (4-36)

When $T = T_i - T_j$

$$T = \overset{(+)\ (+)}{T_i - (M_i, M_j)} \qquad (4\text{-}37)$$

Maximise $V_i = T - T_j - M_j$ (4-38)

(ii) $T_i / T_j = r_{ij}$ and

(iii) $r_{ij} = r_{ij}(M_i / M_j)$

(it is not necessary that $T_i / T_j \neq M_i / M_j$)

Equation (4-36) can be rewritten as

Maximise $V_i = [T (M_i, M_j) * r_{ij}(M_i /M_j)] - M_i$ (4-39)

Taking derivative of equation (4-39) by ∂M_i

$$\frac{\partial V_i}{\partial M_i} = 0 = [\frac{\partial T}{\partial M_i} * r_{ij} + \frac{\partial r_{ij}}{\partial M_i} * T] - \frac{\partial M_i}{\partial M_i}$$

$$0 = [\frac{\partial T}{\partial M_i} * r_{ij} + \frac{\partial r_{ij}}{\partial M_i} * T] - 1 \qquad (4\text{-}40)$$

where

M_i increases T increase and so as r_{ij}

therefore $\frac{\partial T}{\partial M_i} > 0$ and $r_{ij} > 0$, and so as $\frac{\partial r_{ij}}{\partial M_i} > 0$ and $T > 0$

Equation 4-40 shows

$$0 = (+) + (+) * (+)] - 1$$

$$0 = [\frac{\partial T}{\partial M_i} * r_{ij} + \frac{\partial r_{ij}}{\partial M_i} * T] - 1$$

$$[\frac{\partial T}{\partial M_i} * r_{ij} + \frac{\partial r_{ij}}{\partial M_i} * T] = 1 \qquad (4\text{-}41)$$

If the two charities are identical, we can assume that in equilibrium

$T_i = T_j$, if so, $T_i / T_j = r_{ij} = 1$, then

$$[\frac{\partial T}{\partial M_i} * r_{ij} + \frac{\partial r_{ij}}{\partial M_i} * T] = 1 \quad \Longrightarrow \quad [\frac{\partial T}{\partial M_i} + \frac{\partial r_{ij}}{\partial M_i} * T] = 1$$

or

$$T = (1 - \frac{\partial T}{\partial M_i}) / \frac{\partial r_{ij}}{\partial M_i}$$

If the two charities are identical, we might be able to assume that in equilibrium

$T_i = T_j$, if so, $T_j / T_i = rt_{ij} = 1$, then

$$[\frac{\partial T}{\partial M_j} * rt_{ij} + \frac{\partial rt_{ij}}{\partial M_j} * T] = 1 \quad \Longrightarrow \quad [\frac{\partial T}{\partial M_j} + \frac{\partial rt_{ij}}{\partial M_j} * T] = 1$$

or

$$T = (1 - \frac{\partial T}{\partial M_j}) / \frac{\partial rt_{ij}}{\partial M_j}$$

4.3.4.2 Two competing altruistic charities model with administration costs

For simplicity, consider two charities *i* and *j*, are both altruistic charities and utility of these charities are utility of recipients. Therefore utility of each charity will have a positive effect from the total of each charity's dollars to recipients and also a positive effect on its dollars to recipients, in other words, they are competing for each dollar amount to recipients.

$U_i = f(U_{R_i} + U_{R_j}, U_{R_i})$ and

$U_j = f(U_{R_i} + U_{R_j}, U_{R_j})$.

Where

$U_{R_i} = U_{R_i}(R_i, A_i)$ and

$U_{Rj} = U_{Rj}(R_j, A_j)$

where $R_i + R_j = R$.

$R_{i/j}$ = dollars from charity i/j to recipients and

$U_{Ri/j}$ = utility of recipients received from charity *i* and *j*.

Therefore total collected dollars, $T_{i/j}$ of each charity (i/j) is not only allocated dollars to recipients, $R_{i/j}$ but also it covers administration cost, $A_{i/j}$ and marketing costs $M_{i/j}$. Hence

$T_i = R_i + M_i + A_i$ and

$T_j = R_j + M_j + A_j$,

Where

$T_i = T_i(M_i, M_j)$ and $T_j = T_j(M_i, M_j)$

$A_i = A_i(T_i)$ and $A_j = A_j(T_j)$, where $T = T_i + T_j$

Therefore optimal level of utility of each charity is:

$MaxU_i = f(R_i + R_j, A_i, R_i)$ and $MaxU_j = f(R_i + R_j, A_j, R_j)$

The first derivative

$$\frac{dU_i}{dM_i} = \frac{dU_i}{dR_i}.\frac{dR_i}{dM_i}$$

Substitute $R_i = T_i - M_i - A_i$ where $T_i = T_i(M_i, M_j)$ .and $A_i = A_i(T_i)$

$$R_i = T_i(M_i, M_j) - M_i - A_i(T_i(M_i, M_j))$$

$$= \frac{dU_i}{dR_i}.(\frac{d(T_i(M_i, M_j) - M_i - A_i(T_i(M_i, M_j))}{dM_i})$$

$$= \frac{dU_i}{dR_i}.[\frac{d(T_i(M_i) - A_i(T_i(M_i))}{dM_i} - 1] = 0$$

Let $\frac{dU_i}{dM_i} = 0$ either $\frac{dU_i}{dR_i} = 0$ or $\frac{d(T_i(M_i) - A_i(T_i(M_i))}{dM_i} - 1 = 0$

$$\frac{dU_j}{dM_j} = \frac{dU_j}{dR_j}.\frac{dR_j}{dM_j}$$

Let $\frac{dU_j}{dM_j} = 0$ either $\frac{dU_j}{dR_j} = 0$ or $\frac{d(T_j(M_j) - A_j(T_j(M_j))}{dM_j} - 1 = 0$

4.3.4.3 Two competing non-altruistic charities model with constraints

Two charities; *i* and *j*, are not altruistic charities and utility of these charities is utility of recipients but these are competing with each other in their dollars to recipients as:

$U_i = f(U_{R_i} + U_{R_j}, A_i, U_{R_i})$ and $U_j = f(U_{R_i} + U_{R_j}, A_j, U_{R_j})$.

where $U_{R_i} = U_{R_i}(R_i, A_i)$ and $U_{Rj} = U_{Rj}(R_j, A_j)$ where $R_i + R_j = R$.

Therefore total collected dollars of each charity is not only allocated dollars to recipients but also covers administration and marketing costs. Hence

$T_i = R_i + M_i + A_i$ and $T_j = R_j + M_j + A_j$, where $T_i = T_i(M_i, M_j)$ and $T_j = T_j(M_i, M_j)$

$A_i = A_i(T_i)$ and $A_j = A_j(T_j)$, where $T = T_i + T_j$

Therefore optimal level of utility of charities is:

$MaxU_i = f(R_i + R_j, A_i, R_i)$ and $MaxU_j = f(R_i + R_j, A_j, R_j)$

s.t. $\lambda_i = T_i - R_i - M_i - A_i$ and $\lambda_j = T_j - R_j - M_j - A_j$

Using the Langrangean Function for charity *i* with three equations in three unknowns, A, M, λ.

1. $\frac{\partial L_i}{\partial A_i} = 0$, 2. $\frac{\partial L_i}{\partial M_i} = 0$, 3. $\frac{\partial L_i}{\partial \lambda_i} = 0$

$$L_i = U(A_i, M_i) + \lambda_i (T_i - A_i - M_i - R_i)$$

1_i. $\frac{\partial L_i}{\partial A_i} = \frac{\partial U_i(A_i, M_i)}{\partial A_i} + \frac{\partial \lambda_i (T_i - A_i - M_i - R_i)}{\partial A_i} 0$

$$= \frac{\partial U_i(A_i, M_i)}{\partial A_i} + \frac{\partial \lambda_i T_i}{\partial A_i} - \frac{\partial \lambda_i A_i}{\partial A_i} - \frac{\partial \lambda_i M_i}{\partial A_i} - \frac{\partial \lambda_i R_i}{\partial A_i} = 0$$

$$= \frac{\partial U_i(A_i, M_i)}{\partial A_i} + \lambda = 0$$

$$\frac{\partial U_i(A_i, M_i)}{\partial A_i} = -\lambda$$

therefore $\frac{\partial U_i}{\partial A_i} = -\lambda$

2_i. $\frac{\partial L_i}{\partial M_i} = \frac{\partial U_i(A_i, M_i)}{\partial M_i} + \frac{\partial \lambda_i (T_i - A_i - M_i - R_i)}{\partial M_i}$

$$= \frac{\partial U_i(A_i, M_i)}{\partial M_i} + \lambda = 0$$

$$\frac{\partial U_i}{\partial M_i} = -\lambda$$

3_i. $\frac{\partial L_i}{\partial \lambda_i} = \frac{\partial U_i(A_i, M_i)}{\partial \lambda_i} + \frac{\partial \lambda_i (T_i - A_i - M_i - R_i)}{\partial \lambda_i}$

$$T_i - A_i - M_i - R_i = 0$$

Using the Langrangean Function for charity *j* with three equations in three unknowns, A, M, λ. The optimal level of utility of charity *j*:

$$MaxU_j = f(R_i + R_j, A_j, R_j)$$

s.t. $\lambda_j = T_j - R_j - M_j - A_j$

$$L_j = U(A_j, M_j) + \lambda_j (T_j - A_j - M_j - R_j)$$

1j. $\dfrac{\partial L_j}{\partial A_j} = \dfrac{\partial U_j(A_j, M_j)}{\partial A_j} + \dfrac{\partial \lambda_j (T_j - A_j - M_j - R_j)}{\partial A_j}$

$$= \frac{\partial U_j}{\partial A_j} = -\lambda$$

2j. $\dfrac{\partial L_j}{\partial M_j} = \dfrac{\partial U_j(A_j, M_j)}{\partial M_j} + \dfrac{\partial \lambda_j (T_j - A_j - M_j - R_j)}{\partial M_j} = 0$

$$\frac{\partial U_j}{\partial M_j} = -\lambda$$

3j. $\dfrac{\partial L_j}{\partial \lambda_j} = \dfrac{\partial U_j(A_j, M_j)}{\partial \lambda_j} + \dfrac{\partial \lambda_j (T_j - A_j - M_j - R_j)}{\partial \lambda_j} = 0$

$$T_j - A_j - M_j - R_j = 0$$

Therefore

$$U_{A_i} = U_{M_i} = -\lambda_i \qquad (4\text{-}42)$$

$$T_i - A_i - M_i - R_i = 0 \qquad (4\text{-}43)$$

$$U_{A_j} = U_{M_j} = -\lambda_j \qquad (4\text{-}44)$$

$$T_j - A_j - M_j - R_j = 0 \qquad (4\text{-}45)$$

4.3.4.4 Two competing non-altruistic charities with complex constraints

Two charities are non-altruistic organisations and their concerns are both utility of recipients and their operation. Assume utility of charities *i/j* is a function of utility of recipients $U_{Ri/j}$ and administration cost $A_{i/j}$ as: $U_{i/j} = U_{i/j}(U_{Ri/j}, A_{i/j})$, and utility of recipients is a function of the total donors to recipients and administration costs as:

$U_{R_{i/j}} = U_{R_{i/j}}(R_{i/j}, A_{i/j})$

Where rewritten utility of charity i/j as

$U_{i/j} = U_{i/j}(U_{R_{i/j}}(R_{i/j}, A_{i/j}), A_{i/j})$.

Also total collected dollars, $T_{i/j, f}$ are from each charity i/j and it is allocated dollars to recipients, $R_{i/j}$, administration costs, $A_{i/j}$, and marketing costs, $M_{i/j}$,. Hence

$T_i = R_i + M_i + A_i$ and $T_j = R_j + M_j + A_j$,

Where $T_i = T_i(M_i, M_j)$ and $T_j = T_j(M_i, M_j)$

$A_i = A_i(T_i)$ and $A_j = A_j(T_j)$, where $T = T_i + T_j$

The level of total dollars from charities *i/j* depends on the total amount of expenditures because some donors may stop donating when charities are overspending on expenditure. Therefore to find out optimal level of utility of charities *i/j* , charities may have two constraints; allocation of total dollars and not overspending on expenditure. Hence $MaxU_i = f(R_i + R_j, A_i, R_i)$ and $MaxU_j = f(R_i + R_j, A_j, R_j)$

Using Lagrangean multipliers λ of charities *i* and *j*, with three unknown variables for the application of constrained maximisation, the form of the Lagrangean expression and four s.t. λ_1, λ_2, λ_3 and λ_4 for Lagrangean multipliers is as follows:

$$L_i = U(A_i, M_i) + \lambda_{i_1}(T_i - A_i - M_i - R_i) + \lambda_{i_2}(A_i + M_i - kT_i)$$

$$\text{s.t. } \lambda_{1i} = T_i - R_i - M_i - A_i \;;\; \lambda_{1j} = T_j - R_j - M_j - A_j$$

$$\lambda_{2i} = A_i + M_i - kT_i \;;\; \lambda_{2j} = A_j + M_j - kT_j$$

Assume as follows: 1. $\frac{\partial L_{i/j}}{\partial A_{i/j}} = 0$; 2. $\frac{\partial L_{i/j}}{\partial M_{i/j}} = 0$; 3. $\frac{\partial L_{i/j}}{\partial \lambda_{i/j}} = 0$

1i. $\frac{\partial L_i}{\partial A_i} = \frac{\partial U_i(A_i, M_i)}{\partial A_i} - \lambda_{i_1} - \lambda_{i_2} = 0$

$$\frac{\partial U_i(A_i, M_i)}{\partial A_i} - \lambda_{i_1} - \lambda_{i_2} = 0$$

Therefore $\frac{\partial U_i}{\partial A_i} = \lambda_{i_1} + \lambda_{i_2}$

2_i. $\frac{\partial L_i}{\partial M_i} = \frac{\partial U_i(A_i, M_i)}{\partial M_i} - \lambda_{i_1} - \lambda_{i_2} = 0$

Therefore $\frac{\partial U_i}{\partial M_i} = \lambda_{i_1} + \lambda_{i_2}$

3_i. $\frac{\partial L_i}{\partial \lambda_i} = \frac{\partial U_i(A_i, M_i)}{\partial \lambda_i} - \lambda_{i_1} - \lambda_{i_2} = 0$

$T_i - A_i - M_i - R_i + A_i + M_i - kT_i = 0$

Therefore $T_i - R_i - kT_i = 0$

$L_j = U(A_j, M_j) + \lambda_{j1}(T_j - A_j - M_j - R_j) + \lambda_{j_2}(A_j + M_j - kT_j)$

1_j. $\frac{\partial L_j}{\partial A_j} = \frac{\partial U_j(A_j, M_j)}{\partial A_j} - \lambda_{j_1} - \lambda_{j_2} = 0$

Therefore $\frac{\partial U_i}{\partial A_i} = \lambda_{i_1} + \lambda_{i_2}$

2_j. $\frac{\partial L_j}{\partial M_j} = \frac{\partial U_j(A_j, M_j)}{\partial M_j} - \lambda_{j_1} - \lambda_{j_2} = 0$

Therefore $\frac{\partial U_j}{\partial M_j} = \lambda_{j_1} + \lambda_{j_2}$

3_j. $\frac{\partial L_j}{\partial \lambda_j} = -\lambda_{j_1} - \lambda_{j_2} = 0$

$T_j - R_j - kT_j = 0$

Combining above models for charity *i* and *j*, 1_i, 2_i, 3_i, 1_j, 2_j, and 3_j, brings the following:

$$U_{A_i} = U_{M_i} = \lambda_{i_1} + \lambda_{i_2} \quad (4\text{-}46)$$

$$T_i - R_i - kT_i = 0 \quad (4\text{-}47)$$

$$U_{A_j} = U_{M_j} = \lambda_{j_1} + \lambda_{j_2} \quad (4\text{-}48)$$

$$T_j - R_j - kT_j = 0 \quad (4\text{-}49)$$

4.4 Summary

The problematics of the market model of charitable organisations have been discussed in this chapter. This chapter also compared organisations in two different markets: (i) a monopoly charity (only one charity providing private goods to recipients and not having to compete with organisations for donations), and (ii) the existence of competition for donation among similar service providers in the market. This section also attempts to explain the completely altruistic models and/or the competition for donations within similar service providers' market.

This chapter also compares the theoretical modelling of altruistic monopolists to impure (mixed motive) altruistic monopolists. Hence this study investigates the effect of competition on effectiveness of fundraising expenditure, and how the donations have been affected by increasing competition in the oligopolistic market. These forms of competition are important in determining how competition affects the delivery of program goods and services to recipients.

The maximising of the provision of program goods and services to recipients is crucial in this regard. The potential for maximising the value on the program goods and services enables the charitable organisation to credibly lower their costs of operation, thereby attracting donors. In the absence of this ability, competition is only in the form of fundraising spending. This does not improve the provision of the good or services although it may increase funds to recipients. This study may find that altruistic organisations do play their role ethically and effectively. If charitable organisations are altruistic, donors can trust that their donation goes directly to the program services or goods to recipients. We therefore moved from modelling charitable organisations as (i) altruistic monopolists to (ii) non-altruistic monopolists.

The theory of competition is then approached by considering what competition between perfect altruistic charitable organisations might mean. It is considered that this involves a contradiction. The third section, considers (iii) competition in the private donation market between imperfectly altruistic and/or non-altruistic charitable organisation. Much of the rest of the thesis is concerned with the empirical modelling of the competition for funds among charitable organisations.

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Chapter 5

Empirical Modelling

5.1 Introduction

In this chapter empirical modelling is produced as an implementation of theoretical modelling.

Empirical modelling incorporates charitable operational information effect on donations, 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 the sample of Australian and Japanese charitable organisations. The thesis concentrates on the effectiveness of fundraising activities of charitable organisational competition for donations based on the Cournot quantity competition theory.

In the following Section, 5.2, the effectiveness of fundraising is discussed in order to develop empirically testable hypotheses to answer the over-arching research questions developed in the previous chapter. This is followed by the theoretical modelling and development of the models in Section 5.3. Then Section 5.4 describes the data, sample selection and the sample data and the definitions of variables used in the OLS regression models. The testing of hypotheses is analysed in Section 5.5. A summary is given in Section 5.6.

5.2 Developmental empirically testable hypotheses

Based on the theoretical modelling described in the previous sections, hypotheses for this study are developed to answer the research questions (Chapter 1 Section 1.1).

5.2.1 Determinants of the level of private donations

To investigate the effectiveness of fundraising activities of competition for donation between charitable organisations in Australia and Japan, firstly research question one is asked: *What determines the level of fundraising expenditures and the level of donations raised by charitable organisations (COs) in Australia and Japan?*

To answer Research Question, 1, two direct questions are raised. The first direct research question (DRQ) is as follows: DRQ1: *Do charitable organisations maximise private donations (i.e. non-government grants)*

Understanding what determines the level of private donation is crucial to understanding fluctuations in the ability of charitable organisations to fulfil their role. A charitable organisation needs to spend some of its resources on fundraising to organise its fundraising activities. Through this expenditure, a charitable organisation may provide potential donors with important information about the existence, objective and the nature of the charitable organisation, as well as the ways it uses services donations. Fundraising expenditures (F_i) (of a charitable organisation i) are presumably the more the charitable organisation spends on fundraising efforts, the objective of which is to raise additional donations, the more donations the charitable organisation should receive. Thus, the fundraising expenditures contribute directly to maximising private donations.

The fraction of donations dedicated to fundraising expenditures to maximise private donation to a charitable organisation, and the level of spending on the fundraising expenditure of a charitable organisation both have a positive effect on total donations.

Therefore the major testable Hypothesis is:
H_0: $F_i \leq 0$; and H_1: $F_i > 0$
where F_i = Fundraising expenditure of charitable organisation i .

5.2.2 About competition and cooperation between charities

The second direct research question is as follows: DRQ2: *Does competition between charitable organisations for donations affect donor behaviour and donations?*

To answer DRQ2, it is further divided into three sub-questions: DRQ2-1: *How does competition between charitable organisations affect the effectiveness of fundraising?*

DRQ2-2: *What characteristics of charitable organisations affect their fundraising effectiveness?*

DRQ2-3: *What other factors in charitable organisations affect fundraising?*

Firstly, if a charitable organisational objective is mostly to maximise utility of recipients then in this case it is an altruistic charity. When two existing charitable organisations are both altruistic organisations, they focus on collecting private donations to increase dollars to recipients. However, in reality, the behaviour of the charitable organisations and donors is complex and not all are altruists. Charitable organisations and donors interact over time, and donors can observe the behaviour of the organisations whether they are interested in maximising the utility of recipients or their own utility. Donors may be able to observe organisational behaviour or spending patterns of expenditure on fundraising activities, administration costs and program costs of organisations Donors can compare those or other behaviour of two charitable organisations where these two charities focus on their own collection of donations.

Secondly, each charitable organisational objective is assumed to maximise the level of utility of recipients, in which case they are both altruistic organisations. One question this research does not deal with is that of organisations providing aid only to one group of potential recipients, as opposed to all recipients. Secondly, when two charities one assumed to be both non-altruistic organisations, they focus on maximising their own collection of donations in order to increase dollars from each organisation to deliver to recipients. Thus, the utility of each charity is to increase its own collection of donations to recipients, which is opposed to total donations from two organisations to recipients. In this case, each charity may compete for its collection of dollars using fundraising costs. It can be seen that if a charity spends more on fundraising costs, it increases the collection of donations. Then, the more a competing charity spends on fundraising, the less it collects for its own donation. In other words, the fundraising costs of competing charity *j* reduces the total donation of a charity *i*. Therefore total donation of charity *i* has been negatively affected by fundraising expenditures of competing charity j.

Hypothesis 2 is tested as:

H_0: $F_j \geq 0$; and H_1: $F_j < 0$

where F_j = Fundraising expenditure of competing charitable organisation j .

At the same time, the fraction of its own fundraising expenditure to total fundraising expenditures of two organisations is also expected to be a positive for its collection of total donations, although the fraction of the competing organisation's fundraising expenditures to total fundraising expenditures of two organisations would have a negative effect on its donations. If the competing charities spend more on fundraising expenditure, this may affect on increase in collection of the competing charities total donations but it will decrease its own organisational collected donations. Therefore,

Hypothesis 3 is tested as follows: H_0: $F_i / \Sigma F \leq 0$; and H_1: $F_i / \Sigma F > 0$
Hypothesis 3 with alternative calculation is: H_0:$F_i/\Sigma F_j \leq 0$; and H_1: $F_i / \Sigma F_j > 0$.
where ΣF = Total of all charities' fundraising expenditures; ΣF_j = Total of competing charities' fundraising expenditures ($\Sigma F_j = \Sigma F - F_i$).

To answer DRQ2-2: *What characteristics of charitable organisations affect their fundraising effectiveness?*, testable hypotheses are produced.

Previous studies find that donors are interested in the size and organisational age of charitable organisations when they make you decision to donate (Weisbrod and Dominquez, 1986; Tinkelman, 1999; Khanna and Sandler, 2000; Marudas and Jacobs, 2004; Tinkelman, 2004; Tinkelman and Mankaney, 2007). Thus, the size and length of organisational age of charitable organisations can be expected to have a positive effect on total donations. At the same time, the fraction of organisational sizes in two charitable organisations would be expected to have a positive effect.

Therefore, Hypothesis 4 is tested as:
H_0: $A_i \leq 0$; and H_1: $A_i > 0$;

Hypothesis 5 is tested as:
H_0: $A_i / \Sigma A \leq 0$; and H_1: $A_i / \Sigma A > 0$;
Hypothesis 5 with alternative calculation: H_0: $A_i / \Sigma A_j = 0$; H_1: $A_i / \Sigma A_j > 0$; and

Hypothesis 7:
H_0: $Age_i \leq 0$; and H_1: $Age_i > 0$.
where A_i = Total fixed asset of charitable organisation i; ΣA = Total of all charities' fixed assets; ΣA_j = Total of competing charities' fixed assets ($\Sigma A_j = \Sigma A$ – Ai); Age = organisational age since charitable organisation i is created.

To answer DRQ2-3, *What other factors in charitable organisations affect fundraising?* testable hypotheses, 6, 8 and 9 are produced.

Previous studies find volunteers have a positive effect on total donations because many volunteers are involved in fundraising activities, directly contributing to the collection of the total donations. Thus, this study assumes that the number of volunteers has a positive effect on the fundraising of total donations.

Therefore, Hypothesis 6 is tested as:
H_0: $V_i \leq 0$; and H_1: $V_i > 0$.
where V = the number of volunteers of charitable organisation i.

Previous studies argue that government grants may have crowd in/out effects, and some find a positive (crowd in) effect on total donations (Posnett and Sandler, 1989; Khanna et al., 1995; Frumkin and Kim, 2001; Marudas and Jacobs, 2007). Thus, information relating to the receipt of government grants is considered to measure quality of organisation. This study assumes that government grants have a positive effect on fundraising of total donations.

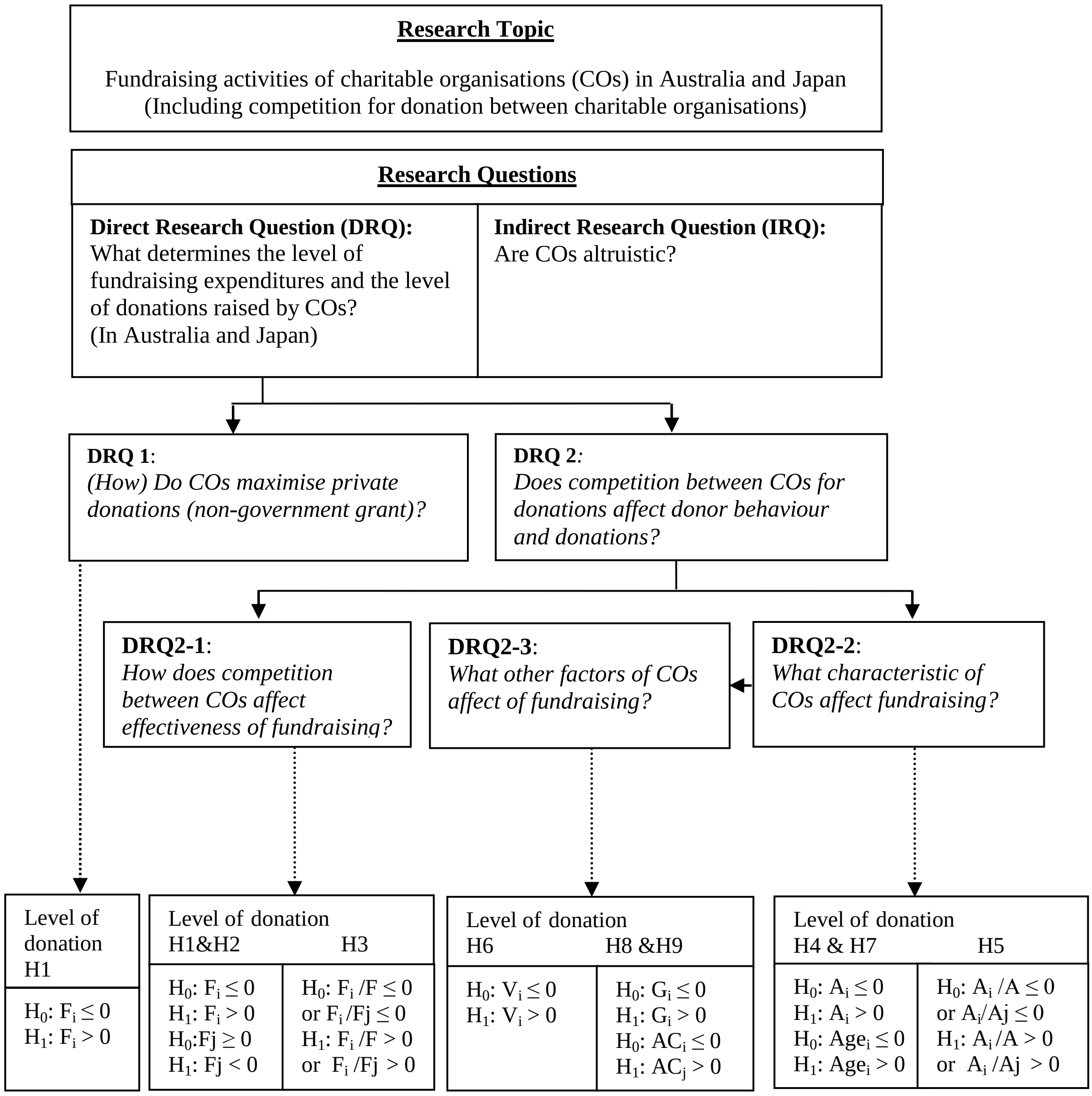
Therefore Hypothesis 8 is tested as:
H_0: $G_i \leq 0$; and H_1: $G_i > 0$; and
where G = Government grants to charitable organisation i.

Administrative expenditures are used to measure organisational inefficiency. This study assumes that administrative costs are expected to have a positive effect on fundraising of total donations.

Hypothesis 9 is tested as:
H_0: $AC_i \leq 0$; and H_1: $AC_i > 0$
where AC = Administrative costs of charitable organisation i.

Figure 5.1 presents summary of the research topic, research questions and hypotheses of this thesis as discussed above.
In the following section, empirical models are constructed for testing hypotheses to answer research questions.

Figure 5.1: Research topics, Requestions and Hypotheses of the Thesis



where: Hypotheses (H) 1-9 for 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 was formally created (operational age); V = number of persons per year working as volunteers; G = government subsidies/grants; AC = administrative costs

5.3 Empirical modelling

5.3.1 Competition among charities

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 interesedt 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

$$PE + AC + F + OE = D \qquad (5\text{-}1)$$

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

1. Competition period: In a period, the charitable organisations choose the portion of donations (F_i) for fundraising expenditures to raise total donations.
2. Donations period: Then, the donors observe the choices of the Charitable organisations and chooses an allocation of donations $(D_1,...,D_N)$.

3. Ratio of competitors: Assuming CO's fundraising activities/expenditure effect on donations, then its donations may be affected by competitors' fundraising actitivies/expenditures or the fraction of its fundraising expenditures to total competitors' fundraising expenditures.
4. Relative size effect: Charitable organisations' size/age are considered as a stock of quality of charitable organisations.
5. 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, 1969b). As we discussed in Section 4.3, 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), and $R_i = F(R_j)$ 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 $MaxU_R$ is where F is optimum $F = F_i + F_j$;

(ii) or 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 better[18] 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:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \varepsilon \quad (1)$$

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.

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

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.

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).

5.3.2 Creating a family of models

All of the models in this section are modifications of Model 1. As shown in Figure 5.2, 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).

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 5.2 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., $\ln F_i$ / $\Sigma \ln F$ or $\ln A_i$ / $\Sigma \ln A$), 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., $\ln F_i$ / $\Sigma \ln F_j$ or $\ln A_i$ / $\Sigma \ln A_j$). 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 ($\Sigma\, lnF_j = \Sigma\, lnF – lnF_i$ and $\Sigma\, lnA_j = \Sigma\, lnA – lnA_i$). Therefore the first sub-model of modified Model 1 uses the ratio of fundraising expenditure to competing charities *j* and the ratio of organisational size to competing charities *j*, calculating as, $\ln F_{it}$ / $\Sigma \ln F_{jt}$ and $\ln A_{it-1}$ / $\Sigma \ln A_{jt-1}$, respectively. Model 1_J, Equation (2) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \quad (2)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i / A_j is the ratio of A_i to A_j; *V* is the number of volunteers; *Age* is organisational age and ε is the error term.

As shown in Figure 5.2, a family of empirical models, in the second row of the first box, 3, the second sub-modified model from Model 1 employed lagged independent variables only (3. Model Xs_L), and used the ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as $\ln F_{it-1}$ / $\Sigma \ln F_{t-1}$ and $\ln A_{it-1}$ / $\Sigma \ln A_{t-1}$, respectively. Model 1_L, Equation (3) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \qquad (3)$$

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.

As shown in Figure 5.2 in the third row, the third sub-modified model from Model 1 employed lagged independent variables only and used the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, which excluded F_i and A_i from all competitors, F and A, presenting as $\ln F_i / \Sigma\ln F_{jt-1}$ and $\ln A_i / \Sigma\ln A_{jt-1}$, respectively.
Model 1_LJ, Equation (4) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \varepsilon \qquad (4)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age and ε is the error term.

As shown in Figure 5.2, in the third row, the fourth sub-modified model from Model 1 employed unlagged independent variables only and used the ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as $\ln F_i / \Sigma\ln F_t$ and $\ln A_i / \Sigma\ln A_t$, respectively. Empirical Model 1_U, Equation (5) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon \qquad (5)$$

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.

As shown in Figure 5.2 in the third row of the box number 6, the fifth modified model from Model 1 employed unlagged independent variables only and used the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as

$\ln F_i / \Sigma \ln F_{jt}$ and $\ln A_i / \Sigma \ln A_{jt}$, respectively. Model 1_UJ Equation (6) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon \qquad (6)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i / A_j is the ratio of A_i to A_j; V is the number of volunteers; *Age* is organisational age and ε is the error term.

As shown in Figure 5.2, a family of empirical models, Model 2 is modified from Model 1 by adding an independent variable, government grants, G_i, and independent variables with combined lag and non-lag. An independent variable, government grants to charitable organisation i for a year, is included because the previous studies find it affects total donation as this was explained as crowd-in or crowd-out private donations (Weisbrod and Dominquez, 1986; Posnett and Sandler, 1989). Model 2 uses the ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as, $\ln F_{it} / \Sigma \ln F_t$ and $\ln A_{it-1} / \Sigma \ln A_{t-1}$, respectively. Empirical Model 2, Equation (7) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_t) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \beta_8 \ln G_{it-1} + \varepsilon \qquad (7)$$

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; G is government grants and ε is the error term.

Following the procedures of modifying Model 1, the first sub-modified Model 2 (Model Xs_J) is produced including the ratio of fundraising expenditure to competitors' F_j and the ratio of size to competitors, A_j, presenting as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it-1} / \Sigma \ln A_{jt-1}$. Model 2_J, Equation (8) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon \tag{8}$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age; G is government grants and ε is the error term.

Following the procedures for modifying Model 1, the second sub-modified Model 2 (Model Xs_L) is produced including lagged independent variables only and used the ratio of fundraising expenditure to all competitors and the ratio of size to all competitors, presenting as $\ln F_{it-1} / \Sigma \ln F_{t-1}$ and $\ln A_{it-1} / \Sigma \ln A_{t-1}$, respectively. Model 2_L, Equation (9) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1}/ \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln G_{it-1} + \varepsilon \tag{9}$$

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; G is government grants and ε is the error term.

Following the procedures for modifying Model 1, the third sub-modified Model 2 is employed using lagged independent variables only, and uses the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as $\ln F_i / \Sigma \ln F_{jt-1}$ and $\ln A_i / \Sigma \ln A_{jt-1}$, respectively.

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{i-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon \qquad (10)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i / A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age; G is government grants and ε is the error term.

Following the procedures for modifying Model 1, the fourth sub-modified Model 2 employs unlagged independent variables only and uses the ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as $\ln F_i / \Sigma \ln F_t$ and $\ln A_i / \Sigma \ln A_t$, respectively. Empirical Model 2_U, Equation (11) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon \qquad (11)$$

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; G is government grants and ε is the error term.

Following the procedures for modifying Model 1, the fifth sub-modified Model 2 is employed using all unlagged independent variables using the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it} / \Sigma \ln A_{jt}$, Model 2_UJ, Equation (12) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon \qquad (12)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age; G is government grants and ε is the error term.

As shown in Figure 5.2, a family of empirical models, Model 3 modifies Model 1 by adding an independent variable, administration costs, AC_i, and all independent variables are either lag or non-lag. An independent variable, Administrative costs, AC, is included as the measurement of inefficiency of organisations as previous studies explained, and it is used to compare the inefficiency between different organisations with similar missions (Frumkin and Kim, 2001). The empirical Model 3, Equation (13) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it-1}$$
$$+ \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \beta_8 \ln AC_{it-1} + \varepsilon \qquad (13)$$

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; AC is administrative costs and ε is the error term.

Following the procedures of modifying Model 1, the first sub-modified Model 3 (Model Xs_J) produced, including the ratio of fundraising expenditure to competitors' F_j and the ratio of size to competitors, A_j, presenting as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it-1} / \Sigma \ln A_{jt-1}$. Model 3_J, Equation (14) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it-1}$$
$$+ \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln AC_{it-1} + \varepsilon \qquad (14)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age; AC is administrative costs and ε is the error term.

Following the procedures for modifying Model 1, the second sub-modified model from Model 3 (Model Xs_L) is produced including lagged independent variables only and used the ratio of fundraising expenditure to all competitors and the ratio of size to all competitors, presenting as ln F_{it-1} / Σln F_{t-1} and ln A_{it-1} / Σln A_{t-1}, respectively. Model 3_L, Equation (15), we test is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1}/ \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \qquad (15)$$

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; AC is administrative costs and ε is the error term.

Following the procedures for modifying Model 1, the third sub-modified model from Model 3 (Model Xs_LJ) employed lagged independent variables only and used the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as ln F_i / Σln F_{jt-1} and ln A_i / Σln A_{jt-1}, respectively. Model 3_LJ, Equation (16) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{jt\text{-}1} + \beta_3 (\ln F_{i\text{-}1} / \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \qquad (16)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age; AC is administrative costs and ε is the error term.

Following the procedures for modifying Model 1, the fourth sub-modified model from Model 3 employed unlagged independent variables only and used the ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as ln F_i / Σln F_t and ln A_i / Σln A_t, respectively. Empirical Model 3_U, Equation (17) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln AC_{it} + \varepsilon \quad (17)$$

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; AC is administrative costs and ε is the error term.

Following the procedures for modifying Model 1, the fifth sub-modified model from Model 3 employed unlagged independent variables only and used the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as, ln F_{it} / Σln F_{jt} and ln A_{it} / Σln A_{jt}. Model 3_UJ, Equation (18) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln AC_{it} + \varepsilon \quad (18)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; Age is organisational age; AC is administrative costs and ε is the error term.

As shown Figure 5.2, a family of empirical models, Model 4 is modified from Model 1 by adding an independent variable, government grants, G_i, after excluding an independent variable, organisational age, Age_i, with all independent variables either lag and non-lag. Government grants is included after excluding Age because the previous studies find both government grants and organisation age affect total donation. Government grants is affected by organisational age, so it is necessary to find whether government grants relate to total donation without influence from organisational age in the competition model. Model 4 is also employed in the competition index of ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as, $\ln F_{it} / \Sigma \ln F_t$ and $\ln A_{it-1} / \Sigma \ln A_{t-1}$, respectively. Empirical Model 4, Equation (19) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon \quad (19)$$

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; G is government grants and ε is the error term.

Following the procedures of modifying Model 1, the first sub-modified model from Model 4 employed lag and unlagged independent variables and used the ratio of fundraising expenditure to competitors' F_j and the ratio of size to competitors, A_j, presenting as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it-1} / \Sigma \ln A_{jt-1}$. Model 4_J, Equation (20) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon \quad (20)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; G is government grants and ε is the error term.

Following the procedures for modifying Model 1, the second sub-modified model from Model 4 produced lagged independent variables only and used the ratio of fundraising expenditure to all competitors and the ratio of size to all competitors, presenting as ln F_{it-1} / Σln F_{t-1} and ln A_{it-1} / Σln A_{t-1}, respectively. Model 4_L, Equation (21) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon \qquad (21)$$

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; *G* is government grants and *ε* is the error term.

Following the procedures for modifying Model 1, the third sub-modified model from Model 4 employed lagged independent variables only and used the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as ln F_i / Σln F_{jt-1} and ln A_i / Σln A_{jt-1}, respectively. Model 4_LJ, Equation (22) tested:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{jt\text{-}1} + \beta_3 (\ln F_{i\text{-}1} / \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon \qquad (22)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; *V* is the number of volunteers; *G* is government grants and *ε* is the error term.

Following the procedures for modifying Model 1, the fourth sub-modified model from Model 4 employed unlagged independent variables only and used the ratio of F_i to all competitors, F, and the ratio of A_i, to all competitors, A, presenting as ln F_i / Σln F_t and ln A_i / Σln A_t, respectively. Empirical Model 4_U, Equation (23) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln G_{it} + \varepsilon \qquad (23)$$

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; G is government grants and ε is the error term.

Following the procedures for modifying Model 1, the fifth sub-modified model from Model 4 employed unlagged independent variables only and used the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it} / \Sigma \ln A_{jt}$. Model 4_UJ, Equation (24) tested is:

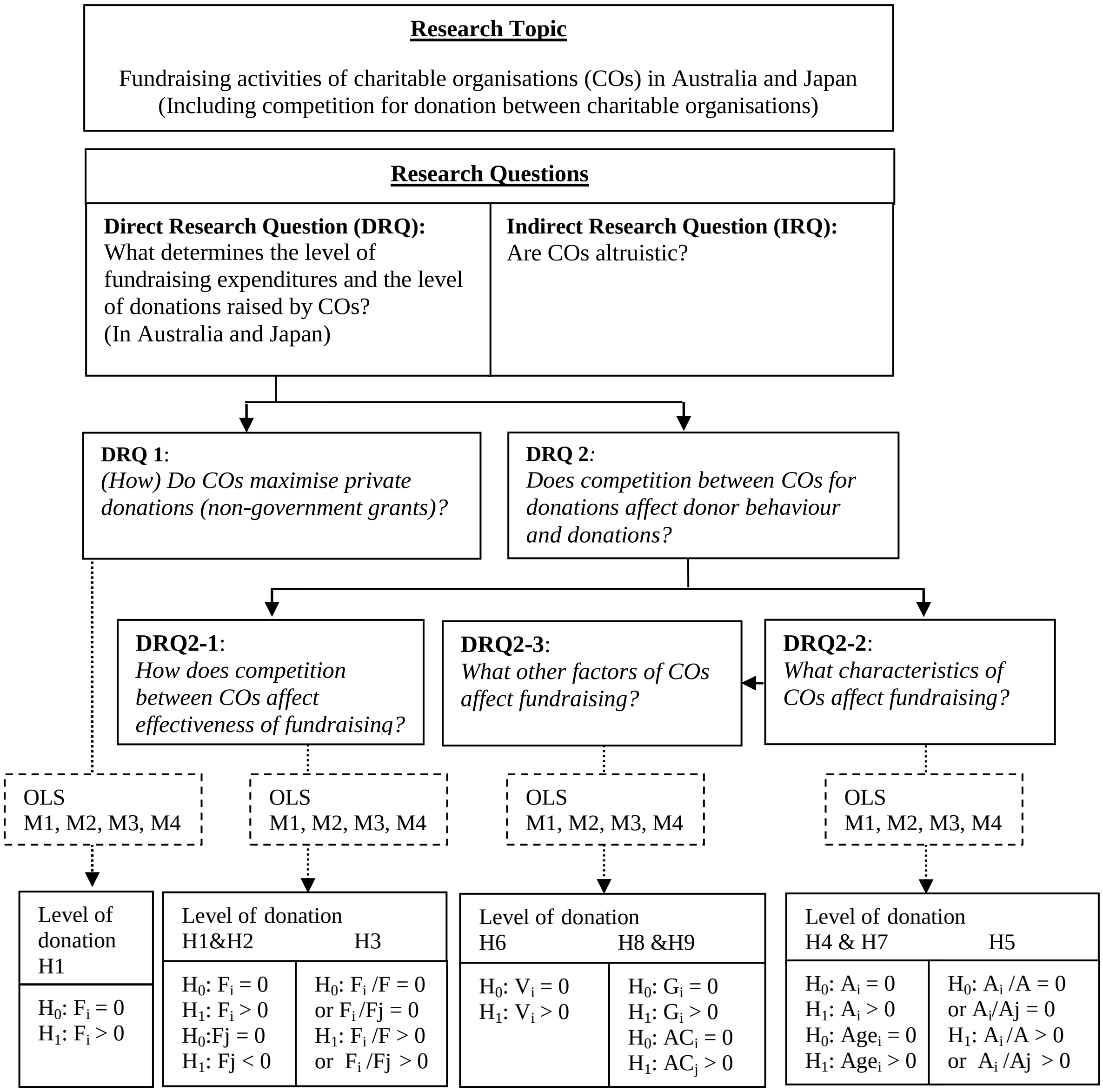
$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln G_{it} + \varepsilon \quad (24)$$

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_j is the ratio of F_i to F_j; A is fixed assets (a proxy of organisational size); A_i /A_j is the ratio of A_i to A_j; V is the number of volunteers; G is government grants and ε is the error term.

As discussed above, 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.

Figure 5.2 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 5.2: Research topics, questions, hypotheses and models of the thesis



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

5.3.3 A diagrammatic summary of the model family

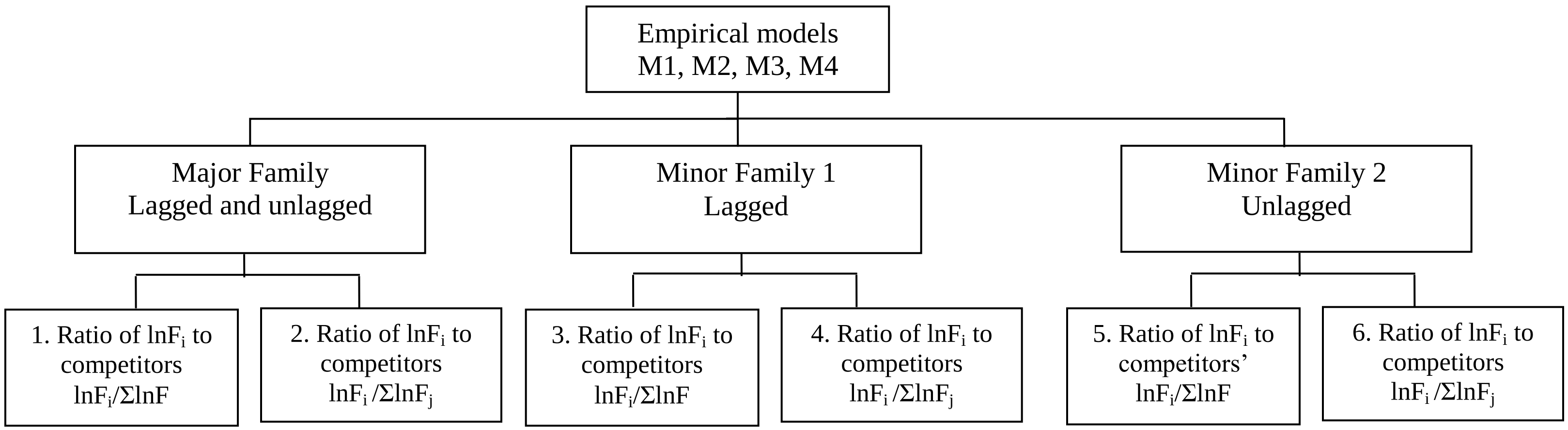
Figure 5.3 presents the family of empirical models. Model 1 (M1) is the basic model and all M1, M2, M3 and M4, and related models are a family models. Model 2 (M2), Model 3 (M3) and Model 4 (M4) are constructed from the basic model of M1. M2 is constructed from M1 with the additional independent variable Government Grants (G). M3 is constructed from M1 with an additional variable of Administrative Costs (AC). M4 is constructed from M1 excluding the independent variable of Organisational Age (Age) and including the independent variable of Government Grants (G).

Major family models employ combining lagged and unlagged independent values, including unlagged fundraising expenditures related variables (lnF_i, lnF_j and lnF_i/lnF) and other lagged independent variable. Minor family models are also modification of Model 1. The first minor models employed lagged independent variables only and the second minor models employed unlagged independent variables only.

Furthermore, independent variables of the ratios are calculated in two ways. Firstly, the ratios are either using all competing charities' fundraising expenditures or fixed assets as a denominator. Secondly, alternative calculation of the ratios are employed, either the competing charities j's fundraising expenditures or fixed assets as denominators of the ratios.

The use of a family of models will allows a consistent form of testing closely related but mutually exclusive different functional forms and specifications. These different forms and specifications are not themselves dictated by significant theoretical hypotheses but all of them are consistent with those major hypotheses.

Figure 5.3: A family of empirical models



M1:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\Sigma \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\Sigma \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \varepsilon$$

M2: M1 +lnG

$$\ln D_{it} = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\Sigma \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\Sigma \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon$$

M3: M 1 +lnAC

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\Sigma \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\Sigma \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln AC_{it-1} + \varepsilon$$

M4: M1+lnG
- lnAge

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{it}}{\Sigma \ln F_t} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{it-1}}{\Sigma \ln A_{t-1}} + \beta_6 \ln V_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon$$

Note: 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 on to M1, Administrative Costs, AC. M4 has an additional variable to M1, G, after excluding Age. Therefore 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 ($\ln F_i$, $\ln F_j$ and $\ln F_i/\ln F$) 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).

5.4 Data and Sample Selection

5.4.1 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 and 50 operate in Japan, 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 50 Japanese organisations are selected from the organisations registered to the Cabinet Office Government of Japan and disclosed information on the NPO Corporation Homepage of the Cabinet Office in 2004. The NPO corporations (like the Australian organisations), have also been required to disclose their financial and activity information since 2001. The NPO Corporation Homepage of the Cabinet Office of Japan provides information about their registered charitable organisations [19]. This information includes a financial report, an activity report, an ownership statement, and the names and positions of the management staff and board members.

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

[19] The registration of a NPO Corporation should be reported to each local government office. However, charity organisations that become large enough to have operations in more than two local government areas need to register with the Cabinet Office of Japan.

individual donations and individual donors' determinants for donations and, hence, are more likely to influence charitable operations.

The following criteria were applied to determine the inclusion or exclusion of a charitable organisation from the sample:

1. The availability of annual reports of the charitable organisation for the financial years 2001 to 2008, providing information including financial performance and financial position from 2001 to 2008 and indices of ownership, board members, and summary of activities.
2. The continuity of the recording of sample data over the four-year period.
3. For reasons previously stated, government-formed non-profit organisations, political party organisations, universities, hospitals and social clubs and groups are not included in the study.

5.4.2 The sample of Australian charitable organisations

5.4.2.1 Donations for Australian charitable organisations

Providing an overview of the sample data, Table 5.1 presents the total donations from the sample of Australian charitable organisations for the financial years 2001 to 2008 in descending order from the total donation of the financial year, 2008. Since 2001, total donations show steady growth. There is a notable gap between the top three and other organisations in the amount of total donations. The top three organisations received in total around $50 million in 2008 and above in 2007, two times greater than the average ($21.8 million and 21.1 million in 2008 and 2007 respectively). If the top three organisations are excluded, average total donations reduce to $6.8 million in 2001 and $10.7 million in 2008.

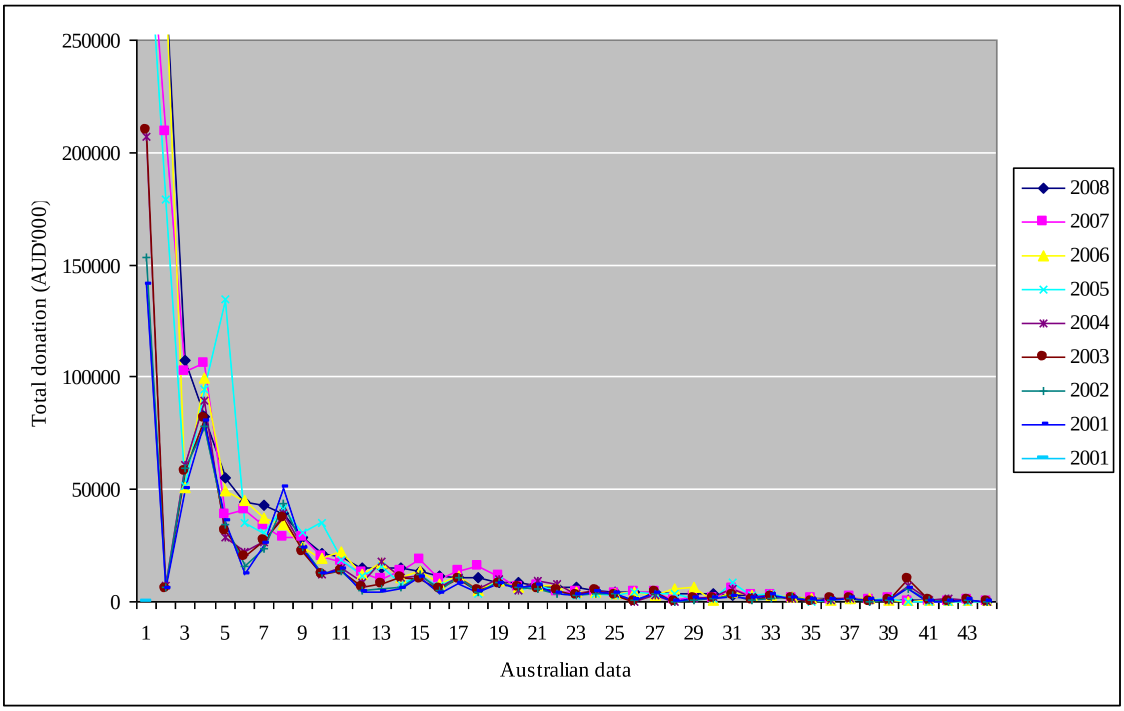
Figure 5.4, the scatter plots of the total donations in Australian data during the financial years 2001 to 2008, also shows that a few Australian charitable organisations have undergone change over this eight year period, and indicates a small but stable condition for most Australian charitable organisations in term of total donations for their eight years. It also shows a few strikingly large donations.

Table 5.1: Total Donations in Australian Charitable organisations (A$'000)

	Australian Charities	2008	2007	2006	2005	2004	2003	2002	2001
1	World Vision	317524	321962	293266	314530	206869	209809	153003	141198
2	Uniting Care QLD.	276895	209159	276895	178894	7316	5903	6610	5949
3	Salvation South	107487	102361	50679	51604	60625	58135	59420	50033
4	Salvation Eastern	82333	106167	99339	94308	89883	81887	78006	79947
5	A RedCross	55490	38480	49289	134517	28682	31829	34485	35886
6	Oxfam Australia	44519	41015	45293	35118	22167	19886	15678	12137
7	The Smith Family	42834	33328	37230	31061	26530	27412	23322	25565
8	Care Australia	39480	28670	34458	41852	39358	37348	43752	50920
9	Endeavour	28731	28848	24518	30940	23529	22103	24132	23986
10	Caritas Australia	21557	20365	19360	35096	12433	12216	12626	11901
11	Mission Au	20268	17838	21884	18814	15141	13655	13336	14277
12	WWF Australia	15352	12814	12221	11626	8915	6218	5060	4081
13	RSPCA NSW	15143	9917	17023	15954	18091	8146	5632	4463
14	The Spastic NSW	14796	13345	10950	7975	10612	10778	6553	5763
15	RI forDeaf & Blind	13501	18722	13851	11258	11333	10154	12512	10788
16	Royal Fly.Doctor SE	11503	9791	8133	7078	6105	5721	4696	3748
17	Wesley Mission Syd	10668	13924	11196	10624	10545	10290	10387	7711
18	Mul.Sclerosis Vic	10446	15984	5052	3876	5472	4969	4108	4583
19	Royal Rehav. Syd	8635	11310	9387	9205	9771	7642	8514	7797
20	St Vinent Society VIC	8414	6772	6417	5078	4997	6762	6393	6578
21	Aglicare NSW	6910	7359	7397	7028	9257	5978	5547	6927
22	Anglicare Vic.	6153	4455	7069	4719	7584	5185	3282	3321
23	Silver Chain	6138	4242	4265	2930	3257	3144	2748	2634
24	Yooralla Society Vic	4838	4427	3998	3371	4718	5240	3901	4079
25	Cerebral Palsy QLD.	4622	3416	3531	2771	3467	2963	3467	3298
26	AMANA Living	4502	4576	4246	4124	142	223	684	660
27	Scope Vic	4366	4270	2996	3261	2967	4612	3393	3657
28	Uniting Care Vic	3872	788	6012	3400	119	125	75	156
29	Royal FreemasonsVic.	3454	2501	6140	1722	1490	1681	885	1671
30	Southern CrossVic.	3333	1525	1057	1307	2183	1604	1613	1224
31	Zoological Parks	3196	5628	4085	8674	5550	3167	2723	2375
32	St Vincent Society WA	3102	2853	2966	3041	2130	964	977	1357
33	Melbourne Citymission	2426	2557	2969	3402	2816	1824	1739	2965
34	The Benevolent Society	2072	1380	2015	1668	1756	1380	1815	1721
35	Benetas	1759	1094	1766	315	818	296	891	668
36	Villa Maria Society	1544	674	709	492	812	1148	981	575
37	Anglicare SA	1518	1892	1695	1253	1159	1176	1230	1226
38	Activ Foundation	838	683	1503	904	900	299	70	423
39	Baptist CommunityVic.	653	1205	641	1514	394	736	486	461
40	Minda	522	351	182	264	6818	9729	5672	5407
41	Churches of Christ Care	435	330	411	151	702	505	858	50
42	Anglicare Australia	418	354	220	297	1275	257	209	185
43	Diabetes Australia	238	429	174	94	730	524	447	462
44	Annecto	92	84	120	71	66	195	183	167
	Total	1212577	1117845	1112609	1106181	679483	643818	572101	552978
	Average	27559	25406	25287	25140	15443	14632	13002	12568

Source: The collected data from 44 Australian charitable organisations for 8 financial years

Figure 5.4:Total Donations in Australian data (A$'000)



Source: The collected data from 44 Australian charitable organisations for 8 financial years

5.4.2.2 Volunteers for Australian charitable organisations

Table 5.2 presents the number of volunteers for the financial years 2001 to 2008 with the same order to the table of donations. The table reveals that most of the Australian charitable organisations have stable numbers of volunteers. The table also shows that there are two distinct groups in terms of the number of volunteers. One consists of four charitable organisations, whose volunteers number more than 10,000. The other is comprised of that group of charitable organisations with less than 6,000 volunteers.

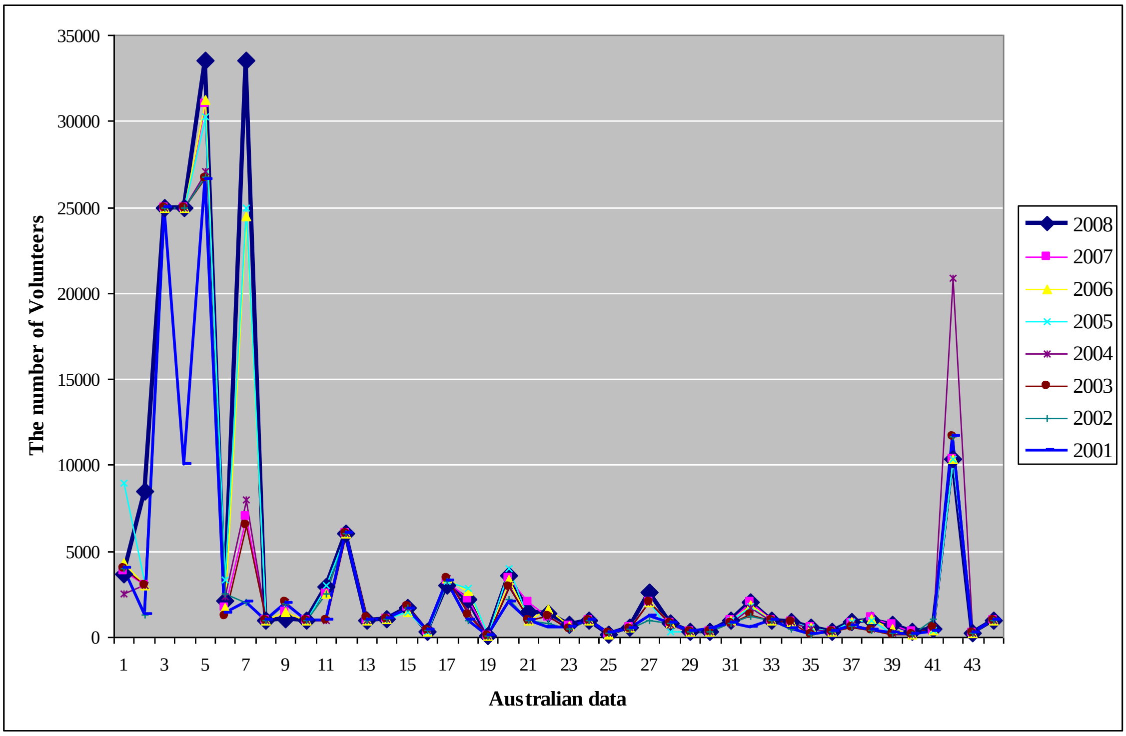
Figure 5.5 presents the scatter plots of the number of volunteers in Australian charitable organisations over eight years.

Table 5.2: The Volunteers in Australian Charitable organisations

	Australian Charities	2008	2007	2006	2005	2004	2003	2002	2001
1	World Vision	3635	3808	4300	9000	2500	4000	4000	4000
2	Uniting Care QLD	8500	3000	3030	3030	3000	3000	1300	1300
3	Salvation South	25000	25000	25000	25000	25000	25000	25000	25000
4	Salvation Eastern	25000	25000	25000	25000	25000	25000	25000	10000
5	A RedCross	33510	31000	31277	30258	27052	26706	26790	26600
6	Oxfam Australia	2130	1728	1728	3368	2366	1256	2525	1409
7	The Smith Family	33500	7000	24500	25000	8000	6500	2000	2000
8	Care Australia	1000	1000	1000	1000	1000	1000	1000	1000
9	Endeavour	1088	1500	1500	2000	2000	2000	1997	1997
10	Caritas Australia	1000	1000	1000	1000	1000	1000	1000	1000
11	Mission Au	2970	2500	2500	3000	1000	1000	2500	1000
12	WWF Australia	6000	6000	6000	6000	6000	6000	6000	6000
13	RSPCA NSW	1000	1000	1000	1000	1000	1150	1000	1000
14	The Spastic NSW	1100	1100	1100	1100	1100	1100	1100	1100
15	RI forDeaf & Blind	1700	1700	1500	1500	1691	1791	1691	1591
16	Royal Fly.Doctor SE	300	300	300	300	400	400	400	400
17	Wesley Mission Syd	3050	3300	3400	3300	3400	3400	3300	3300
18	Mul.Sclerosis Vic	2200	2200	2712	2864	1443	1314	1000	1000
19	Royal Rehav. Syd	100	86	100	100	100	100	100	100
20	St Vinent Society VIC	3625	3400	3325	4000	3000	2900	2200	2000
21	Aglicare NSW	1500	2000	1000	1000	1000	1000	1000	1000
22	Anglicare Vic.	1400	1149	1600	1200	1200	1200	845	541
23	Silver Chain	700	650	660	600	550	450	455	600
24	Yooralla Society Vic	1000	1000	1000	1000	1000	1000	1000	1000
25	Cerebral Palsy QLD.	183	190	200	250	250	250	250	250
26	AMANA Living	600	600	600	569	585	528	518	525
27	Scope Vic	2600	2000	2000	2000	2000	2000	1000	1200
28	Uniting Care Vic	784	784	784	300	724	844	784	784
29	Royal FreemasonsVic.	300	300	300	300	300	300	300	300
30	Southern CrossVic.	340	335	341	340	350	345	356	450
31	Zoological Parks	1000	1000	1000	1000	841	841	801	852
32	St Vincent Society WA	2000	2000	1850	1800	1700	1300	1200	600
33	Melbourne Citymission	1000	1000	1000	1000	1000	1000	1000	1000
34	The Benevolent Society	900	900	900	900	900	900	500	500
35	Benetas	600	600	600	580	480	200	200	200
36	Villa Maria Society	300	320	350	350	350	350	350	350
37	Anglicare SA	902	800	900	900	700	564	650	650
38	Activ Foundation	975	1130	1070	945	500	412	400	400
39	Baptist CommunityVic.	700	750	470	260	260	200	207	230
40	Minda	360	360	200	200	200	200	200	200
41	Churches of Christ Care	478	321	378	431	593	553	1093	347
42	Anglicare Australia	10385	10400	10400	10385	20900	11642	11642	11642
43	Diabetes Australia	233	233	233	233	233	235	230	225
44	Annecto	1000	1000	1000	1000	1000	1000	1000	1000
	Total	186648	151444	169108	175363	153668	141931	135884	116643
	Average	4242	3442	3843	3986	3492	3226	3088	2651

Source: The collected data from 44 Australian charitable organisations for 8 financial years

Figure 5.5: The Number of Volunteers in Australia data



Source: The collected data from 44 Australian charitable organisations for 8 financial years

5.4.3 The sample of Japanese charitable organisations

5.4.3.1 Donations for Japanese charitable organisations

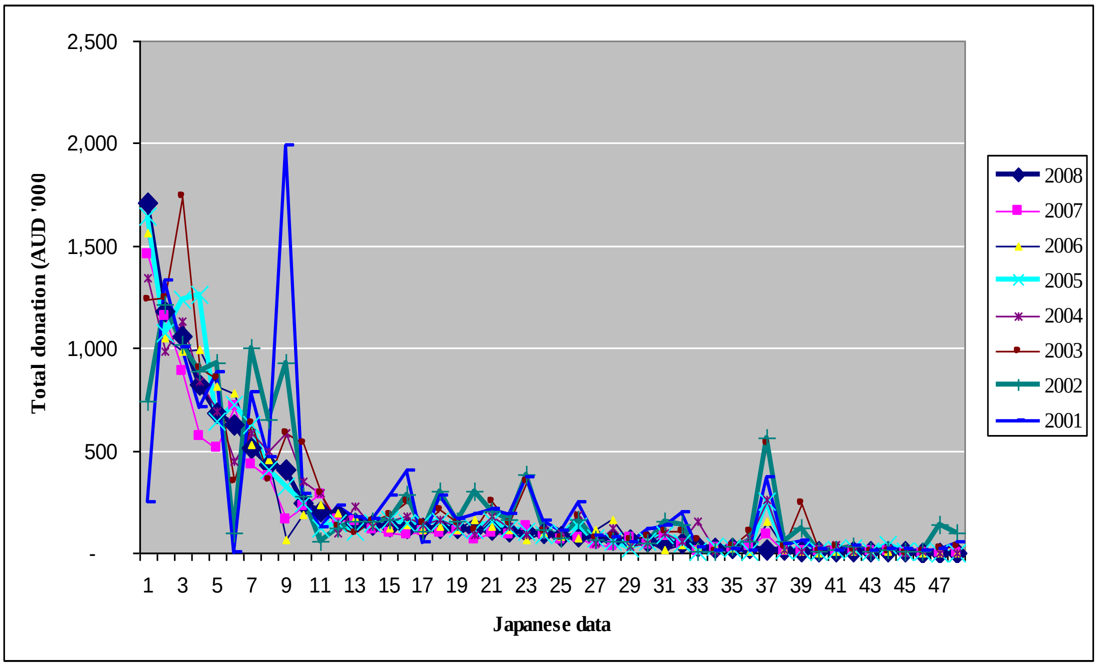
Table 5.3 presents the total donations from the sample of Japanese charitable organisations for the financial years 2001 to 2008 in descending order, by the total donations of the financial year 2008. For comparison, total donations are shown in Australian dollars. The averages from the monthly exchange rates are employed for transferring the currency from yen to Australian dollars, in view of the fact that donations are given over the year from individual donors to Japanese charitable organisations. In contrast to Australia, the financial year in Japan starts on 1st of April and ends on 31st of March. The average exchange rates for twelve months for the eight financial years are therefore employed as standing at 88 in 2008, 99 in 2007, 88 in 2006, 84 in 2005, 79 in 2004, 68 in 2003, 64 in 2002 and 61 yen in 2001 per one Australian dollar.

This table indicates that some charitable organisations showed rapid growth (e.g., No. 1, 7, 15 and 17) and some showed a sharp decline (e.g., Nos 28, 31, 32 and 42) over the four years. However, the majority of Japanese charitable organisations (73%) receive fairly small donations (of less than $300,000 annually) and only two charitable organisations have received more than $1 million. This is vastly different from Australia.

Source: The collected data from 48 Japanese charitable organisations for 8 financial years

Figure 5.6 shows the scatter plots of the total donations in Japanese charitable organisations over the period 2001 to 2008. Compared to the Australian sample data, Japanese charitable organisations indicate more instability in total donations. This instability may be due to smaller size and the differences in period of operation. Japanese NPO corporations have only had official recognition from the Japanese government since 1998, while the date of formation of some of the Australian sample spans more than a century, with an average of 85 years[20] for the sample data.

Figure 5.6: Total donations in Japanese data (A$'000)



Source: The collected data from 48 Japanese charitable organisations for 8 financial years

[20] Many of the large Australian charitable organisations were church sponsored and many were established by Acts of Parliament. They received fixed asset grants in the latter half of last century (Industry Commission, 1995, p. 535).

Table 5.3: Total donations in Japanese data (A$'000)

	J Charities	2008	2007	2006	2005	2004	2003	2002	2001
1	J Seijin	1,710	1,457	1,560	1,641	1,345	1,241	740	241
2	Hunger Free	1,179	1,155	1,053	1,074	989	1,243	1,216	1,326
3	Project Hope	1,058	887	987	1,235	1,130	1,744	1,014	998
4	New Start	822	573	995	1,263	836	906	889	707
5	JPFI 2,3,7	685	515	815	642	691	859	930	877
6	Sougyo Shien	626	718	784	723	444	352	97	1
7	BHN Telecom	510	434	530	624	588	631	1,000	784
8	J Karate	433	372	459	405	500	355	655	466
9	Fuhoutoki	409	163	61	326	584	585	931	1,986
10	Chiiki Kyoryu	243	228	184	243	347	539	278	282
11	Kyukyu Heli	205	282	233	124	293	292	58	124
12	Jutaku Seisan	189	162	195	146	94	132	120	227
13	L Engel_Volun	149	151	175	108	230	102	154	170
14	Yigi	141	117	150	143	133	154	154	162
15	J. Kouryu	133	100	123	161	157	183	164	275
16	Futoko	119	90	136	147	181	250	287	401
17	Kids Energy	119	106	117	144	136	144	105	49
18	Recycle	119	96	129	151	166	213	301	275
19	ZenshiHoken	118	105	113	119	129	147	156	162
20	UN Shien	118	68	159	115	91	118	300	186
21	St John Amb	116	94	129	158	183	250	204	213
22	Kendo	110	94	114	124	130	147	166	184
23	Asia addiction	105	132	61	102	89	351	385	368
24	Bramer	100	88	101	93	112	107	115	153
25	J Toshi	83	61	79	100	100	71	77	105
26	Nippon Soil	78	75	70	127	185	181	160	246
27	Nihon Kenpo	77	38	112	74	49	73	68	84
28	Kyoikushien	64	36	159	57	119	85	61	74
29	JWheel_Dance	63	69	47	28	30	65	54	52
30	Kiko Network	57	38	58	54	50	83	51	112
31	Furusato Club	48	85	13	86	95	108	152	129
32	Corporate Gov.	48	38	43	50	57	103	139	196
33	China_J Play	31	6	31	5	154	66	11	21
34	Tomnet	23	23	30	29	11	12	9	9
35	ChisitsuOsen	22	21	21	23	33	33	35	19
36	Asia Environt	21	29	9	7	76	104	59	7
37	HIV	14	86	157	252	263	538	559	365
38	Kenkokagaku	13	11	14	18	18	30	56	43
39	Sport&Intellige	11	10	11	14	12	245	124	56
40	We Can	10	12	3	5	25	7	12	17
41	AB Free	8	6	9	13	41	30	16	8
42	IHMA Japan	7	4	10	24	5	12	32	33
43	Toyo	7	6	7	9	4	6	7	7
44	J Zaitaku	5	4	6	39	21	12	13	13
45	Aikoku	5	3	6	4	3	2	9	16
46	All_J Kyoiku	3	3	4	5	4	11	5	7
47	Joy Club	1	1	1	1	3	23	137	16
48	J Fukushi	1	1	1	4	4	36	95	51
	Total	10,218	8,851	10,266	11,039	10,939	12,981	12,360	12,302
	Average	213	184	214	230	228	270	258	256
	AUDJYP=	88	99	88	84	79	68	64	61

Source: The collected data from 48 Japanese charitable organisations for 8 financial years

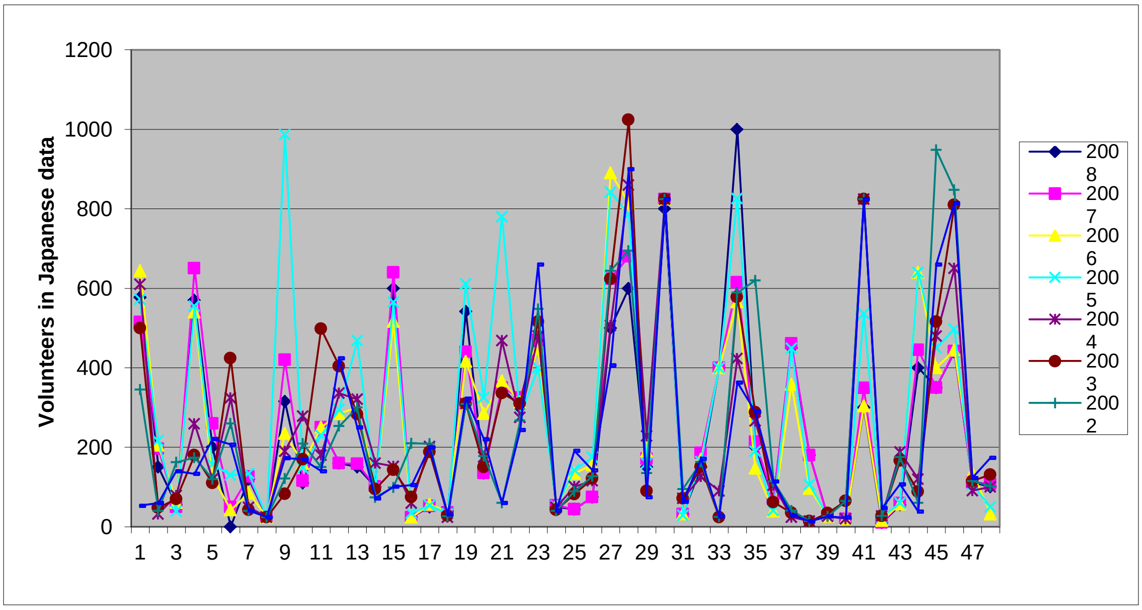
5.4.3.2 Volunteers for Japanese charitable organisations

Table 5.4 presents the number of volunteers from the sample of Japanese charitable organisations for the financial years 2001 to 2008, and the list of charitable organisations are in descending order from the total donations for the financial year of 2008. The number of volunteers is fairly small with less than 500 volunteers annually on average from the sample of Japanese charitable organisations.

Figure 5.7 presents scatter plots of the number of volunteers in Japanese charitable organisations over the four years. It shows that the majority of Japanese charitable organisations in the sample data consist of unstable and one large group of less than 1,000 volunteers.

Most importantly, the number of volunteers is 10 times smaller for Japanese charitable organisations compared to Australian charitable organisations in the sample data. The patterns of scatter plots of the number of volunteers in both sample data are very different.

Figure 5.7: Scatter Plot of the Number of Volunteers



Source: The collected data from 48 Japanese charitable organisations for 8 financial years

Table 5.4: The Number of Volunteers in Japanese charitable organisations

	J Charities	2008	2007	2006	2005	2004	2003	2002	2001
1	J Seijin	1,514	1,585	1,622	1,577	1,564	1,272	710	452
2	Hunger Free	216	174	234	217	269	436	410	371
3	Project Hope	588	534	572	657	738	784	325	293
4	New Start	520	454	525	564	573	600	717	617
5	JPFI 2,3,7	304	140	180	407	381	460	384	432
6	Sougyo Shien	1,221	1,813	1,781	1,304	698	348	132	52
7	BHN Telecom	372	331	371	345	471	646	681	229
8	J Karate	329	265	351	308	322	348	330	411
9	Fuhoutoki	1,335	1,253	1,245	2,187	1,147	1,424	1,712	1,698
10	Chiiki Kyoryu	1,038	880	743	1,125	1,436	1,831	1,480	1,778
11	Kyukyu Heli	191	309	210	189	203	232	42	5
12	Jutaku Seisan	136	115	143	153	193	248	259	300
13	L Engel_Volun	276	248	272	252	310	239	213	122
14	Yigi	248	248	217	309	144	161	165	165
15	J. Kouryu	750	811	584	978	807	766	470	530
16	Futoko	45	43	41	61	83	113	124	171
17	Kids Energy	192	161	202	165	84	181	69	75
18	Recycle	115	123	90	69	89	123	230	43
19	ZenshiHoken	186	155	153	196	211	220	243	244
20	UN Shien	42	17	64	88	111	102	85	152
21	St John Amb	211	170	230	249	162	229	156	173
22	Kendo	89	83	84	74	66	73	91	99
23	Asia addiction	1,101	59	30	24	29	20	32	59
24	Bramer	67	62	63	69	89	100	73	55
25	J Toshi	502	447	498	572	698	722	751	791
26	Nippon Soil	10	7	11	14	34	26	43	69
27	Nihon Kenpo	75	69	72	38	20	24	8	15
28	Kyoikushien	254	97	64	293	321	360	276	623
29	JWheel_Dance	45	51	33	38	158	80	70	85
30	Kiko Network	260	364	110	115	142	166	178	172
31	Furusato Club	187	205	209	171	356	350	288	300
32	Corporate Gov.	386	507	421	454	333	1,963	2,081	10
33	China_J Play	14	13	13	28	63	76	28	25
34	Tomnet	63	15	109	282	172	330	134	0
35	ChisitsuOsen	693	431	899	91	84	130	172	234
36	Asia Environt	138	81	185	37	2	1	1	1
37	HIV	320	202	411	487	453	555	735	771
38	Kenkokagaku	168	172	142	141	47	93	60	17
39	Sport&Intellige	129	105	138	115	179	300	153	105
40	We Can	303	239	370	267	315	109	320	32
41	AB Free	138	118	143	153	131	169	158	120
42	IHMA Japan	8	3	13	6	6	8	28	26
43	Toyo	109	95	111	214	143	372	10	37
44	J Zaitaku	158	111	190	243	211	247	112	146
45	Aikoku	48	976	1,098	826	953	1,059	1,182	1,317
46	All_J Kyoiku	2	1	1	2	3	4	3	3
47	Joy Club	467	357	499	499	468	438	507	613
48	J Fukushi	120	100	127	184	227	178	264	149
	Total	15,684	16,806	17,882	18,840	17,706	20,718	18,697	16,187
	Average	327	308	331	351	327	390	348	296
	AUDJYP=	88	99	88	84	79	68	64	61

Source: The collected data from 48 Japanese charitable organisations for 8 financial years

5.4.4 Groups of charitable organisations

5.4.4.1 Allocation of groups into industry segmentations

Because, Charitable organisations compete with each other for donations, the greatest competition may exist within groups with similar objectives and missions (Frumkin and Kim, 2001). Consequently it is very important to investigate samples within group to find the effectiveness of charitable organisations' competition for donations and to find how the determinants of donations relevant to the accountability of charitable organisations (Castaneda et al., 2007).

As described in previous section, this study uses a modified Cournot oligopoly competition model. Charitable organisations use fundraising expenditures as the principal strategy in their competition for donations. Yet charitable organisations, as oligopolistic groups containing a few large organisations might be considered as 'uncompetitive' (Baumol et al., 1998, p. 659). Conversely the provision of services of some large charities can be as close to perfect competition as any industry in the economy.

The grouping taxonomy used is the International Classification of Nonprofit Organisations (ICNPO). The classification groups of ICNPO are: 1. Culture & Recreation; 2. Education & Research; 3. Health; 4. Social Services; 5. Environment; 6. Development & Housing; 7.Law, advocacy and politics; 8. Philanthropic intermediaries and voluntarism promotion; 9. International; 10. Religion 11. Business and professional associations, unions; 12 not elsewhere classified.

Yamauchi used the classification of four groups: 2. Education and Research; 3. Health Care; 4. Social service; 10 Religion; 11 professional associations, unions (Yamauchi, 2006). This study includes neither unions nor religious societies as charitable organisation and use samples of Australian charities and Japanese NPO Corporations. It may be too broad if this study employs remaining three classifies in the Yamauchi Report, Education and Research, Health Care, and Social service, therefore this study disaggregates his grouping.

The Australian sample of charitable organisation has a variety of objectives and missions and many organisations provide expanded support and services for the wellbeing and welfare. The largest grouping of welfare is disaggregated into three: (i) humanitarian, if it provides emergency services, and (ii) disability, if their services are focused on a group of disabled people, and (iii) welfare group. There are a few organisations that look after animal welfare and these are classified as animal. There is no organisation which specialises in environment or education in the Australian sample.

Consequently this study sees a grouping of Australian charity samples as: 1. Global, focused on international emergency aid; 2. Welfare, focused on national; 3. Humanitarian, focused on national; 4. Disability, focused on national; 5.Animal, focused on national; 6. Culture and Science and not elsewhere classified; 7. Rural and outback based and 8. All combined group.

At first, Japanese charitable organisations follow the classification of the Australian data in order to have consistency in grouping. However, there is no group focusing on animal or rural, and there are very different interest groups in Japanese charitable organisations. Therefore Japanese samples are grouped into: 1. Global;2. Welfare; 3. Humanitarian; 4. Disability; 5. Environment; 6. Education; 7. Culture and not elsewhere classified and 8. Combined group (All)

It is also recognized that the Japanese groupings were unlikely to be useful in oligopolistic groupings due to other factors.

The samples in Australia and Japan are disaggregated into geographical groups. The geographical groupings are based on the addresses of head offices of each organisation, however, their branches may spread out into different states in Australia and prefectures in Japan. Accordingly, the samples in Australia divide into 6 geographic groups: 1. Australian Capital Territory (ACT); 2. Victoria State (Victoria); 3. New South Wales State (NSW); 4. Queensland State (QLD); 5. West Australia State (WA); and 6. South Australia (SA). Also the samples in Japan spread out into 6 different prefectures. However, some prefectures, Saitama, Chiba, Shizuoka, Hyogo and Fukuoka, have the head office of only one charity. One reason for the geographical groupings is to determine whether the competition is based on a specific locality rather than the purpose of the organisation. Therefore this thesis focuses on three geographical groups, Tokyo, Kanagawa and Kyoto as the samples of Japan. Table 5.5 presents 44 Australian charitable organisations and their geographical groups. Figure 5.8 shows their geographic locations on a map of Australia. Table 5.6 presents 48 Japanese charitable organisations and their geographical groups. Figure 5.9 shows their geographic locations on a map of Japan.

Table 5.5: Location of Australian charitable organisations

This table presents location of a head office of sample charitable organisations in Australia

State	Number	Australian Charities
ACT	1	Care Australia
	2	Diabetes Australia
NSW	3	Aglicare NSW
	4	Caritas Australia
	5	Mission Australia
	6	Royal Flying Doctor South Eastern
	7	Royal Institute for Deaf and Blind Children
	8	Royal Rehabilitation Centre Sydney
	9	RSPCA NSW
	10	Salvation Eastern
	11	The Benevolent Society
	12	The Smith Family
	13	The Spastic Centre of NSW
	14	Wesley Mission Sydney
	15	WWF Australia
	16	Zoological Parks and Gardens Board
Queensland	17	Cerebral Palsy League of Queensland
	18	Churches of Christ Care Q
	19	Endeavour Foundation
	20	Silver Chain
	21	Uniting Care Queensland
South Australia	22	Anglicare SA
	23	Minda
Victoria	24	Anglicare Australia
	25	Anglicare Vic.
	26	Annecto (change from WIN service)
	27	Australian Red Cross
	28	Baptist Community Care Victoria
	29	Benetas
	30	Melbourne City mission
	31	Multiple Sclerosis Society of Victoria
	32	Oxfam Australia
	33	Royal Freemasons' Homes of vic.
	34	Salvation South
	35	Scope (Vic)
	36	Southern Cross Care Victoria
	37	St Vincent de Paul Society VIC
	38	Uniting Care Victoria
	39	Villa Maria Society
	40	World vision of Australia
	41	Yooralla Society of Victoria
Western Australia	42	Activ Foundation
	43	Anglican Homes Western Australia
	44	St Vincent de Paul Society WA

Figure 5.8: Location of sample of Australian charitable organisations

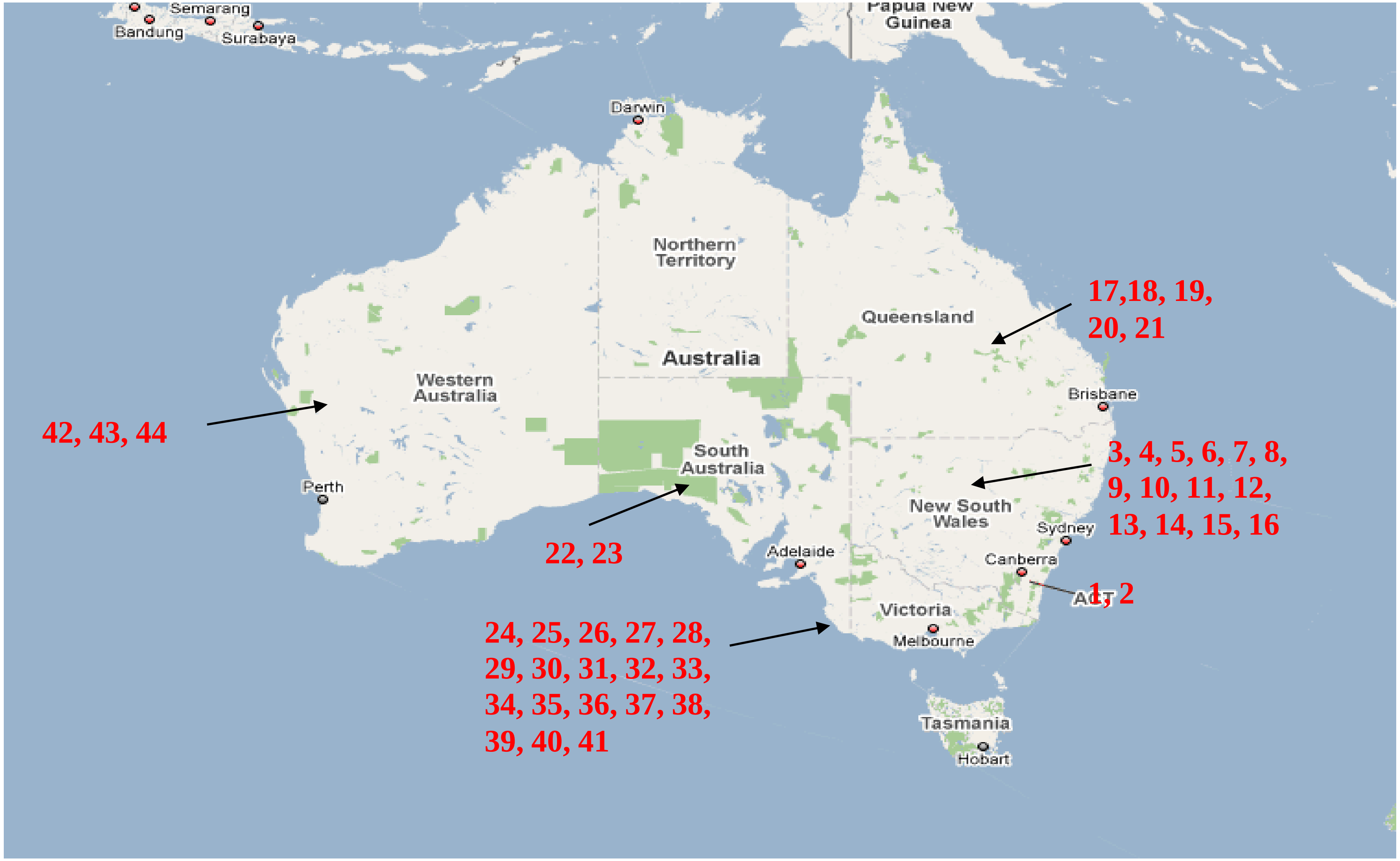


Table 5.6: Locations for Japanese charitable organisations

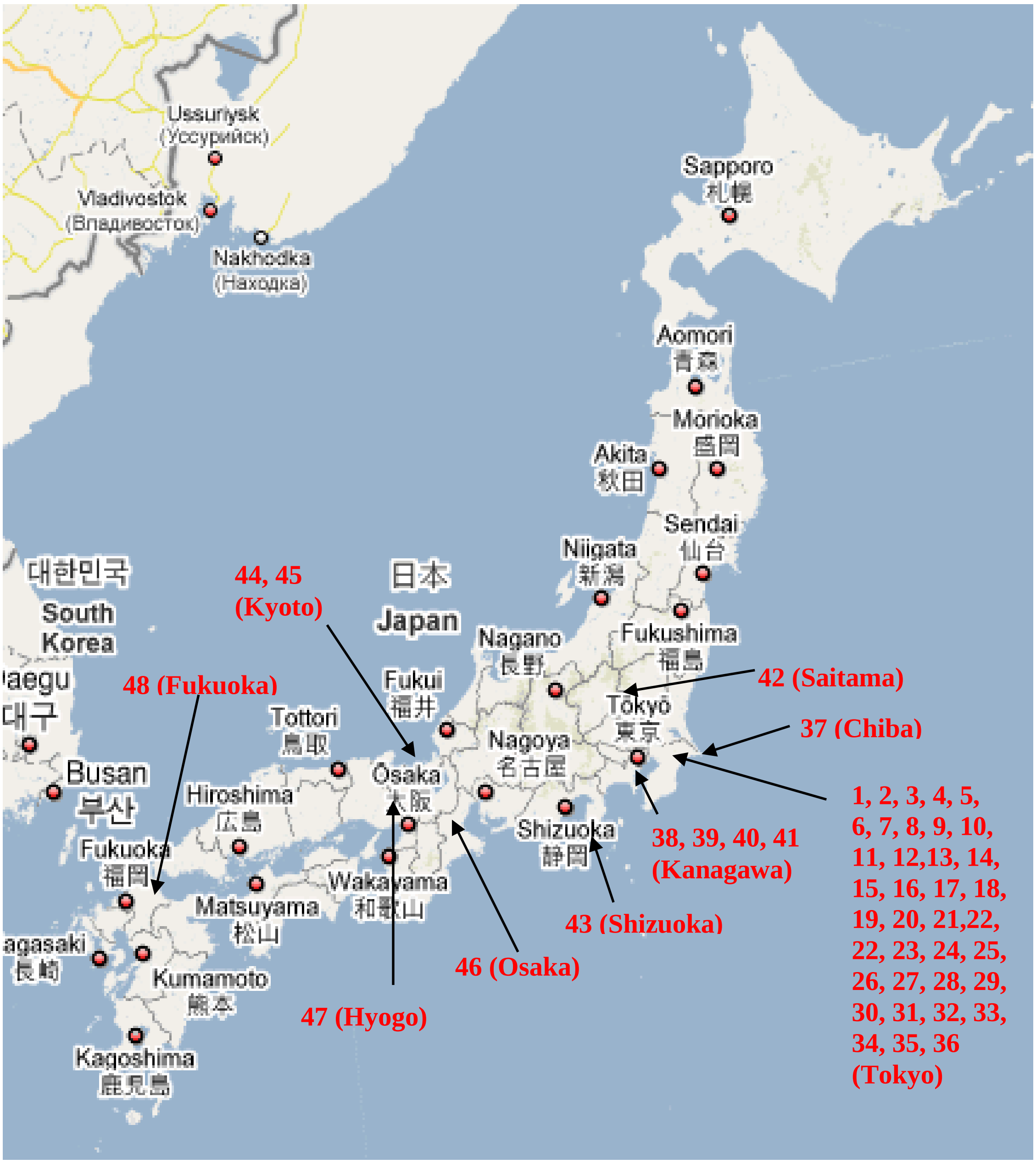
This table presents location of a head office of sample charitable organisations in Japan.

Prefecture	Number	Japanese Charities
Tokyo	1	Aikoku
	2	Asia addiction
	3	Asia Environment
	4	BHN Telecommunication
	5	Bramer Cm/s
	6	Chiiki Kyoryuu Centre
	7	Chisistuosen
	8	Furusato Ourai Club
	9	Futoko
	10	HIV
	11	Hunger Free
	12	IHMA Japan
	13	J Karate
	14	J Seijin
	15	J Toshi
	16	J Zaitaku
	17	J. Wheelchair Dance
	18	JPFI 2,3,4
	19	Jutaku Seisan
	20	Kenkokagaku
	21	Kyoikushien
	22	Kyukyu Heli
	23	Nichu Engeki Koryuu
	24	Nippon Iryo Fukushi
	25	Nippon Ryujojo Kairyo Tsuchi
	26	Project Hope J
	27	RAS Fuhoutoki
	28	Recycle Solution
	29	Sogyo Shien Suishin
	30	Tomnet
	31	Toyo
	32	UN Shien
	33	We Can
	34	Yigi
	35	Zenkoku Kyoiku
	36	Zenshichosonhoken
Chiba	37	New Start
Kanagawa	38	Corporate Governance
	39	Kids Energy
	40	Kokusai Kendo
	41	L Engel International Volunteer

Table 5.6: Locations for Japanese charitable organisations (cont.)

Prefecture	Number	Japanese Charities
Saitama	42	Joy Club
Shizuoka	43	Nihon Kenpo
Kyoto	44	Kiko Network
	45	Saint John Ambulance
Osaka	46	AB Free
Hyogo	47	Sport and Intelligence
Fukuoka	48	J. Kokusai Koryu

Figure 5.9: Location of sample of Japanese Charities



NOTE: The number is associated with number in Table 5.6 and prefectures.

5.4.4.2 The specificity of the Japanese data

This study uses data from NPO Corporations because since 2001 only NPO Corporations require disclosure of financial information among other non-profit organisations in Japan. Most NPO Corporations were established after 1998, at the time of enactment of NPO Corporation Law for Specified Non-profit Activities of 1998. With an average operational time of 10 years, they are not required to have audits. However, no organisation reported zero fundraising or administration costs, this study acknowledge the inadequacy of sample data of Japanese organisations.

The data from the Japanese sample of charitable organisations show a much smaller scale of donations, organisational size, and number of volunteers, and shorter operational time period than the Australian sample, but these are not the only differences from Australian sampled charities.

In Chapter 1, differences in the shares of the various sources of the individual organisation's revenues (private (D), government (G) and commercial activities (I)) were noted and briefly described. Another significant and closely related financial ratio is F/D. This is the ratio of Fund-raising expenditure, F, to the private Donations raised, D. If a charitable organisation is raising funds from the private sector, whether corporate or household, this necessarily involves costs. For it to be worthwhile for those costs to be incurred, it is clear that D must be greater than F. Of course in individual years, there can be miscalculations, changes in macroeconomic circumstances and so on. This means that a loss is made by the charity in these activities. Note that given other sources of revenue this does not mean that the organisation needs to have made a loss on the whole. This is why the ratio F / D is used as opposed to the ratio F/(D+G+I). However, if the Cournot model of oligopoly is to be applied successfully there should almost certainly be a majority of years when $F/D < 1$.

As indicated, in examining the data for both Japan and Australia some distinct patterns was found. The ratio of fundraising expenditure to donations found that some organisations had $F/D>1$ for all years, or for some years for some organisations to be a greater ratio. If the ratio showed greater than one in just a minority of years among eight years of observation, it could arguably be discussed as being due to mistakes in planning of marketing, perhaps too high expectations for raising funds for a few years, or simply an organisation failing to do a good job in raising funds in those years.

The pattern, $F/D < 1$, shows individual years for several of the Australian organisations would not be matter. If, on the other hand, the organisation showed a consistent pattern of greater than one, in the ratio of fundraising expenditures to donations, an alternative explanation would almost certainly be required. In the case of Australia, this is relatively unusual, but there was an increasing tendency for $F/D > 1$ for years following 2004. For some the losses continued after that period, which suggests a change in the fundraising regime. The modelling of this regime change could take considerable resources to identify and isolate, the reason(s) for the regime change, and this lies beyond the scope of this thesis.

Most striking, however, is the fact that Japanese charities consistently show the ratio of fund raising expenditure to donations to be greater than 1. For almost all charities for all of the years for which they were sampled, i.e. $F/D > 1$. Consequently, it is inferred that Japanese charities cannot fit the (Cournot) oligopolistic model for donations competition. Of course, this does not imply that $F/D < 1$ for Australian charities does not mean they will conform to the oligopolistic model when econometrically tested. However, it is necessary to know the reason why Japan is consistently higher in this ratio. Can it represent rational behaviour on the part of Japanese charities? In other words, an alternative explanation is required for charitable organisations in Japan. In addition, if different models are offered for Japan and Australia, it must be reasonable to assume that both explanations fit within their different cultures.

In brief, the reason for the ratio being greater than one falls into two parts. The first is that Japanese organisations rely on commercial activities for revenues, rather than soliciting donations. The second part is that Japanese organisations use these funds within their commercial activities – closer to the more normal form of commercial marketing – rather than for gathering donations. There is, for example, the use of fundraising expenditure (F) for rewarding volunteers (parties, gifts, etc as they remain unpaid). This is especially important in Japan if volunteers are to continue to offer unpaid labour to commercially oriented ventures. Japanese organisations may also include the costs involved in to obtain government grants.

5.4.5 Diagnosis of tests

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.

Tabachnick and Fidell (2001) suggest that the sample size should be larger than the calculation of either (a) $N > 50 + 8m$ for testing multiple correlations, or (b) $N > 104 + m$ for testing the individual predictors (where m = the number of independent variables; this study employs 15 independent variables including 7 factors). Taking into consideration the two criteria for sample size and using 15 independent variables in the calculations, the study established the minimum sample size as comprising 170 observations for testing the multiple correlations and 119 observations for testing the individual predictors. With a sample size of 364 observations (172 for Australia and 192 for Japan), the current study meets the criteria for sample size and demonstrates sufficiency for the descriptive analysis, factor analysis and multiple regression models.

In this study, descriptive statistics on data are first presented, 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).

Pallant (2005) states that the identification of the multivariate outliers in multiple regressions is important, because a multiple regression is very sensitive to outliers. To identify multivariate outliers, Tabachnick and Fidell (2001) suggest that a MD measurement be used to determine a point of leverage, which is described as the distance between each score of the independent variables based on a linear combination. Extreme outliers have the potential to distort the statistical results (Tabachnick and Fidell, 2001). The multivariate outliers are then evaluated from the MD measurement to see if the MD measurement of the residuals in the OLS regression models is in excess of critical $\chi 2$ value (Pallant, 2005).

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).

5.5 Definitions of variables

This section identifies the variables used in the data analysis, factor analysis and ordinary least square (OLS) regression models. Section 5.5.1 explains the dependent and independent variables for the OLS models. All the financial data from Japanese charitable organisations are converted into Australian dollars for comparison purposes. The average of the monthly exchange rates is employed for the currency conversion.

5.5.1 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:

1. Donations are more commonly used in studies of charitable organisations (Trussel and Parsons, 2004).

2. 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).
3. 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, 1990a).

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.

Fundraising expenditures (F): fundraising expenditures are included because 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. Also spending on the fundraising expenditures may provide information or awareness for potential donors of the existence of a charitable organisation (Weisbrod and Dominquez, 1986; Gordon and Khumawala, 1999; Tinkelman, 2004).

Administration Costs (AC): Administrative expenses are operating costs including managerial compensation as well as expenses on other activities related to the administration of the organisation. The effect of competition continues to hold when looking at reported administrative costs. In particular, an increase in competition or the level of informativeness decreases the proportion of donations reported as expenditures including administrative costs. The cross-partial effects are ambiguous (Castaneda et al., 2007). From the previous proposition, the cross-partial effect for expenditures on administration is negative. Thus, the general assumption in the charitable sector is that donors view administrative expenses negatively as an alternation of funds from programme expenses. Hence, it becomes an empirical question to determine the sign of the cross-partial effect of reported expenses on total donations.

Fixed Assets (A): Fixed assets are considered as a representation of the Organisational size, the amount of fixed assets at the end of financial year. Tinkelman (1999) finds that charitable organisations which are smaller in size tend to be more unstable and suffer financial problems (1983; Jensen, 1983). Because charitable organisations operate under a nondistribution constraint of their surplus (Rose-Ackerman, 1996) and no one has a legal claim to the organisation’s earnings (Rose-Ackerman, 1996), effective charitable organisations may, to some extent, have fixed assets, which are sufficient for fundraisers, spending less in order to raise money (Tinkelman, 2002).

Organisational age (Age): organisational age, which is the length of charity operation since its creation, expects to represent the quality of the organisation. Trussel and Parsons (2004, 2008) find that the age of an organisation represents its good reputation and find that this has a positive impact on total donations (see also Weisbrod and Dominquez, 1986; Posnett and Sandler, 1989; Tinkelman, 1999; Parson and Trussel, 2008). Also the charitable organisational age represents “the stock of goodwill or the degree of familiarity” which has a positive effect on total donations (Khanna et al., 1995, p. 263).

The number of volunteers (V): Piliavin and Charng suggest that volunteer labour may allow a measure of altruistic behaviour. Also a number of studies on voluntarism quote altruistic reasons for primary motivations to volunteer (Gidron, 1983; Smith, 1983; Unger, 1991). Some researchers find a correlation between altruistic behaviour and frequency of participation in volunteer activities (Chou, 1998; Bekkers, 2001; Rehberg, 2005). Callen states that, “volunteer labour at the organisational level is crucial for implementing the demand function for donations” (1994, p. 218). She finds a positive correlation between volunteer labour and donations. Similarly, Bekker and Graff (2005) and Gittell and Tebaldi (2006) find that the more people are involved in volunteering the more increase in the total donation in the charity sector. Thus, this study predicts that the number of volunteers influences an increase in total donations.

Government grants (G): Charitable organisations compete for receiving government subsidies which are used for their activities and services in the provision of collective goods (Marcuello and Salas, 2001). Thus, government subsidies to charitable organisations indicate the high quality of organisation, since government provides support only to organisations with good management and operation. Thus information about receipt of government grants is included. Some previous studies find that government grants encourage private donors to donate more 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). For example, the donors may think their donations are less important, which leads them to give to other organisations

(Warr, 1982; Roberts, 1984). In addition, charitable organisations show less intereste in more aggressive fundraising strategies after receiving a government grant (Bergstrom et al., 1986). The thesis assumes that government grants have a significant positive effect on donations as the quality measurement of the charity (Warr, 1982; Roberts, 1984; Kingma, 1989; Andreoni, 1990; Payne, 1998; Khanna and Sandler, 2000). Table 5.7 summarises research variables and definitions.

Table 5.7: 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 CO*i*
$\ln F_j$	The natural logarithm of fundraising expenditures of COi's competitor COj, (Total fundraising expenditures in a group (F) – F_i). This value will vary between groups.
$\ln F_i/\sum \ln F$	The natural logarithm of ratio F_i to all competitors' F. This value will vary between groups.
$\ln F_i/\ln F_j$	The natural logarithm of ratio F_i to competitors' F_j, (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 A_i to all competitors 'A. This value will vary between groups.
$\ln A_i/\ln A_j$	The natural logarithm of ratio A_i to competitor's A_j (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 CO*i*.
$\ln Age_i$	The natural logarithm of number of years since the CO*i* was formally created (operational age).
$\ln G_i$	The natural logarithm of government subsidies/grants to CO*i*.
$\ln AC_i$	The natural logarithm of administrative costs of CO*i*.

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

5.6 Summary

This chapter contains a family of models with 24 equations, and tests nine hypotheses, following the theoretical framework and theoretical modelling in Chapter 4. Outlined is the approach to testing the variables used in this study and the methods of model construction are defined. Finally, the chapter described a family of empirical modelling approaches for seeking consistency of results and accuracy of procedures. Figure 5.2 presents the summary of research topics, research questions and hypotheses with empirical models of the thesis. A family of empirical models, closely related to each other but mutually exclusive with different functional forms and specifications are expected to produce a consistent form to answer research questions.

In the following Chapter 6, the results of the empirical analysis are presented and discussed.

Chapter 6

The results of analysis on preliminary modelling

The results of the empirical analysis of the competition models, using a sample of charitable organisations in Australia and Japan are presented.

Section 6.1 discusses competitive model in the OLS regression with allocation of charitable organisations into similar industry and Section 6.2 provides a descriptive analysis of the variables for the Australian and Japanese samples of charitable organisations. Section 6.3 discusses the preliminary results for the Australian samples, testing hypotheses one (H_1) to four (H_4) using the family models, including sub-models 1 to 24. Section 6.4 presents the preliminary results of testing the family models for Japanese sample of charitable organisations. Section 6.5 summarises and provides a conclusion.

6.1 Competitive models in OLS regression, with allocation of charitable organisations into similar industry groups

This section presents the results of the tested hypotheses using the models developed in Chapter 5. A sample of charitable organisations in Australia is grouped into eight groups. These are:

1. <u>All</u> — all organisations combined (352 observations, 8 years of 44 organisations)
2. <u>Welfare</u> (119)
3. <u>Humanitarian</u> (42)
4. <u>Global</u> (35)
5 <u>Disability</u> (84)
6. <u>Animal</u> (21)
7. <u>Science</u> (and <u>Culture</u>) (28)
8. <u>Rural</u> (49).

Note that in this chapter all of the groups are underlined to allow easier recognition of specific groups when discussed.

As in Chapter 5, there are no animal or rural groups but culture and environment groups for the sample of Japanese charitable organisations. However, most of the groupings follow the Australian samples, including

1. All (384) (8 years of 48 organisations)
2. Welfare (72),
3. Humanitarian (40)
4. Global (72)
5. Disability (32)
6. Culture (and Science) (72)
7. Education (56) and
8. Environment (48).

The purpose of the grouping is to allow competition effects from competitor charities, different organisations with similar missions and objectives. The research structure, research questions and the linked families of models for testing the hypotheses of the thesis were presented in the Chapter 5 (see Figure 5.2).

6.2 Descriptive statistics

Descriptive analysis is conducted in both raw and logarithm form. The sample contains 352 observations (years) of 44 charitable organisations in Australia and 384 observations (years) of 48 charitable organisations in Japan.

6.2.1 Descriptive analysis for Australian and Japanese data

Table 6.1 lists the sample means, maximum, minimum, standard deviations (std.) and Jarque-Bera statistic (JB) for selection data from 44 Australian an irregular charitable organisations for the period of 2001 to 2008. This yields pooled cross-section-time-series of 352 observation-years of Australian samples and 384 observation-years of Japanese smaples. 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 expenditure (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 et al., 2007) is that they employed the fundraising competition index variables and the annected 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 expenditure 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). These values are not different form 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. As seen in Table 6.1, 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 6.1: Descriptive analysis for Australian data

	Mean	Maximum	Minimum	Std. Dev.	Jarque-Bera
D_i (AUD000)	20,790	321,962	50	47822	7291
F_i (AUD000)	6,267	191,062	38	14923	122580
F_j(AUD000)	269,016	433,508	162,822	73430	74
A_i (AUD000)	79,058	676,169	4	116018	2134
A_j (AUD000)	3,318,155	3,696,164	2,465,530	229946	5
G_i (AUD000)	137,792	8,347,453	36	811775	103604
AC_i(AUD000)	36,359	1,132,087	68	84789	118671
V_i	3,504	33,510	86	6946	1227
Age_i	82	196	4	50	25
lnD	8.526	12.682	3.902	1.779	1.263
lnFi	7.754	12.160	3.638	1.387	6.177
lnFj	12.470	12.980	12.000	0.249	35.352
lnFi/lnF	0.014	0.022	0.007	0.003	7.210
lnFi/lnFj	0.014	0.023	0.007	0.003	7.037
lnAi	10.233	13.424	1.386	1.926	271.721
lnAi/lnA	0.015	0.020	0.002	0.003	273.691
lnAi/lnAj	0.016	0.021	0.002	0.003	260.319
lnG_i	10.024	15.937	3.584	1.703	197.700
lnACi	9.422	13.940	4.223	1.655	17.163
lnV_i	7.104	10.420	4.454	1.315	33.012
$lnAge_i$	4.241	5.278	1.609	0.733	78.707

Note: 1. This table summarises the sampling properties of Australian charitable organisations data in raw and logarithm form for the period of 2001-2008; 2. 352 observations (years); 3. i = charitable organisation (CO), j = a competitor COs of COi; 4. D_i (lnD_i) = total donation, D, (natural log), a dependent variable; F_i (lnF_i) = fundraising expenditure, F, (natural log) for a year; F_j (lnF_j) = fundraising expenditure; F, (natural log) of competitor CO for a year; lnF_i/lnF (lnF_i/lnF_j) = natural log of ratio of F_i to all competitors F (Fj); A_i (lnA_i) = fixed assets; A, (natural log) of COi for a year (a proxy of size); lnA_i/lnA (lnA_i / lnA_j) = natural log of ratio of Ai to all competitors A (Aj); V (lnV) = volunteers for a year (natural log); AGE (lnAge) = the number of operational years (natural log); G (lnG) = total government grants to COi for a year (natural log); AC (lnAC)= administrative costs of COi for a year (natural log).

The financial data consists of a sample of charitable organisations based in Japan. The descriptive analysis is conducted in both raw and the logarithm form. The sample contains 384 observations (years) for 48 charitable organisations in Japan.

Table 6.2 lists sample means, maximum, minimum, standard deviations and Jarque-Bera for selection data for the period 2001 to 2008. All monetary values are presented in Australian dollars at an exchange rate of JPY80 for AUD 1.

Table 6.2: Descriptive analysis for Japanese data

	Mean	Maximum	Minimum	Std. Dev.	Jarque-Bera
D_i (AUD000)	223	1,710	1	27047	1021
F_i (AUD000)	38	661	0	5279	12640
F_j (AUD000)	1,775	2,100	1,231	16068	15
A_i (AUD000)	128	1,608	0	18024	2871
A_j (AUD000)	6,050	7,138	3,313	65529	40
G_i (AUD000)	41	1,150	-	10940	11327
AC_i (AUD000)	223	1,488	1	20339	696
V_i	443	8910	10	934	25956
Age_i	7	73	1	10	17353
lnD_i	8.759	11.919	3.807	1.662	12.616
lnF_i	14.011	17.783	9.259	1.417	4.505
lnFj	18.766	18.938	18.405	0.117	22.725
lnF_i/lnF	0.016	0.020	0.010	0.002	4.055
$lnF_i/lnFj$	0.016	0.020	0.011	0.002	3.676
lnA_i	14.956	18.673	9.490	1.729	12.297
lnAj	19.987	20.163	19.394	0.147	96.045
lnA_i/lnA	0.016	0.019	0.010	0.002	12.302
$lnA_i/lnAj$	0.016	0.020	0.010	0.002	11.636
lnG_i	1.730	11.430	0.000	3.584	192.321
$lnAC_i$	16.066	18.596	11.278	1.270	46.449
lnV_i	5.165	9.095	2.303	1.326	4.770
$lnAge_i$	1.786	4.304	0.693	0.612	381.147

Note: 1. This table summarises the sampling properties of Australian charitable organisations data in raw and logarithm form for the period of 2001-2008; 2. 352 observations-years;
3. i = charitable organisation (CO), j = a competitor COs of COi
4. D_i (lnD_i) = total donation, D, (with natural log), a dependent variable; F_i (lnF_i) = fundraising expenditure, F, (with natural log) for a year; F_j (lnF_j) = fundraising expenditure; F, (with natural log) of competitor CO for a year; lnF_i/lnF (lnF_i/lnF_j) = natural log of ratio of F_i to all competitors F (Fj); A_i (lnA_i) = fixed assets; A, (with natural log) of COi for a year (a proxy of size); lnA_i/lnA (lnA_i / lnA_j) = natural log of ratio of Ai to all competitors A (Aj); V (lnV) = the number of volunteers for a year (with natural log); AGE (lnAge) = the number of operational years (with natural log); G (lnG) = total government grants to COi for a year (with natural log); AC (lnAC)= administrative costs of COi for a year (with natural log) and 1AUD = 80 JYP.

6.2.2 Correlation analysis

The matrices of the correlation between the variables for the Australian variables are shown in Table 6.3. Donations D_i, is statistically significant and positively related to fundraising expenditure, F_i, but not surprisingly insignificant and negatively related to fundraising expenditure of competitors, F_j. In addition, D_i, is not statistically significant but positively related to the size of charitable organisation, $A_{i.}$ D_i, is also statistically significant and positively related to volunteers, V_i, as expected, and consistent with previous studies. D_i, is statistically insignificant and negatively related to the organisational age, Age_i. D_i, is statistically insignificant but positively related to the government grants, G_i, to organisations and organisational administrative costs, AC_i. This indicates government grants, G_i, may have a very little influence on donations, as with administrative costs, AC_i, spending on appropriate amounts for staff may have little impact on donations.

The natural log of total donations, lnD_i, is statistically significant and positively related to the natural log of fundraising expenditure, lnF. lnD_i, is also statistically significant and positively related to the natural log of the ratio of fundraising expenditure of charity i (F_i) to competitors' fundraising expenditure (F or F_j), lnF_i/lnF or lnF_i/lnF_j, is found to have statistically similar significance and a positive relation. lnD_i, is statistically significant and positively related to the natural log of volunteers, lnV_i, is the highest correction among other variables. lnD_i, is not statistically significant but positively related to the natural log of organisational age, $lnAge_i$, and the natural log of government grants, lnG_i, while with the natural log of administrative costs, $lnAC_i$, has insignificant and very weak correlation.

Fundraising expenditure, F_i, is statistically significant and positively related to organisational size, Ai, the number of volunteers, V_i, and administrative costs, AC_i. However, the natural logarithm of fundraising expenditure, lnF_i, has a positive and statistically very significant correlation to the natural logarithm of ratio of F_i to competitors' F or F_j, lnF_i/lnF and lnF_i/lnF_j, concerning autocorrelation.

The correlation matrices for the Australia variables are presented in Table 6.3. Overall, the correlation analyses show that the correlation between the natural logarithm of total donations and other log variables are mostly positive. The exceptions are Age and competitor oranisations' fundraising expenditure.

Table 6.3: Correlation Matrix for Australian data

	D_i	F_i	F_j	A_i	V_i	Age_i	G_i	AC_i	lnD	lnFi	lnFj	lnFi/lnF	lnFi/lnFj
D_i	1.000												
F_i	0.281**	1.000											
F_j	-0.010	-0.089	1.000										
A_i	0.115*	0.295**	-0.084	1.000									
V_i	0.349**	0.340**	-0.046	0.452**	1.000								
Age_i	-0.111*	0.080	0.001	0.290**	0.086	1.000							
G_i	0.003	0.024	-0.034	0.411**	0.037	-0.022	1.000						
AC_i	0.068	0.666**	-0.060	0.525**	0.237	0.113*	0.480	1.000					
lnD	0.641**	0.317**	-0.038	0.199**	0.491**	0.042	0.050	0.153**	1.000				
lnFi	0.358**	0.608**	-0.041	0.386**	0.351**	0.201**	0.091	0.369**	0.468**	1.000			
lnFj	-0.014	-0.098	0.992**	-0.089	-0.049	-0.002	-0.037	-0.064	-0.049	-0.055	1.000		
lnFi/lnF	0.350**	0.612**	-0.044	0.388**	0.348**	0.201**	0.096	0.370**	0.462**	0.998**	-0.060	1.000	
lnFi/lnFj	0.351**	0.614**	-0.045	0.389**	0.350**	0.201**	0.096	0.372**	0.463**	0.998**	-0.060	1.000	1.000
lnAi	0.033	0.203**	-0.019	0.621**	0.147**	0.462**	0.140**	0.322**	0.035	0.443**	-0.024	0.442**	0.441**
lnAi/lnA	0.036	0.205**	-0.028	0.621**	0.144**	0.459**	0.144**	0.322**	0.033	0.440**	-0.035	0.442**	0.441**
lnAi/lnAj	0.036	0.206**	-0.029	0.624**	0.146**	0.460**	0.146**	0.323**	0.033	0.440**	-0.036	0.442**	0.441**
lnV_i	0.440**	0.352**	-0.049	0.353**	0.817**	0.076	0.083	0.220**	0.616**	0.393**	-0.056	0.389**	0.390**
$lnAge_i$	-0.050	0.083	-0.001	0.253**	0.192**	0.847**	0.016	0.116*	0.121*	0.132**	-0.003	0.131**	0.131**
lnG_i	0.165**	0.140**	0.066	0.429**	0.286**	0.086	0.426**	0.375**	0.151**	0.295**	0.069	0.293**	0.293**
lnACi	0.076	0.291**	0.012	0.500**	0.119*	0.204**	0.197**	0.529**	0.059	0.527**	0.007	0.523**	0.522**

Note: 1. sample size = 352; 2. i = charitable organisation (CO), j = a competitor COs; 3. D_i (lnD_i) = total donation, D, (with natural log), a dependent variable; F_i (lnF_i) = fundraising expenditure (natural log); F_j (lnF_j) = fundraising expenditure of competitor j (natural log); lnF_i/lnF (lnF_i/lnF_j) = natural log of ratio of F_i to all competitors F (Fj);A_i (lnA_i) = fixed assets, A, (natural log) of i (a proxy of size); lnA_i/lnA (lnA_i / lnA_j) = natural log ratio of Ai to all competitors A (Aj); V (lnV) = the number of volunteers (natural log);Age (lnAge) = the number of operational age (natural log); G (lnG) = total government grants (natural log); AC (lnAC)= administrative costs (natural log); *, ** Correlation is significant at the 5% and 1% level, respectively (2-tailed).

Table 6.3 (cont.): Correlation Matrix for Australian data

	lnAi	lnAi/lnA	lnAi/lnAj	lnV_i	$lnAge_i$	lnG_i	lnACi
lnAi	1.000						
lnAi/lnA	0.999**	1.000					
lnAi/lnAj	0.999**	1.000	1.000				
lnV_i	0.013	0.011	0.013	1.000			
$lnAge_i$	0.286**	0.283**	0.285**	0.144**	1.000		
lnG_i	0.246**	0.242**	0.243**	0.157**	0.186**	1.000	
lnACi	0.664**	0.660**	0.661**	0.030	0.132**	0.483**	1.000

Note: 1. sample size = 352; 2. i = charitable organisation (CO), j = a competitor COs;
3. D_i (lnD_i) = total donation, D, (natural log), a dependent variable; F_i (lnF_i) = fundraising expenditure of COi (natural log); F_j (lnF_j) = fundraising expenditure of competitor COj (natural log); lnF_i/lnF (lnF_i/lnF_j) = natural log of ratio of F_i to all competitors F (Fj);A_i (lnA_i) = fixed assets, A, (natural log) of COi (a proxy of size); lnA_i/lnA (lnA_i / lnA_j) = natural log of ratio of Ai to all competitors A (Aj);V (lnV) = the number of volunteers (natural log);
Age (lnAge) = the number of operational age (natural log);G (lnG) = total government grants to COi (natural log); AC (lnAC)= administrative costs of COi (natural log);
*, ** Correlation is significant at the 5% and 1% level, respectively (2-tailed).

Table 6.4 presents the correlation matrices for Japanese data which shows the coefficient of correlation is significantly different from zero.

Overall, the correlation analyses for Japanese data show that the correlation between the natural logarithm of total donations and other logarithm of variables are mostly positively correlated. The exceptions are Age and Competitors’ fundraising expenditure. This is consistent with Australian data. The correlation analyses for Australian data show that the correlations between donations and the number of volunteers are significantly positive in both the raw form and natural logs, whereas Japanese volunteers are only insignificantly negatively correlated with donations in raw form and positive but are insignificant in the natural log form.

Table 6.4: Pearson Correlations Matrix of Japanese sample data

	Di	Fi	FJ	Ai	G	AC	V	Age	lnD	lnFi	lnFj	lnFi/lnF	lnFi/lnFj
Di	1.000												
Fi	0.256**	1.000											
FJ	-0.029	-0.264**	1.000										
Ai	0.233**	-0.007	0.043	1.000									
G	0.203**	0.261**	-0.012	0.016	1.000								
AC	0.538**	0.198**	0.027	0.280**	0.452**	1.000							
V	-0.014	0.000	0.025	-0.057	0.089	0.011	1.000						
Age	-0.062	-0.067	0.084	-0.072	-0.003	-0.059	-0.054	1.000					
lnD	0.726**	0.302**	-0.053	0.103*	0.193**	0.419**	0.020	-0.011	1.000				
lnFi	0.380**	0.695**	-0.131**	0.052	0.261**	0.341**	-0.030	-0.009	0.517	1.000			
lnFj	-0.027	-0.272**	0.998**	0.042	-0.008	0.034	0.025	0.088	-0.052	-0.132**	1.000		
lnFi/lnF	0.378**	0.693**	-0.186**	0.050	0.258**	0.337**	-0.032	-0.013	0.517**	0.998**	-0.187**	1.000	
lnFi/lnFj	0.378**	0.695**	-0.185**	0.050	0.258**	0.337**	-0.031	-0.013	0.516**	0.998**	-0.186**	1.000	1.000
lnAi	0.333**	0.083	0.065	0.609**	0.088	0.359**	0.010	-0.052	0.342**	0.235**	0.065	0.231**	0.231**
lnAi/lnA	0.332**	0.080	0.014	0.608**	0.084	0.355**	0.009	-0.056	0.341**	0.231**	0.015	0.230**	0.230**
lnAi/lnAj	0.333**	0.080	0.014	0.609**	0.085	0.355**	0.009	-0.056	0.341**	0.231**	0.015	0.230**	0.229**
lnG	0.197**	0.201**	0.017	-0.075	0.720**	0.210**	0.111	0.016	0.149**	0.177**	0.021	0.172	0.173**
lnAC	0.452**	0.221**	0.008	0.297**	0.236**	0.784**	-0.043	-0.039	0.484**	0.478**	0.014	0.475	0.475**
lnV	0.058	0.068	0.015	0.062	0.168**	0.116*	0.671**	-0.129	0.056	-0.016	0.016	-0.019	-0.018
lnAge	-0.029	-0.020	0.386**	-0.021	0.072	0.039**	-0.005	0.819**	-0.021	0.058	0.404**	0.035	0.035

Note: 1. This table summarises the sampling properties of Australian charitable organisations data in raw and logarithm form for the period of 2001-2008; 2. 352 observations-years; 3. i = charitable organisation (CO), j = a competitor COs of COi;4. D_i (lnD_i) = total donation, D, (with natural log), a dependent variable; F_i (lnF_i) = fundraising expenditure, F, (with natural log) for a year; F_j (lnF_j) = fundraising expenditure; F, (with natural log) of competitor CO for a year; lnF_i/lnF (lnF_i/lnF_j) = natural log of ratio of F_i to all competitors F (Fj); A_i (lnA_i) = fixed assets; A, (with natural log) of COi for a year (a proxy of size); lnA_i/lnA (lnA_i / lnA_j) = natural log of ratio of Ai to all competitors A (Aj); V (lnV) = the number of volunteers for a year (with natural log); AGE (lnAge) = the number of operational years (with natural log); G (lnG) = total government grants to COi for a year (with natural log); AC (lnAC)= administrative costs of COi for a year (with natural log) and 1AUD = 80 JYP; *, ** Correlation is significant at the 5% and 1% level, respectively (2-tailed).

Table 6.4 (cont.): Pearson Correlations Matrix of Japanese sample data

lnFi/lnFj	lnAi	lnAj	lnAi/lnA	lnAi/lnAj	lnG	lnAC	lnV	lnAge
lnAi	1.000							
lnAj	-0.083	1.000						
lnAi/lnA	0.998**	-0.141**	1.000					
lnAi/lnAj	0.998**	-0.142**	1.000	1.000				
lnG	-0.054	0.099	-0.059	-0.059	1.000			
lnAC	0.428**	0.007	0.425	0.425**	0.074	1.000		
lnV	0.095	0.014	0.093	0.093	0.213**	0.042	1.000	
lnAge	-0.007	0.378**	-0.029	-0.029	0.105*	0.022	-0.056	1.000

Note: 1. This table summarises the sampling properties of Australian charitable organisations data in raw and logarithm form for the period of 2001-2008; 2. 352 observations-years;
3. i = charitable organisation (CO), j = a competitor COs of COi; 4. D_i (lnD_i) = total donation, D, (with natural log), a dependent variable; F_i (lnF_i) = fundraising expenditure; F, (with natural log) for a year; F_j (lnF_j) = fundraising expenditure; F, (with natural log) of competitor CO for a year; lnF_i/lnF (lnF_i/lnF_j) = natural log of ratio of F_i to all competitors F (Fj); A_i (lnA_i) = fixed assets; A, (with natural log) of COi for a year (a proxy of size); lnA_i/lnA (lnA_i / lnA_j) = natural log of ratio of Ai to all competitors A (Aj); V (lnV) = the number of volunteers for a year (with natural log); AGE (lnAge) = the number of operational years (with natural log);
G (lnG) = total government grants to COi for a year (with natural log);
AC (lnAC)= administrative costs of COi for a year (with natural log) and 1AUD = 80 JYP
*, ** Correlation is significant at the 5% and 1% level, respectively (2-tailed).

6.2.3 Normality, outlier and heteroscedasticity test

The assumption of normal distribution of data needs to be considered for regression analysis. The normal distribution of data was assessed by graphical and statistical methods of skewness and kurtosis to calculate the Jarque-Bera statistic, which are presented in Table 6.1.

The assumption of non-bias of results is also examined. Since this study aims to test the hypotheses using continuous variables for the eight years on ordinary least squares (OLS) of multiple regression models, and these models were based on the assumption of no misspecification of variables in the regression models and no distortion of the statistical results (Gujarati, 1995, 1999), it would seem necessary to test outliers of data and the error term of regression models. This entailed use of the heteroscedasticity test.

Lastly, the univariate outliers were examined graphically from the scatter plot and histogram. Some variables were found to have minor univariate outliers from the statistic results, with standardized scores of slightly over 3.29 (Tabachnick and Fidell, 2001). However, there was no significant effect from these outliers (Tabachnick and Fidell, 2001), given that the excess was only slightly over 3.29 with adequate size of sample[21] (Tabachnick and Fidell, 2001; Meyers et al., 2006). With a sample size of 352 observations (years), there was no significant effect from univariate outliers on the results of analysis and no impact of departure from zero skewness, and there was reduced risk of underestimating the variance in existence of a significant level of kurtosis (Tabachnick and Fidell, 2001). However the fact that the full set of data is not used in groups could have important impacts in terms of outliers skewness, etc. Pallant (2005) states that identification of multivariate outliers in multiple regressions is important because a multiple regression is highly sensitive to outliers; extreme outliers have the potential to significantly distort statistical results (Tabachnick and Fidell, 2001).

6.3 Preliminary results for Australian data

6.3.1 Competition model 1

6.3.1.1 Major family of competition model 1

The results of the regression analysis of Model 1 are in Table 6.5. Model 1 combines lagged and unlagged independent variables as determining donation. As discussed earlier, fundraising expenditure are the cost for fundraising activities for raising donations, therefore fundraising expenditure are expected to have a direct effect on current collection of donations. Other independent variables take longer to have an affect on the current donation, so Model 1 employs fundraising expenditure of the current year whereas other independent variables use information from the previous year.

The empirical models are developed using the natural logarithm of total donation (lnD_i) as a dependent variables and independent variables are also the natural logarithm (lnF_i, lnF_j, lnF_i/lnF, lnA_i, lnA_i/lnA, lnAge and lnV). Consequently, the estimation results will be consistent and can potentially show diminishing marginal effects from the presumed underlying relationship between the dependent and the independent variables (Marcuello and Salas, 2001). Model 1 is as follows:

[21] Tabachnick and Fidell,(2001) stated that with a sample size of >100 there was no impact of departure of zero skewness or no risk of underestimating the variance with the existence of kurtosis; Meyers, Gamst, and Gurino (2006, p 467) also defined the adequacy of good sample size as more than 300.

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \varepsilon \quad (1)$$

where: i indicates the charitable organisation;
j indicates competing charitable organisations; t indicates the year;
D is donations;
F is fundraising expenditure;
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 results of the parameter estimation of a log-log model are interpretable as elasticities; 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.

In Table 6.5 estimation results for each industry group and the coefficients of independent variables for each industry group are presented. As shown at the bottom of Table 6.5, the R^2 and adjusted R^2, of the models for the donations in combined lagged and unlagged independent variables in the All Groups group (All) are 0.455 and 0.442. Mose importantly, as hypothesised the explanatory power of regression models of each industry group is much higher than that of an aggregate of all data. This is an enormously encouraging result, consistent with the hypothesis of competition of like charities, and this is despite the greater sample size of the All group. In essence these results indicate that donors see "like" charities as supplying substitute services to recipients. As shown in Table 6.5, the Animal Group is the highest in the R^2at 0.838 (adjusted $R^{2,}$ at 0.751). This is followed by Global with R^2 at 0.832 (adjusted R^2 at 0.789.), Rural at 0.785 (0.740), Humanitarian at 0.711 (0.684), Science at 0.639 (0.512), Disability at 0.610 (0.574), and Welfare at 0.570 (0.543). Overall, the explanatory power of the first model is more than 0.50 in each a priori specified charity group.

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 6.5 in the first column, $\ln F_i$ is shown as positive elasticity in most of the groups, as expected, except Rural. Thus, the coefficients of fundraising expenditure 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 grops.

The regression coefficient on the ratio of lnFi to all competitors, $\ln Fi/\sum \ln F$, 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 expenditure 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 (lnAi) 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 chariable organisations has a positive impact and encourages donors to donate more in the groups of Welfare, Animal and Disability.

The coefficients on Volunteers (lnV) 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 (lnAge) 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 orgnisaitons, 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 6.6 presents the results of Model 1_J. As explained in Chapter 5, Model 1_J, is a sub-family of Model 1; a modification of Model 1 using the value of competing charities *j* as a denominator in the ratios of fundraising expenditure and fixed assets, representing as $\ln F_i$ / $\sum \ln F_j$ and $\ln A_i$ / $\sum \ln A_j$, respectively. Instead of using all competitors, *F* and *A* as denominators in each ratio, these are calculated from all competitors minus F_j and A_j, respectively as $[F_i/F_j = F_i/(\sum F - F_i)]$ or $[A_i/A_j = A_i/(\sum A - A_i)]$. In smaller of group this may have impacts on the ratio, consequently the results of the coefficients on the ratios may differ to those of Model 1. Model 1_J of tested Equation (2) is :

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \varepsilon \quad (2)$$

Apar from the fundraising ratio the variable are as in Model 1.

As shown in Table 6.6, the R^2 (adjusted R^2) are consistent with that of Model 1 in percentage and in the order of explanatory power. Overall, the explanatory power of the second model is mostly higher than 0.5 except in the All industry group. Animal is shown to be the highest in R^2at 0.844 (adjusted $R^{2,}$ at 0.760), followed by Global (R^2 at 0.833 and adjusted R^2 at 0.789), Rural (0.785 and 0.740), Humanitarian (0.714 and 0.688), Science and Culture (0.652 and 0.531), Disability (0.595 and 0.558), Welfare (0.571 and 0.544) and the lowest is All (0.455 and 0.442). Those results are consistent with Model 1.

In Table 6.6, in the second column, $\ln F_i$ shows a positive elasticity in the most of groups except the Animal group, whereas that of Rural was only negative in Model 1. The coefficients on $\ln F_i$ are shown as ranging between -0.011 and 10.677 and that is positive and significant in the Global, Disability and Science group, where ranges indicate similarity to the results of Model 1. Hypothesis 1 is tested as: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in most of the groups; All, Welfare, Humanitarian, Global, Disability, Science and Rural groups, whereas the Null Hypothesis is not rejected in the Animal group.

The coefficients of competitors' fundraising expenditure, $\ln F_j$, are similar to the results from Model 1, negative but significant in the Global, Disability and Science groups and negative and insignificant in the Rural group, while the coefficients are positive and significant in the Humanitarian group and positive but insignificant in the All, Welfare and Animal groups. Those results are consistent with Model 1 except Rural, which has the opposite sign. Hypothesis 2 is tested: H_0: $F_j \geq 0$ and H_1: $F_j < 0$. The Null Hypothesis is rejected in the Global, Disability, Science and Rural groups, while the Null Hypothesis is not rejected in the All, Welfare, Humanitarian, and Animal groups.

Again in Table 6.6, the coefficient of the ratio of F_i to competitors, $\ln F_i$ / $\sum \ln F_j$, is positive and significant in the Humanitarian group, and positive but insignificant in the All Welfare and Animal, while those in the Global, Disability and Science are statistically significant but negative, and negative and insignificant in the Rural group, which show similaritly with the results of Model 1. As we hypothesised in Chapter 5, Hypothesis 3 is tested: H_0: $F_i/F_j \leq 0$ and H_1: $F_i/F_j > 0$. The Null Hypothesis is rejected in the All, Humanitarian and Animal groups, whereas the Null Hypothesis is not rejected in the Welfare, Global, Disability, Science and Rural groups.

The results indicate the effectiveness of fundraising activities of organisations, and these have positive impact on the level of total donations in most groups, except Animal group. In addition competitors' fundraising activities have a negative impact on the level of total donations in the Global, Disability and Science, while the competitors activities appear not have any significant impact on the Welfare, Humanitarian, Animal and Rural groups.

As shown in Table 6.6, the coefficients of organisational size ($\ln A_i$) are positive in four groups, Welfare, Disability, Animal and Science, whereas they are negative but significant in the Humanitarian and Rural groups, and negative in the All and Global groups. As developed in Chapter 5, Hypothesis 4 is tested as follows: 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 organisational size to competitors' size is significantly positive in the Humanitarian industry and positive in the All, Global, and Rural groups, while that of Animal is shown negative but significant in the Animal and negative and insignificant in the Welfare, Disability, and Science groups. Hypothesis 5 is tested as: H_0: A_i /$A_j \leq 0$ and H_1: A_i / $A_j > 0$. The Null Hypothesis is rejected in the All, Humanitarian, Global, and Rural groups, whereas the Null Hypothesis is not rejected in the Welfare, Disability, Animal and, Science and Culture groups.

These results indicate that the organisational size affects the collection of donations in the following year in the Welfare, Disability, Animal and Science, while those of the All, Humanitarian, Global and Rural are otherwise.

The coefficient on Volunteers (lnV) has statistically significant and positive elasticities in the All, Welfare, Humanitarian, Disability and Rural and has positive elasticities in Global, and Science and Culture groups. It is negative but statistically significant elasticity for the Animal group. These results are again consistent with Model 1. Volunteers in most groups influence positively to raise total donations in the following year as we expected, but it is not so in the Animal group. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Disability, Rural groups, while the Null Hypothesis is not rejected in the Animal group.

Organisational age may increase donor awareness and/or trust or it may be that age indicates organisational ability through experience. The coefficient on organisational Age (lnAge) is statistically significant and has positive elasticity in the Disability group and positive in the All, Animal, and Science and Culture groups, whereas negative but statistically significant in the Humanitarian, Global and Rural, with negative and insiginificant elasticity in the Welfare group. These results indicate information of organisational age has the effect on raising total donations in the All, Disability, Animal and, Science and Culture groups in the following year. Hypothesis 7, H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in the All, Disability, Animal and, Science and Culture groups of charitable organisation, while the Null Hypothesis is not rejected in the Humanitarian, Global, Welfare, and Rural groups of charitable organisations.

6.3.1.2 Minor family of competition model 1: (Lagged variables)

In Table 6.7 the results are presented. Model 1_L is again a sub-family model of Model 1, using lagged independent variables only. As Weisbrod and Dominquez (1986) argue, fundraising activities increase the reputation and quality of the organisation. This may take a period of time to impact on the level of total donations (i.e. more than one annual donation raising campaign). Marcuello and Salas (2001) also find that fundraising expenditure that are lagged perform better on the level of total donation estimation model. Equation (3) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \qquad (3)$$

Table 6.7 shows that the explanatory power of the regression is smaller than that of Model 1 in the Global, Animal and Rural groups, but the other groups are no different. Humanitarian is the highest in R^2at 0.788 and adjusted R^2, at 0.743 (higher than Model 1), followed by Rural (0.745 and 0.722), Science (0.718 and 0.619), Disability (0.669 and 0.631), Animal (0.667 and 0.488), Global (0.615 and 0.564), and Welfare (0.580 and 0.553) and is the lowest in All (0.489 and 0.487). Overall, the explanatory power of the third model is higher than 0.5, except All. These results are similar to Model 1.

As shown in Table 6.7, the results of this model are not examined in detail. However, the results indicate the effectiveness of spending on fundraising expenditure of charitable organisations and have positive impacts in most groups except All, and Disability groups in the following year. Also the number of volunteers shows a positive influence on donations in the following year in most groups.

Overall, the results of the coefficients and the explanatory power of the model are improved upon those of Model 1.

Table 6.8 presents the results of Model 1_LJ, a sub-family of Model 1, by including lagged independent variables only and using the value of competing charities j for the denominators in the ratios of fundraising expenditure and fixed assets, such as lnF_i / ∑lnF_j and lnA_i / ∑lnA_j, respectively. Equation (4) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1}/ \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \qquad (4)$$

The results are not analysed in detail as these results are consistent with the results of Model 1 and Model 1_L.

6.3.1.3 Minor family of competition model 1: (No time lags)

In Table 6.9 the results of Model 1_U are presented. Model 1_U is a sub-family of Model 1, employing unlagged independent variables only. Equation (5) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it}/ \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon \qquad (5)$$

The results for Model 1_U indicate organisational age has the effect of raising total donations in the All, Welfare, Disability and Science groups in the current year, but not for the Humanitarian, Global, Animal and Rural groups.

Table 6.10 presents the results of Model 1_UJ, a sub-model of Model 1, employing unlagged independence variables only and using the value of competing charities *j* as denominators in the ratios of fundraising expenditure, F_i / F_j, and fixed assets A_{it} /A_{jt}. Equation (6), tested have is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it}/ \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon \qquad (6)$$

Summary of results for Model 1 and its sub-families

A family model of Model 1 consists of independent variables, including fundraising expenditure; competing charities' fundraising expenditure; the ratio of fundraising expenditure to the total of all competing charities' fundraising expenditure; 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 expenditure 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 expenditure 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 expendidures 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, similarily 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.

The number of volunteers is a significant and positive variable for most groups. As in Model 1, the exceptions are Welfare and Animal groups in Model 1_L, these models use unlagged independent variables only. However, as many volunteers engage in fundraising activities in the current year, the results may indicate that the volunteers enhanced the reputation and operations of a charity in which they were involved during in the previous year.

The results of correlation of organisational age and total donations are found to be consistently postive in the All, Disability and Science groups, while the other five groups including the Welfare, Humanitarian, Global, Animal and Rural groups, are either negative or vary depending on variations of Model 1.

6.3.2 Competition model 2

6.3.2.1 Major family of competition model 2

In Table 6.11 the results of the regression analysis of Model 2 are presented. Model 2 is a modification of Model 1 by just one additional variable, government grants (G). Previous studies find that information of government grants to a charitable organisation serves as an organisational quality indicator (Posnett and Sandler, 1989; Callen, 1994; Khanna et al., 1995; Khanna and Sandler, 2000; Okten and Weisbrod, 2000; Marcuello and Salas, 2001). Thus, government grants are expected to have a positive effect on total donations. The inclusion of government grants is important because of the "crowding out" debates (Warr, 1982; Roberts, 1984; Posnett and Sandler, 1989; Payne, 1998; Khanna and Sandler, 2000; Okten and Weisbrod, 2000; Marcuello and Salas, 2001). Equation (7), tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1})$$
$$+ \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln G_{it\text{-}1} + \varepsilon \qquad (7)$$

where: G is government grants and ε is the error term.

As shown in Table 6.11, the R^2 (adjusted R^2) are consistent with the results of Model 1 (see Table 6.4). The explanatory power of the model is also the highest in the Animal group, the R^2 at 0.838 (adjusted R^2 at 0.751). It is followed by Global at 0.832 (0.789), Rural at 0.785 (0.740), Humanitarian at 0.748 (0.722), Science at 0.639 (0.512), Disability at 0.611 (0.570), Welfare at 57% (0.543). Consistent with the results of Model 1, the lowest of the R^2 is the All combined group at 0.455 (0.442). Thus, the explanatory power seems to be unaffected by the additional variable, government grants.

These results are, therefore, not considered in detail. The exception is the government grant variable. The coefficients of government grants are, as expected, mostly positive in all groups, and significantly positive in Welfare and Humanitarian groups, positive but insignificant in All, Animal and Rural groups. They are negative but significant in the Science group and negative and insignificant in the Global and Disability groups. Hypothesis 8 is tested as: H_0: $G_i \leq 0$; and H_1: $G_i > 0$, The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Animal and Rural groups, while the Null Hypothesis is not rejected in the Global, Disability and Science groups.

Model 2_J is a sub-family of Model 2. Model 2_J is a modification of Model 1 by including an additional variable, government grants, (G); and using competing charities j as denominators in the ratio of fundraising expenditure and the ratio of fixed assets, representing as $\ln F_i$ / $\sum \ln F_j$ and $\ln A_i$ / $\sum \ln A_j$, respectively. Table 6.12 presents the results of Model 2_J, Equation (8).

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon \tag{8}$$

Again these results are not covered in detail given their consistency with the result reported earlier in this chapter.

Lastly, the coefficients of government grants are positive and significant in the Welfare and Humanitarian and positive but insignificant in the All, Animal and Rural groups, while those are negative and insignificant in the Global, Disability and Science groups, which are consistent with the results of Model 2. Hypothesis 8 is tested: H_0: $G_i \leq 0$; and H_1: $G_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Animal and Rural groups, while the Null Hypothesis is not rejected in the Global, Disability and Science groups.

6.3.2.2 Minor family of competition model 2: (Lagged variables)

In Table 6.13 the results of the regression analysis are presented. Model 2_L is a family of Model 2. Thus, this model is modification of Model 1 by employing lagged independent variables only. Equation (9) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{t-1} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{t-1}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon \tag{9}$$

These results are consistent with previous modelling and are not covered in detail, except in Table 6.11.

The coefficients of government grants are positive and significant in the Welfare and Humanitarian and positive but insignificant in the All and Global groups, while those are negative but significnat in the Animal, Science and Rural groups, and negative and insignificant in the Disability group. Hypothesis 8 is tested: H_0: $G_i \leq 0$; and H_1: $G_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian and Global groups, while the Null Hypothesis is not rejected in the Disability, Animal, Science and Rural groups.

Table 6.14 presents the results of Model 2_LJ. Model 2_LJ is a sub-family of Model 2, including lagged independent variables only and using the value of competing charities *j* for the denominators in the ratios of fundraising expenditure and fixed assets, such as $\ln F_i / \Sigma \ln F_{jt-1}$ and $\ln A_i / \Sigma \ln A_{jt-1}$, respectively. Equation (10) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{i-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it-1}$$
$$+ \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon \qquad (10)$$

Again results consistent with previous models mean these are not covered in detail. However, the coefficient on Government grants (lnG) is positive and significant in the Welfare and Humanitarian, and positive but insignificant in the All and Global groups, whereas they are negative but significant in the Disability and Rural groups, and negative and insignificant in the Animal and Science groups. Hypothesis 8 is tested: H_0: $G_i \leq 0$; and H_1: $G_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian and Global groups, while the Null Hypothesis is not rejected in the Disability, Animal, Science and Rural groups.

6.3.2.3 Minor family of competition model 2: (No time lags)

Table 6.15 presents the results of the regression analysis of Model 2_U, employing unlagged independent variables only. Model 2_U, Equation (11) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon \qquad (11)$$

The results appear in Table 6.15. Table 6.15 shows that the coefficients of government grants are significantly positive in the Welfare and Humanitarian, and positive in the All and Disability groups, whereas those are significantly negative in the Science, and negative in the Global, Animal and Rural groups. Hypothesis 8 is tested: H_0: $G_i \leq 0$; and H_1: $G_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Disability groups, while the Null Hypothesis is not rejected in the Global, Science, Animal and Rural groups.

Table 6.16 presents the results of Model 2_UJ, employing unlagged independent variables only and using the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it} / \Sigma \ln A_{jt}$, respectively. Equation (12) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon \qquad (12)$$

Summary of Results for Model 2 and its sub-families

The estimates of the fundraising expenditure elasticities in Model 2, major and minor family of models, consistently suggest that the effect of fundraising expenditure on charitable giving is both positive and significant.

The results suggest that the effectiveness of fundraising activities of charitable organisations and the volunteers have a positive effect on the level of total donation in seven out of eight groups (except Animal). The number of volunteers is treated as an exogenous variable (Callen, 1994), and is statistically independent of the error term in the regression. In addition, the organisation's competitors' fundraising activities have a negative impact on the level of donations as expected. The ratio of organisational size to competitors and the ratio of fundraising expenditure to competitors show similar sign in the industry level; they are both positive in the Humanitarian, while they are both negative in the All, Welfare and Disability. Organisational size and age show similar results in aggregate industry, both positive in the Disability and Science groups, whereas both are negative in the other six groups.

The estimates of the fundraising expenditure in Model 2, major and minor models, indicate that the direct effectiveness of fundraising activities on competition of charitable organisations for donations, as fundraising expenditure affect on charitable giving, is both positive and significant.

6.3.3 Major family of competition model 3

6.3.3.1 Major family of competition model 3

In Table 6.17 the results of the regression analysis, the explanatory power (R^2) of the regression Model 3 and the standardised regression coefficients (β) are presented. Model 3 is also a sub-family of Model 1. It includes an additional independent variable, administrative costs (AC). Equation (13) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \beta_8 \ln AC_i + \varepsilon \quad (13)$$

Again not all of the results are presented in detail.

Direct research question 2 asks if administrative costs affect raised donations. In Table 6.17, the coefficients of administration costs are positive and significant in the Welfare, Humanitarian and Animal groups, and positive but insignificant in the Disability and Rural, whereas those are negative and insignificant in the All, Global and Science groups. Hypotheses 9 is tested as: H_0: $AC_i \leq 0$; and H_1: $AC_i > 0$. The Null Hypothesis is rejected in the Welfare, Humanitarian, Disability, Animal and Rural groups, while the Null Hypothesis is not rejected in the All, Global and Science groups.

Table 6.18 presents the results of Model 3_J, a sub-family of Model 3. It includes an additional variable, administrative costs (AC), and using the ratio of fundraising expenditure to competing charities j and the ratio of size to competing charities j, as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (14) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \quad (14)$$

The coefficients of administration costs are significantly positive in the Welfare, Humanitarian, Disability and Animal groups, and positive but insignificant in the Rural, whereas those are negative and insignificant in the All, Global and Science groups. Hypotheses 9 is tested as: H_0: $AC_i \leq 0$; and H_1: $AC_i > 0$. The Null Hypothesis is rejected in the Welfare, Humanitarian, Disability, Animal and Rural groups, while the Null Hypothesis is not rejected in the All, Global and Science groups.

6.3.3.2 Minor family of competition model 3: (Lagged variables)

The results presented in Table 6.19 are for Model 3_L, a sub-family of Model 3, employing lagged independent variables only. Equation (15) is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \qquad (15)$$

As shown in Table 6.19, the R^2 and adjusted R^2 are similar to those of Models 1 and 2 (see Table 6.5 and 6.11). Overall the explanatory powers of models are slightly increased.

The coefficients of administration costs are positive and significant in the Humanitarian and Rural groups, and positive but insignificant in the Welfare, Disability and Science groups. They are negative but significant in the All group, and negative and insignificant in the Global and Animal groups. Hypotheses 9 is tested as: H_0: $AC_i \leq 0$; and H_1: $AC_i > 0$. The Null Hypothesis is rejected in the Welfare, Humanitarian, Disability, Science and Rural groups, while the Null Hypothesis is not rejected in the All, Global and Animal groups.

An alternative calculation of the ratio of fundraising and size, neither affects the sign nor the significance of the other independent variables of Model 3. Table 6.20 presents the results of Model 3_LJ, another sub-family of Model 3. This model employs lagged independent variables only and uses the ratio of fundraising expenditure to competing charities *j* and the ratio of size to competing charities *j*, as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (16) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{jt\text{-}1} + \beta_3 (\ln F_{i\text{-}1} / \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \qquad (16)$$

6.3.3.3 Minor family of competition model 3: (No time lags)

In Table 6.21 the results of the regression Model 3_U are presented. This model employs unlagged independent variables only. Equation (17) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln AC_{it} + \varepsilon \qquad (17)$$

As shown in Table 6.21, the explanatory power of the models is very similar to Models 1 and 2 in most groups (see Table 6.9 and 6.13). Explanatory power is lower when employing unlagged independent variables only.

Table 6.22 presents the results of Model 3_UJ, a sub-family of Model 3. This sub-model includes unlagged independent variables only and uses the value of competing charities *j* for both denominators in the ratios of fundraising expenditure and fixed assets, such as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (18) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln AC_{it} + \varepsilon \qquad (18)$$

As shown in Table 6.22, the explanatory power of the models with unlagged independent variables is shown as being very similar to, or slightly lower than, Model 1. The ranges of the R^2 (adjusted R^2) are the largest in the Animal, at 0.828 (0.736) and the Welfare group is again very low at 0.225 (0.147).

Summary of Model 3

The estimates of the fundraising expenditure elasticities in Model 3, major and minor family of models, suggest consistently that the direct information effect of fundraising expenditure on charitable donations is both positive and significant.

6.3.4 Competition model 4

6.3.4.1 Major family of competition model 4

In Table 6.23 the results of the regression Model 4 are presented. Model 4 is a sub-family of Model 1, excluding an independent variable, organisational age (Age) and including an additional variable, government grants (G) on Model 1. As discussed in Chapter 3, previous studies found mixed results of government grants on function of donation. Equation (19) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon \quad (19)$$

The results of the All group are not presented in detail but in Table 6.21.

Table 6.24 presents the results of Model 4_J, a modification of Model 1 but excluding the independent variable of organisational oge; including an additional variable, government grants (G); and using the ratio of fundraising expenditure to competing charities j and the ratio of size to competing charities j, presented as, $\ln F_{it} / \Sigma \ln F_{jt}$ and $\ln A_{it-1} / \Sigma \ln A_{jt-1}$. Equation (20) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon \quad (20)$$

6.3.4.2 Minor family of competition model 4: (Lagged variables)

In Table 6.25 the results of the regression Model 4_L are presented. Model 4_L is a family of Model 4 and is a modification of Model 1 by employing lagged independent variables only. Equation (21) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon \quad (21)$$

As shown in Table 6.25, the R^2 (adjusted R^2) are very similar to the results of Models 1, 2 and 3, however the order of explanatory power of model among groups is slightly different. The R^2 is shown as the highest in the Rural at 0.844. This is followed by

Global and Humanitarian groups both R^2 at 0.787, Science at 0.773, Animal at 0.731, Welfare at 0.650, Disability at 0.527 and the lowest of All combined industry at 0.489.

Table 6.26 presents the results of Model 4_LJ, a sub-family of Model 4. This model uses lagged independent variables only. The value of competing charities j for both denominators in the ratios of fundraising expenditure and fixed assets are calculated as $\ln F_i / \Sigma \ln F_{jt-1}$ and $\ln A_i / \Sigma \ln A_{jt-1}$, respectively. Equation (22) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{i-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon \quad (22)$$

The results are not discussed in detail but are found in Table 6.24.

6.3.4.3 Minor family of competition model 4: (No time lags)

In Table 6.27 the results of the regression analysis are presented. Model 4_U is a part of the family of Model 4, employing unlagged independent variables only. Equation (23) is tested as:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln G_{it} + \varepsilon \quad (23)$$

Table 6.28 presents the results of Model 4_UJ, a part of the family of Model 4. This model uses unlagged independent variables only, and uses the value of competing charities j for the denominators in both of the ratios of fundraising expenditure and fixed assets, such as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (24) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln G_{it} + \varepsilon \quad (24)$$

In Table 6.28, the explanatory power of the models using unlagged independent variables is shown very similar or identical in the R^2 and adjusted R^2 with the results in Table 6.25, whose models employ the calculation of the ratios against the value of all competitors, instead of competitor j. Animal industry is the highest in the R^2 (adjusted R^2) at 0.805 (0.719). This is followed by Science at 0.778 (0.710), Global at 0.766

(0.714), Rural at 0.685 (0.639), Humanitarian at 0.641 (0.612), Welfare at 0.502 (0.458), All at 0.454 (0.443) and the lowest is Disability at 0.339 (0.286).

Summary of Model 4

Our estimates of the fundraising expenditure in Model 4 consistently suggest that the direct information effect of fundraising expenditure on charitable giving is both positive and significant.

6.3.5 Competitive model in geographic group (States)

This section considers charitable organisations competing for donations as spartical competitors. As discussed in Chapter 2, a sample of charitable organisations is divided into geographical location grouping in 6 States, ACT, Victoria, New South Wales (NSW), Queensland (QLD), Western Australia (WA) and South Australia (SA). The details, such as the names of charitable organisations with their geographical group are reported in Chapter 2. The number of observations is 16 in ACT, 143 in Victoria, 98 in NSW, 28 in QLD, 28 in WA and 16 in SA. The following section presents the results of competition models 1 to 4 when applied to geographical groups.

6.3.5.1 Competition model 1 with state grouping

In Table 6.29 the results of the regression analysis of Model 1 are presented. Equation (1) is tested as:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \varepsilon \qquad (1)$$

Table 6.29 contains the estimation results of Model 1. The explanatory power of the regression models for the ACT is the highest at 0.976 (R^2) (adjusted $R^{2,}$ at 0.948). WA is the lowest at 0.382 (R^2) (adjusted $R^{2,}$ at 0.166). Overall, the explanatory power of Model 1 varies enormously depending on the state. This suggests geographical groupings are not good indications of competition for donors.

The coefficients of fundraising expenditure are positive and significant in Victoria, and positive but insignificant in ACT, NSW and WA. Those of QLD and SA are negative and insignificant. Hypothesis one is tested as follows: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in ACT, Victoria, NSW and WA, while the Null Hypothesis is not rejected in QLD and SA.

The regression coefficients on $\ln F_j$ are significantly negative in Victoria, but positive and insignificant in ACT and WA. Those of NSW, QLD and SA are insignificantly positive. Hypothesis 2: H_0: $F_j \geq 0$ and H_1: $F_j < 0$. The Null Hypothesis is rejected in ACT, Victoria and WA, while the Null Hypothesis is not rejected in NSW, QLD and SA.

The regression coefficients on $\ln Fi/\sum \ln F$ garnered mixed results. Those of SA are positive but insignificant, and Victoria, ACT, NSW, QLD and WA are negative. Hypothesis 3: H_0: $F_i /F \leq 0$ and H_1: $F_i /F > 0$. The Null Hypothesis is rejected SA, whereas the Null Hypothesis is not rejected in ACT, Victoria, NSW, QLD and WA.

The coefficients on size are positive but insignificant in Victoria, NSW and WA. Those of QLD and SA are significantly negative and ACT is insignificantly negative. Hypothesis 4 as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in Victoria, NSW and WA, while the Null Hypothesis is not rejected in ACT, QLD and SA.

The coefficient on the ratio of size to competitors' size is significantly positive in QLD, and positive in ACT and SA. Those of Victoria, NSW and WA are insignificantly negative. 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 ACT, QLD and SA, whereas the Null Hypothesis is not rejected in Victoria, NSW and WA.

The coefficients on volunteers are mostly positive except WA which is negative but significant. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in ACT, Victoria, NSW, QLD and SA, whereas the Null Hypothesis is rejected in WA.

The coefficients on age are positive and significant in Victoria and WA, and positive in ACT. Those of NSW, QLD and SA are negative. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$

and H_1: $Age_i > 0$. The Null Hypothesis is rejected in ACT, Victoria and WA, while the Null Hypothesis is not rejected in NSW, QLD and SA. The results of correlation of fundraising expenditure, volunteers, organisational size and age, and total donations are found to be consistently positive in Victoria, while other state groups vary depending on variations of Model 1.

6.3.5.2 Competition model 2 with state grouping

Model 2 is a modification of Model 1 by including an additional variable, government grants (G). Equation (7) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln G_{it\text{-}1} + \varepsilon \qquad (7)$$

In Table 6.30, the estimation results of Model 2 using aggregated groups of 6 states of charitable organisations are presented. The results of the explanatory powers of regression models are similar to those of Model 1. The explanatory power, the R^2 (adjusted R^2) gives ACT as the highest among 6 states at 0.977 (at 0.939). This is followed by QLD at 0.913 (0.876), SA at 0.793 (0.462), Victoria at 0.57 (0.543), NSW at 0.454 (0.405) and WA at 0.399 (0.146).

The results are not presented in detail because the results are similar to those of Model 1.

6.3.5.3 Competition model 3 with state grouping

Model 3 is modification of Model 1, including an additional independent variable, administration costs (AC). AC is included to measure inefficiency of organisations as previous studies were used to compare the inefficiency valuation between different groups of organisations (Frumkin and Kim, 2001). The empirical Model 3, Equation (13) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \beta_8 \ln AC_i + \varepsilon \qquad (13)$$

In Table 6.31, the estimation results of Model 3 using aggregated groups of 6 states of charitable organisations are presented. The results are similar to those of Model 1.

6.3.5.4 Competition model 4 with states grouping

In Table 6.32, the results of the regression analysis are presented. Model 4 is a sub-family of Model 1, excluding an independent variable, organisational age (Age), and including an additional independent variable, government grants (G). The previous studies find that both government grants and organisation age affect total donations, however, government grants is affected by organisational age. So to find whether government grants relate to total donation without influence of age for the competition model, equation (19) tested is :

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon \qquad (19)$$

In Table 6.32, the estimation results of Model 4 using aggregated groups of 6 states of charitable organisations are presented. The results of the explanatory powers of regression models are similar to those of Models 1, 2 and 3.

6.3.6 Summary of Australian results

Industry Groups

The results show that the greater charitable organisations, fundraising expenditure (F_i), the more its total donations increased in the current year in all Australian charity groups except the Animal charity group. The results also indicated, as expected, that the more competing organisation competing organisational fundraising expenditure (F_j), the less a charitable organisation raises in 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 2 and 4, the competing organisation's fundraising expenditure (F_j) also had a negative effect on total donations in the Welfare and Rural groups in the current year. The reasons for this remain unclear in terms of donor and organisational behaviour (Weisbrod and Dominquez, 1986; Khanna et al. 1995). In addition, the ratio of a charity's fundraising expenditure to its competitors' fundraising expenditure in the current year had a positive effect on raising donations in the All, Humanitarian, and Animal groups. These results suggest the possibility that charitable organisations in similar service provider groups follow the major decisions of their rivals. For example, Red Cross Australia cancelled its annual door-knock appeal after the collection of large donations for the Victorian Bushfire in 2009. It is highly likely that the spontaneous Red Cross realised donations would be small in the lightt of this competing claim on donors' munificence.

The level of volunteers (V) had a significant positive effect on donations in most of groups except in the Animal industry in the following year with Welfare and Rural groups show strongest at 1% of significance (1.018 and 1.116, respectively). This was partly because volunteers are frequently heavily involved in the fundraising activities of the charity. Moreover many of them can be expected to donate to the charity they volunteer for. In addition, because volunteers have insight into how charitable organisations operate, donors might consider that the longer or the more volunteers are involved in a charitable organisation, the more they may trust that organisation.
Similar to the volunteers, organisational size and age showed a positive affect on total donations. Thus, organisational size as measured by fixed assets (A) had a positive effect on donations in the Welfare, Disability, Animal and Science groups in the following years (from 0.015 to 1.856). Organisational age also has a positive effect in the All, Disability, Science and Rural industry groups (from 0.143 to 4.475).

Government support (G) showed mixed results, and this is consistent with previous studies (see Section 3.5.2). Empirically, i.e. in five groups, All, Welfare, Humanitarian, Global, Animal and Rural groups, government grants created a crowded-in effect on total donations in the following year, whereas in the Global, Disability and Science groups, it crowded-out donations. The reasons for these differential impacts of government grants are especially difficult to disentangle at the conceptual, theoretical and empirical.

Administrative costs (AC) had negative effect on total donations in the All, Global and Science groups in Australia. This result was consistent with previous studies which found that the more charitable organisations spent on administration, the less they received from donors using limited organisational data with very large donations in the US (Tinkelman and Mankaney, 2007). However, in five groups, i.e. Welfare, Humanitarian, Disability, Animal and Rural, AC had a positive effect on donations during the following year. The reasons for this are currently impossible to discern. However they present a dilemma for organisations that believe donors react negatively to administration expenditures.

In relation to geographic groups, some of the groups showed similar signs to the results of the industry groups, while some did not. Overall the empirical results are far more inconsistent. In the four states, Victoria, NSW, QLD and WA, fundraising expenditure was positive in relation to total donations and competitors' fundraising expenditures were negative but not in ACT and SA. However, the number of volunteers showed similar results with the industry groups, and was a significantly positive effect on total donations in the states except WA. The ratio of fundraising expenditure to competitors' fundraising expenditure obtained mixed results, being a positive in ACT and SA and negative in Victoria, NSW, QLD and WA. Organisational size and age also obtained mixed results. Organisational size was positive in Victoria, NSW and WA and negative in ACT, QLD and SA. Organisational age was positive in ACT, Victoria and WA, and negative in NSW, QLD and SA. Thus, government grants apparently crowded-in in ACT, Victoria, WA, while they crowded-out in NSW, QLD and SA. Administrative costs were positive in only two states, ACT and NSW. The states of Victoria, QLD, WA and SA, had negative coefficients.

Overall the results of the geographic groups were much weaker than industry groups. This is good result, in that it is to be expected if donors have a focus on an organisation's charitable activities, rather than their locations. This is especially so as many charities operate well away from their area of administrative and donors' domicile.

Table 6.5: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_t) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + e$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.709	-1.266	-4.026	32.919***	64.777***	30.224***	31.845	13.650**
	(5.658)	(2.924)	(4.365)	(9.789)	(16.962)	(7.349)	(25.291)	(6.700)
$\ln F_i$ (β_1)	0.116	0.351	0.103	7.502***	10.016***	0.020	4.808**	-0.010
	(1.380)	(0.356)	(0.081)	(2.587)	(3.044)	(0.575)	(2.639)	(0.576)
$\ln F_j$ (β_2)	0.325	0.024	0.607**	-2.137***	-6.094***	0.643	-4.024**	0.027
	(0.447)	(0.228)	(0.359)	(0.773)	(1.516)	(0.499)	(2.043)	(0.489)
$\ln F_i / \Sigma \ln F$ (β_3)	145.228	-9.597	7.171*	-374.576***	-1305.326***	4.376	-186.955**	-6.179
	(757.196)	(64.776)	(5.060)	(143.195)	(400.462)	(17.699)	(103.03)	(55.186)
$\ln A_{i\,t-1}$ (β_4)	-0.686	0.015	-0.484	-1.344	1.856**	0.178	0.387	-1.466*
	(1.416)	(0.183)	(0.430)	(1.573)	(1.178)	(0.291)	(0.925)	(1.064)
$\ln A_{i\,t-1}/\Sigma \ln A_{t-1}$ (β_5)	382.981	-18.724	82.331	73.543	-275.739**	-39.811***	1.364	92.648
	(944.701)	(41.424)	(72.106)	(95.283)	(174.335)	(13.181)	(41.849)	(105.94)
$\ln V_{i\,t-1}$ (β_6)	0.679***	1.116***	0.771***	0.245	0.373***	-2.488***	0.307	1.018***
	(0.064)	(0.113)	(0.066)	(0.252)	(0.148)	(0.859)	(0.552)	(0.123)
$\ln Age_{i\,t-1}$ (β_7)	0.143	-0.066	-0.227**	-1.188***	1.678***	-0.060	2.201	-1.099***
	(0.112)	(0.122)	(0.103)	(0.294)	(0.225)	(0.345)	(2.164)	(0.278)
R^2	0.455	0.570	0.711	0.832	0.610	0.838	0.639	0.785
Adjusted R^2	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 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.6: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + e$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.737	-1.174	-5.229	44.112***	73.695***	30.003***	30.376	15.928***
	(5.648)	(2.848)	(4.185)	(12.155)	(20.593)	(7.182)	(23.684)	(6.501)
$\ln F_i$ (β_1)	0.006	0.370	0.099	8.759***	10.677***	-0.011	6.495**	0.087
	(1.375)	(0.356)	(0.084)	(2.793)	(3.773)	(0.764)	(3.147)	(0.630
$\ln F_j$ (β_2)	0.330	0.013	0.733**	-3.941***	-7.371***	0.662	-5.372**	-0.059
	(0.448)	(0.228)	(0.357)	(1.184)	(1.971)	(0.661)	(2.479)	(0.521)
$\ln F_i / Ln\Sigma F$ (β_3)	199.774	-12.146	7.878*	-323.697***	-1240.218***	2.729	-163.836**	-12.511
	(733.862)	(60.052)	(5.642)	(110.318)	(441.450)	(12.527)	(79.616)	(47.168)
$\ln A_{i\,t-1}$ (β_4)	-0.635	0.026	-0.631*	-0.794	0.818	0.216	0.707	-1.466*
	(1.413)	(0.179)	(0.404)	(1.298)	(1.107)	(0.278)	(0.901)	(1.067)
$\ln A_{i\,t-1} / \ln\Sigma A_{t-1}$ (β_5)	348.991	-20.039	97.359*	30.438	-100.281	-25.523***	-8.575	69.819
	(942.970)	(37.855)	(61.372)	(57.013)	(134.736)	(8.152)	(27.263)	(81.994)
$\ln V_{i\,t-1}$ (β_6)	0.678***	1.116***	0.761***	0.198	0.369*	-2.757***	0.4986*	1.021***
	(0.064)	(0.112)	(0.066)	(0.294)	(0.151)	(0.884)	(0.528)	(0.124)
$\ln Age_{i\,t-1}$ (β_7)	0.143	-0.066	-0.232**	-1.067***	1.648***	0.232	3.095	-1.088***
	(0.112)	(0.122)	(0.103)	(0.298)	(0.254)	(0.392)	(2.167)	(0.279
R^2	0.455	0.571	0.714	0.833	0.595	0.844	0.652	0.785
Adjusted R^2	0.442	0.544	0.688	0.789	0.558	0.760	0.531	0.740
SE of regression	1.319	1.002	0.730	0.520	1.054	0.293	1.095	0.663
Observations	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.7: OLS estimation for Australian charities

$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + e$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-1.270**	3.280	6.665**	30.469***	56.654***	1.726	32.178	-6.782*
	(0.757)	(0.122)	(3.534)	(11.290)	(16.799)	(8.583)	(27.888)	(4.017)
$\ln F_i$	-0.495	0.054	0.920	5.860**	-0.233	0.711	5.880*	0.038
	(0.821)	(1.152)	(0.899)	(2.605)	(0.324)	(0.773)	(3.277)	(0.986)
$\ln F_j$	0.271***	-0.171	-0.002	-1.961**	-4.275	0.227	-4.077	0.538
	(0.058)	(0.745)	(0.304)	(0.877)	(3.353)	(0.410)	(2.561)	(1.085)
$\ln F_i$	440.035	33.204	-78.736	-283.119**	-95.495	-17.417	-238.549	0.374
$/\Sigma \ln F$	(448.816)	(215.230)	(63.519)	(146.185)	(404.284)	(23.030)	(141.361)	(1.208)
$\ln A_i$	0.029	0.350**	-0.558	-0.281	-1.890**	0.149	-5.573	0.733***
	(0.108)	(0.171)	(0.517)	(1.339)	(0.827)	(0.653)	(4.346)	(0.202)
$\ln A_i$	-9.047	-98.820***	44.988	11.028	193.959*	9.311	269.612	-0.821**
$/\Sigma \ln A$	(59.543)	(29.292)	(38.958)	(83.308)	(113.082)	(24.825)	(192.106)	(0.338)
$\ln V_i$	0.691***	0.997***	0.712***	0.165	0.378**	0.619	0.422	0.680***
	(0.061)	(0.122)	(0.084)	(0.224)	(0.180)	(0.761)	(0.531)	(0.233)
lnAgei	0.042	-0.019	-0.065	-1.046***	2.177***	-0.975*	2.561	-0.954*
	(0.114)	(0.125)	(0.369)	(0.270)	(0.422)	(0.501)	(2.123)	(0.555)
R^2	0.489	0.580	0.787	0.615	0.669	0.667	0.718	0.745
AdjR^2	0.487	0.553	0.743	0.564	0.631	0.488	0.619	0.722
S.E.OR	1.306	1.030	0.527	0.748	1.002	0.479	0.986	0.752
Observations	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.8: OLS estimation for Australian charities

$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + e$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-1.172*	2.525	2.578***	43.166***	57.452***	1.363	50.887	-10.467**
	(0.748)	(3.841)	(0.902)	(9.982)	(18.165)	(6.770)	(45.029)	(4.865)
$\ln F_i$	0.312***	0.520**	0.032	8.789***	6.110*	0.964*	5.849*	0.676**
	(0.063)	(0.264)	(0.918)	(3.098)	(3.783)	(0.642)	(3.727)	(0.394)
$\ln F_j$	-0.461	0.044	-0.918	-3.916***	-5.681***	0.093	-5.623**	1.083**
	(0.790)	(0.097)	(0.170)	(1.027)	(1.767)	(0.263)	(3.417)	(0.537)
$\ln F_i$	386.632	-4.353	27.388	-325.398**	-708.982*	-14.009*	-154.509*	-16.183
$/\Sigma \ln F$	(420.198)	(31.875)	(109.439)	(124.005)	(448.216)	(10.663)	(112.201)	(22.242)
$\ln A_i$	0.026	-1.174*	-0.071	-0.245	0.572	0.204	-4.675	0.222
	(0.108)	(0.761)	(0.231)	(0.402)	(0.895)	(0.701)	(5.707)	(0.417)
$\ln A_i$	-8.031	80.227	-1.962	5.669	-69.575	4.120	147.855	9.495
$/\Sigma \ln A$	(59.503)	(100.559)	(34.748)	(12.836)	(109.223)	(14.709)	(166.184)	(27.052)
$\ln V_i$	0.691***	1.251***	0.765***	0.124	0.321**	0.692	0.289	0.396**
	(0.061)	(0.294)	(0.076)	(0.213)	(0.140)	(0.728)	(0.459)	(0.220)
lnAgei	0.045	-0.062	-0.204***	-0.928***	1.560***	-0.923*	1.215	-0.516*
	(0.114)	(0.238)	(0.080)	(0.273)	(0.197)	(0.562)	(2.527)	(0.356)
R^2	0.488	0.480	0.703	0.829	0.608	0.673	0.701	0.813
$AdjR^2$	0.477	0.427	0.675	0.785	0.572	0.497	0.597	0.728
S.E.OR	1.307	1.171	0.745	0.525	1.038	0.474	1.015	0.667
Obs	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.9: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it}/ \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + e$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	2.375	15.481***	-6.0375	34.172***	45.835***	12.662**	16.007	1.999
	(3.657)	(3.204)	(7.636)	(13.924)	(14.745)	(7.289)	(21.512)	(5.989)
$\ln F_i$	1.194*	1.361***	-0.726	3.683**	5.768***	0.768**	3.832**	-0.753*
	(0.750)	(0.430)	(0.890)	(1.791)	(2.112)	(0.446)	(2.202)	(0.543)
$\ln F_j$	-0.075	-0.542**	0.983	-1.838***	-4.559***	-0.141	-3.562**	0.598*
	(0.286)	(0.256)	(0.607)	(0.752)	(1.407)	(0.370)	(1.674)	(0.456)
$\ln F_i$	-424.078	-205.702***	60.287	-165.046**	-616.045***	-15.326	-169.362**	75.472*
$/\Sigma \ln F_j$	(411.384)	(83.275)	(54.487)	(99.779)	(238.587)	(13.598)	(84.720)	(54.291)
$\ln A_i$	-0.0004***	-0.472	0.243	1.167*	-0.372*	0.666**	1.5028**	-1.137**
	(0.00041)	(0.380)	(0.196)	(0.836)	(0.236)	(0.341)	(0.726)	(0.574)
$\ln A_i$	-79.554***	27.007	-2.057	-81.356*	34.342	-20.589	-46.900*	83.315*
$/\Sigma \ln A_j$	(29.143)	(92.423)	(15.191)	(51.306)	(71.490)	(16.021)	(32.669)	(58.070)
$\ln V_i$	0.647***	-0.001**	0.516***	0.348**	0.457***	-0.155	1.032**	0.863***
	(0.061)	(0.001)	(0.086)	(0.206)	(0.178)	(0.520)	(0.480)	(0.101)
lnAgei	0.109	0.058	-0.724**	-1.273***	1.955***	-0.886***	4.698***	-0.927***
	(0.102)	(0.157)	(0.326)	(0.262)	(0.292)	(0.232)	(1.799)	(0.289)
R^2	0.454	0.180	0.758	0.825	0.642	0.812	0.714	0.735
Adj R^2	0.443	0.136	0.716	0.787	0.608	0.729	0.631	0.697
S.E.OR	1.325	1.403	0.558	0.516	1.019	0.327	0.954	0.735
Obs.	352	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables,
***, **,* significant at 1, 5, 10 %

Table 6.10: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + e$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	1.182	14.357**	-1.306	36.304***	45.643***	11.362*	9.759	4.252
	(3.849)	(6.055)	(7.481)	(11.603)	(16.635)	(7.114)	(20.930)	(5.796)
$\ln F_i$	2.185**	0.915	-0.098	5.143**	4.994**	0.885*	4.592**	-0.716
	(1.305)	(0.833)	(0.959)	(2.339)	(2.525)	(0.648)	(2.645)	(0.599)
$\ln F_j$	0.016	-0.477	0.607	-3.103***	-4.420***	-0.236	-4.288**	0.569
	(0.304)	(0.525)	(0.666)	(1.120)	(1.608)	(0.531)	(2.077)	(0.495)
$\ln F_i$	-938.021*	-105.403	8.469	-184.573**	-455.214**	-10.177	-127.236**	56.058
$/\Sigma \ln F_j$	(693.730)	(151.823)	(55.358)	(93.651)	(244.364)	(10.543)	(66.088)	(46.737)
$\ln A_i$	-1.354	-0.130	0.277	1.033	-1.397**	0.587**	1.518**	-1.039**
	(1.467)	(0.358)	(0.192)	(0.813)	(0.790)	(0.337)	(0.699)	(0.581)
$\ln A_i$	802.214	-55.011	-5.166	-52.343*	112.505*	-10.608	-31.867*	56.703
$/\Sigma \ln A_j$	(954.469)	(81.327)	(10.363)	(36.184)	(87.164)	(9.914)	(21.040)	(45.522)
$\ln V_i$	0.646***	-0.001**	0.536***	0.461**	0.441***	-0.193	1.146***	0.869***
	(0.061)	(0.001)	(0.085)	(0.236)	(0.177)	(0.592)	(0.448)	(0.109)
lnAgei	0.115	0.040	-0.599	-1.210***	1.839***	-0.746***	5.453***	-1.891***
	(0.102)	(0.160)	(0.312)	(0.268)	(0.300)	(0.319)	(1.753)	(0.288)
R^2	0.456	0.146	0.753	0.822	0.644	0.806	0.720	0.731
Adj R^2	0.445	0.099	0.710	0.784	0.610	0.722	0.638	0.692
S.E.OR	1.326	1.432	0.564	0.520	1.017	0.332	0.945	0.741
Obs.	352	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.11: OLS estimation for Australian charities

$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it}/ \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + e$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.713	-0.147	-3.237	29.679***	66.332***	30.960***	65.174***	15.540**
	(5.666)	(2.748)	(4.107)	(11.786)	(17.367)	(8.436)	(20.860)	(7.113)
$\ln F_i$ (β_1)	0.142	0.409	0.131**	7.261***	9.995***	0.064	4.243**	0.174
	(1.383)	(0.333)	(0.076)	(2.665)	(3.060)	(0.635)	(2.000)	(0.620)
$\ln F_j$ (β_2)	0.316	-0.066	0.490*	-1.812**	-6.144***	0.626	-2.819**	-0.145
	(0.448)	(0.214)	(0.339)	(1.012)	(1.528)	(0.525)	(1.573)	(0.534)
$\ln F_i / \Sigma \ln F$ (β_3)	129.516	-35.239	6.464*	-360.465***	-1300.665***	3.257	-164.701**	-26.332
	(759.120)	(60.887)	(4.758)	(147.814)	(402.653)	(19.182)	(78.090)	(60.610)
$\ln A_{i\,t-1}$ (β_4)	-0.713	-0.019	-0.443	-1.438	1.760*	0.169	-0.428	-1.469*
	(1.419)	(0.172)	(0.404)	(1.606)	(1.201)	(0.305)	(0.728)	(1.069)
$\ln A_{i\,t-1} / \Sigma \ln A_{t-1}$ (β_5)	398.695	-21.205	68.936	82.016	-261.970*	-39.750***	23.455	88.765
	(946.706)	(38.737)	(67.850)	(98.035)	(177.670)	(13.698)	(32.120)	(106.571)
$\ln V_{i\,t-1}$ (β_6)	0.676***	0.962***	0.691***	0.391	0.353**	-2.549***	-0.946**	1.022***
	(0.065)	(0.112)	(0.067)	(0.382)	(0.155)	(0.941)	(0.522)	(0.124)
$\ln Age_{i\,t-1}$ (β_7)	0.139*	-0.040	-0.212**	-1.383***	1.676***	-0.125	-1.651	-1.009***
	(0.113)	(0.114)	(0.097)	(0.484)	(0.226)	(0.477)	(1.899)	(0.300)
$\ln G_{i\,t-1}$ (β_8)	0.020	0.184***	0.134***	-0.133	-0.094	0.024	-1.720***	0.063
	(0.046)	(0.045)	(0.040)	(0.262)	(0.201)	(0.116)	(0.430)	(0.076)
R^2	0.455	0.628	0.748	0.834	0.629	0.839	0.804	0.790
Adjusted R^2	0.442	0.601	0.722	0.789	0.580	0.731	0.721	0.737
	1.321	0.938	0.690	0.538	1.069	0.390	0.844	0.666
Observations	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.12: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{i\,t} + \beta_2 \ln F_{jt} + \beta_3 \frac{\ln F_{i\,t1}}{\ln \Sigma F_{j\,t}} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{i\,t-1}}{\ln \Sigma A_{j\,t-1}} + \beta_6 \ln V_{itt} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it-1} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.713	-0.005	-3.433	39.017***	76.433***	30.960***	65.174***	17.613***
	(5.666)	(2.675)	(4.001)	(14.359)	(21.009)	(8.436)	(20.860)	(6.808)
$\ln F_i$ (β_1)	0.009	0.439*	0.130*	8.624***	10.778***	0.064	6.495**	0.289
	(1.377)	(0.333)	(0.080)	(2.828)	(3.788)	(0.635)	(3.147)	(0.674)
$\ln F_j$ (β_2)	0.348	-0.084	0.527*	-3.361***	-7.481***	0.626	-5.372**	-0.241
	(0.449)	(0.215)	(0.345)	(1.466)	(1.984)	(0.525)	(2.479)	(0.564)
$\ln F_i / \Sigma \ln Fj$ (β_3)	204.522	-38.130	6.165	-315.358***	-1249.145***	3.257	-163.836**	-29.630
	(734.746)	(56.449)	(5.367)	(112.086)	(443.042)	(19.182)	(79.616)	(51.280)
$\ln A_{i\,t-1}$ (β_4)	-0.618	0.002	-0.474	-1.163	0.761	0.169	0.707	-1.448*
	(1.415)	(0.167)	(0.385)	(1.418)	(1.113)	(0.305)	(0.901)	(1.071)
$\ln A_{i\,t-1} / \Sigma \ln A_{jt-1}$ (β_5)	349.408	-24.962	67.705	49.509	-93.886	-39.750**	-8.575	66.537
	(944.044)	(35.383)	(58.840)	(63.975)	(135.463)	(13.698)	(27.263)	(82.387)
$\ln V_{i\,t-1}$ (β_6)	0.676**	0.960***	0.686***	0.363	0.339**	-2.549**	0.499	1.026***
	(0.065)	(0.111)	(0.067)	(0.382)	(0.157)	(0.941)	(0.528)	(0.124)
$\ln Age_{i\,t-1}$ (β_7)	0.137	-0.041	-0.215**	-1.355***	1.647***	-0.125	3.095*	-0.995***
	(0.113)	(0.114)	(0.098)	(0.518)	(0.255)	(0.477)	(2.167)	(0.300)
$\ln G_{i\,t-1}$ (β_8)	0.020	0.186***	0.128***	-0.194	-0.145	0.024	-1.720***	0.066
	(0.046)	(0.045)	(0.041)	(0.283)	(0.202)	(0.116)	(0.430)	(0.076)
R^2	0.455	0.629	0.747	0.836	0.598	0.838	0.639	0.790
Adjusted R^2	0.442	0.602	0.721	0.785	0.555	0.751	0.512	0.738
Observations	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.13: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{i\,t-1} + \beta_2 \ln F_{jt-1} + \beta_3 \frac{\ln F_{i\,t-1}}{\ln \Sigma F_{j\,t-1}} + \beta_4 \ln A_{it-1} + \beta_5 \frac{\ln A_{i\,t-1}}{\ln \Sigma A_{j\,t-1}} + \beta_6 \ln V_{itt-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon$$

	All	Welfare	Hum	Global	Disability	Animal	Science	Rural
β_0	-1.391**	16.982**	7.066***	34.172***	60.07***	-7.873	55.301**	-20.325**
	(0.796)	(8.591)	(2.959)	(13.92)	(16.799)	(9.357)	(27.598)	(10.06)
$\ln F_i$ (β_1)	-0.524	1.849**	0.645	6.401**	-0.171	0.002	6.375**	-1.361
	(0.824)	(1.122)	(0.759)	(2.885)	(0.332)	(0.801)	(3.008)	(1.065)
$\ln F_j$ (β_2)	0.272***	-1.269**	-0.012	-2.292**	-3.728	0.579*	-3.732*	1.770**
	(0.058)	(0.721)	(0.255)	(1.137)	(3.416)	(0.419)	(2.349)	(0.877)
$\ln F_i / \Sigma \ln Fj$ (β_3)	453.171***	-312.49*5	-50.271	-314.75**	-160.956	-4.251	-254.468**	169.448**
	(450.130)	(210.411)	(54.236)	(163.01)	(411.735)	(22.187)	(129.617)	(96.213)
$\ln A_{i\,t-1}$ (β_4)	0.021	-0.072	-0.804**	-0.377	-1.906**	0.794	-5.264*	1.018***
	(0.110)	(0.180)	(0.443)	(1.374)	(0.828)	(0.688)	(3.981)	(0.173)
$\ln A_{i\,t-1} / \Sigma \ln A_{jt-1}$ (β_5)	-9.338	-75.307***	46.779*	14.980	182.376*	-15.474	244.776*	-2.938
	(59.620)	(27.299)	(32.575)	(84.96)	(114.04)	(26.236)	(176.219)	(2.791)
$\ln V_{i\,t-1}$ (β_6)	0.691***	0.877***	0.651***	0.039	0.347*	1.385**	-0.311	0.254**
	(0.061)	(0.115)	(0.074)	(0.351)	(0.183)	(0.806)	(0.589)	(0.146)
$\ln Age_{i\,t-1}$ (β_7)	0.041	-0.013	-0.491*	-0.926***	2.267***	0.803	0.859	-0.699**
	(0.114)	(0.115)	(0.350)	(0.375)	(0.435)	(1.049)	(2.091)	(0.363)
$\ln G_{i\,t-1}$ (β_8)	0.025	0.280***	0.333***	0.111	-0.209	-0.524**	-1.202**	-0.612***
	(0.050)	(0.059)	(0.129)	(0.237)	(0.2374)	(0.278)	(0.545)	(0.119)
β_0	0.489	0.650	0.816	0.827	0.673	0.743	0.776	0.858
	0.475	0.625	0.771	0.774	0.630	0.572	0.681	0.829
SE of regression	1.308	0.944	0.497	0.538	1.004	0.438	0.903	0.598
Obs.	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.14: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{t-1}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon$$

	All	Welfare	Hum.	Global	Disability	Animal	Science	Rural
β_0	-1.302**	5.210**	2.214***	46.987***	62.105***	-7.882	68.655*	-6.910**
	(0.786)	(2.889)	(0.842)	(12.599)	(18.506)	(8.320)	(47.630)	(3.749)
$\ln F_{it-1}$ (β_1)	0.306***	0.449**	0.170	9.261***	6.702**	-0.107	6.542**	0.014
	(0.063)	(0.244)	(0.889)	(3.315)	(3.816)	(0.665)	(3.806)	(0.424)
$\ln F_{jt-1}$ (β_2)	-0.505	-0.086	-0.10	-4.315***	-5.877***	0.594**	-5.233*	0.632**
	(0.795)	(0.090)	(0.133)	(1.319)	(1.799)	(0.342)	(3.338)	(0.373)
$\ln F_{it-1} / \Sigma \ln F_{t-1}$ (β_3)	411.011	-24.887	6.561	-345.60***	-769.075**	-1.305	-169.072*	27.760
	(423.05)	(30.057)	(107.128)	(133.270)	(451.596)	(10.350)	(112.877)	(26.632)
$\ln A_{i\,t-1}$ (β_4)	0.018	-1.270**	-0.049	-0.269	0.443	0.921**	-3.237	1.359***
	(0.110)	(0.729)	(0.227)	(0.411)	(0.911)	(0.540)	(5.577)	(0.572)
$\ln A_{i\,t-1} / \Sigma \ln A_{t-1}$ (β_5)	-8.684	81.603	-5.316	5.508	-54.946	-13.566	99.562	-36.576
	(59.585)	(97.816)	(35.030)	(12.939)	(110.970)	(11.625)	(162.457)	(30.286)
$\ln V_{i\,t-1}$ (β_6)	0.690***	1.02***	0.694***	0.019	0.261**	1.221*	-0.423	0.232*
	(0.061)	(0.256)	(0.073)	(0.303)	(0.136)	(0.840)	(0.377)	(0.174)
$\ln Age_{i\,t-1}$ (β_7)	0.044	-0.174	-0.193**	-0.815**	1.548***	1.141	-0.098	-0.224
	(0.114)	(0.230)	(0.083)	(0.358)	(0.202)	(0.906)	(2.252)	(0.300)
$\ln G_{it-1}$ (β_8)	0.027	0.321***	0.132***	0.098	-0.248**	-0.551	-1.218	-0.539***
	(0.050)	(0.137)	(0.040)	(0.189)	(0.136)	(0.225)***	(0.280)***	(0.206)
R^2	0.489	0.564	0.738	0.831	0.615	0.751	0.759	0.863
AdjR^2	0.475	0.513	0.710	0.779	0.574	0.585	0.657	0.836
S.E.OR	1.308	1.080	0.704	0.533	1.035	0.431	0.937	0.578
Obs	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.15: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_7 \ln G_{it} + \varepsilon$$

	All	Welfare	Hum.	Global	Disability	Animal	Science	Rural
β_0	2.377	13.430***	-5.749	27.527**6	45.763***	9.203	52.290**	-0.573
	(3.663)	(2.921)	(7.336)	(10.797)	(14.860)	(7.845)	(24.586)	(6.949)
$\ln F_{it}$ (β_1)	1.194*	1.029***	-0.876	3.543**	5.763***	0.592	4.715**	-0.970*
	(0.751)	(0.394)	(0.858)	(1.868)	(2.131)	(0.469)	(2.037)	(0.619)
$\ln F_{jt}$ (β_2)	-0.075	-0.569***	1.017*	-1.681**	-4.548***	-0.071	-3.161**	0.844*
	(0.288)	(0.231)	(0.583)	(0.907)	(1.420)	(0.372)	(1.533)	(0.568)
$\ln F_{it} / \Sigma \ln F_t$ (β_3)	-423.935	-188.513***	78.795	-157.132*	-616.32***	-10.874	-183.08***	101.679*
	(412.024)	(75.353)	(66.380)	(104.148)	(240.249)	(14.042)	(77.330)	(65.022)
$\ln A_{if}$ (β_4)	-0.0004***	-0.307	0.074	1.158*	-0.373*	0.749**	0.214	-1.096**
	(0.00041)	(0.345)	(0.205)	(0.849)	(0.237)	(0.346)	(0.846)	(0.579)
$\ln A_{it} / \Sigma \ln A_t$ (β_5)	-79.630***	3.106	-2.943	-79.220*	31.183	-22.460	-4.497	82.147*
	(29.353)	(83.673)	(14.598)	(52.461)	(76.725)	(15.967)	(34.441)	(58.366)
$\ln V_{it}$ (β_6)	0.647***	-0.001*	0.489***	0.425*	0.464***	0.142	-0.404	0.855***
	(0.061)	(0.001)	(0.084)	(0.318)	(0.189)	(0.579)	(0.733)	(0.109)
$\ln Age_{it}$ (β_7)	0.109	0.091	-1.143***	-1.365***	1.956***	-0.533*	0.442	-1.070***
	(0.103)	(0.147)	(0.372)	(0.388)	(0.294)	(0.388)	(2.392)	(0.349)
$\ln G_{it}$ (β_8)	0.001	0.318***	0.242***	-0.070	0.028	-0.129	-1.319***	-0.071
	(0.045)	(0.058)	(0.116)	(0.217)	(0.236)	(0.114)	(0.540)	(0.095)
R^2	0.454	0.335	0.782	0.826	0.642	0.826	0.773	0.738
AdjR^2	0.442	0.293	0.738	0.780	0.602	0.734	0.694	0.694
Obs.	352	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.16: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon$$

	All	Welfare	Hum.	Global	Disability	Animal	Science	Rural
β_0	1.185*	16.43***	-1.498	35.262***	43.615***	7.694	50.758**	2.607
	(3.855)	(5.445)	(7.229)	(12.940)	(16.917)	(7.857)	(25.443)	(6.541)
$\ln F_i$ (β_1)	2.185	1.186*	-0.345	5.097**	4.897**	0.645	5.872***	-0.875*
	(1.307)	(0.394)	(0.935)	(2.386)	(2.537)	(0.682)	(2.466)	(0.670)
$\ln F_j$ (β_2)	0.015	-0.880**	0.706	-2.986**	-4.394***	-0.101	-4.188**	0.746
	(0.305)	(0.477)	(0.645)	(1.286)	(1.614)	(0.543)	(1.892)	(0.591)
$\ln F_i / \Sigma \ln F_j$ (β_3)	-938.21	-203.59	27.80	-182.40**	-451.36**	-6.747	-147.11***	71.023*
	(694.76)	(137.32)	(54.390)	(95.747)	(245.209)	(10.96)	(60.75)	(54.192)
$\ln A_{it}$ (β_4)	-1.355	0.045	0.111	0.993	-1.611**	0.666**	0.177	-1.003**
	(1.470)	(0.322)	(0.204)	(0.850)	(0.844)	(0.344)	(0.842)	(0.588)
$\ln A_{it} / \Sigma \ln A_{jt}$ (β_5)	802.886	-78.694	-5.522	-49.874	139.005*	-11.597	-2.004	55.630
	(955.97)	(73.09)	(10.02)	(38.87)	(94.62)	(9.91)	(22.76)	(45.89)
$\ln V_{it}$ (β_6)	0.646***	-0.001	0.511***	0.502*	0.488***	0.091	-0.299	0.865***
	(0.061)	(0.001)	(0.083)	(0.320)	(0.189)	(0.645)	(0.720)	(0.110)
$\ln Age_{it}$ (β_7)	0.114	0.078	-1.004***	-1.267***	1.825***	-0.398	0.984	-0.989***
	(0.103)	(0.143)	(0.365)	(0.401)	(0.302)	(0.453)	(2.434)	(0.340)
$\ln G_{it}$ (β_8)	0.002	0.338***	0.233	-0.044	0.174	-0.145	-1.337***	-0.052
	(0.045)	(0.060)	(0.119)	(0.226)	(0.238)	(0.116)	(0.549)	(0.093)
R^2	0.455	0.318	0.775	0.823	0.647	0.820	0.777	0.733
AdjR^2	0.443	0.275	0.729	0.777	0.607	0.725	0.700	0.688
SE of reg.	1.327	1.285	0.740	0.528	1.020	0.330	0.860	0.746
Obs.	352	136	48	40	96	24	32	56

Note: Dependent variable is ln of Total Donations, Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.17: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.817	-1.671	-2.060	33.288***	58.783***	9.753	32.230	16.122**
	(5.668)	(2.857)	(4.265)	(9.982)	(17.277)	(10.781)	(25.481)	(9.529)
$\ln F_i$ (β_1)	0.116	0.163	0.039	7.616***	9.777***	-0.060	4.893**	0.133
	(1.381)	(0.355)	(0.081)	(2.642)	(3.023)	(0.497)	(2.661)	(0.700)
$\ln F_j$ (β_2)	0.342	0.055	0.467*	-2.164***	-5.674***	0.623*	-4.019**	-0.139
	(0.449)	(0.223)	(0.349)	(0.788)	(1.529)	(0.430)	(2.058)	(0.669)
$\ln F_i / \Sigma \ln Fj$ (β_3)	151.811	-2.368	7.557*	-378.572***	-1272.410***	6.384	-192.482**	-23.599
	(758.148)	(63.254)	(4.871)	(145.757)	(397.676)	(15.277)	(103.994)	(73.130)
$\ln A_{i\,t\text{-}1}$ (β_4)	-0.667	-0.097	-0.488	-1.412	1.842*	-0.689*	0.731	-1.485*
	(1.418)	(0.184)	(0.414)	(1.606)	(1.168)	(0.446)	(1.017)	(1.079)
$\ln A_{i\,t\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	382.405	-11.585	68.272	78.051	-275.061*	-2.076	-8.114	90.213
	(945.778)	(40.505)	(69.583)	(97.381)	(172.865)	(19.690)	(43.633)	(107.563)
$\ln V_{i\,t\text{-}1}$ (β_6)	0.676***	1.143***	0.761***	0.268	0.361***	-0.893	0.436	1.041***
	(0.065)	(0.110)	(0.064)	(0.262)	(0.147)	(1.005)	(0.577)	(0.139)
$\ln Age_{i\,t\text{-}1}$ (β_7)	0.138	-0.104	-0.309***	-1.212***	1.729***	-0.516*	2.205	-1.124***
	(0.113)	(0.120)	(0.104)	(0.304)	(0.225)	(0.355)	(2.180)	(0.290)
$\ln AC_{i\,t\text{-}1}$ (β_8)	-0.036	0.218***	0.166***	-0.069	0.145	0.948***	-0.197	0.048
	(0.064)	(0.085)	(0.062)	(0.166)	(0.995)	(0.404)	(0.234)	(0.131)
R^2	0.455	0.595	0.736	0.833	0.622	0.889	0.652	0.786
Adjusted R^2	0.441	0.565	0.708	0.782	0.581	0.815	0.505	0.733
SE of regression	1.320	0.978	0.706	0.529	1.060	0.256	1.125	0.672
Observations	307	119	42	35	84	21	28	41

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10

Table 6.18: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.844	-1.488	-2.533	44.359***	67.424***	11.250	30.654	19.208**
	(5.658)	(2.781)	(4.202)	(12.386)	(20.952)	(10.472)	(23.943)	(9.304)
$\ln F_i$ (β_1)	0.009	0.191	0.040	8.826***	10.206***	-0.134	6.448**	0.313
	(1.377)	(0.354)	(0.085)	(2.848)	(3.765)	(0.670)	(3.182)	(0.783)
$\ln F_j$ (β_2)	0.348	0.038	0.523*	-3.957***	-6.886***	0.695	-5.320**	-0.307
	(0.449)	(0.223)	(0.357)	(1.205)	(1.990)	(0.578)	(2.506)	(0.725)
$\ln F_i / \Sigma \ln Fj$ (β_3)	204.522	-7.311	7.669*	-324.859***	-1184.278***	4.557	-163.752**	-33.424
	(734.746)	(58.607)	(5.467)	(112.253)	(440.531)	(10.983)	(80.479)	(63.544)
$\ln A_{i\,t\text{-}1}$ (β_4)	-0.618	-0.076	-0.527*	-0.836	0.669	-0.608*	0.851	-1.469*
	(1.415)	(0.179)	(0.393)	(1.327)	(1.105)	(0.441)	(0.939)	(1.080)
$\ln A_{i\,t\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	349.408	-15.908	69.001	32.541	-83.235	-3.627	-9.357	66.984
	(944.044)	(36.969)	(60.582)	(58.347)	(134.454)	(12.106)	(27.578)	(83.139)
$\ln V_{i\,t\text{-}1}$ (β_6)	0.675***	1.142***	0.753***	0.212	0.357***	-1.066	0.580	1.053***
	(0.065)	(0.110)	(0.064)	(0.301)	(0.150)	(1.081)	(0.544)	(0.140)
$\ln Age_{i\,t\text{-}1}$ (β_7)	0.137	-0.104	-0.306***	-1.085***	1.708***	-0.439	2.997*	-1.124***
	(0.113)	(0.120)	(0.104)	(0.308	(0.256)	(0.456)	(2.194)	(0.292)
$\ln AC_{i\,t\text{-}1}$ (β_8)	-0.036	0.218***	0.155***	-0.054	0.137*	0.889**	-0.168	0.066
	(0.064)	(0.084)	(0.063)	(0.166)	(0.098)	(0.397)	(0.222)	(0.133)
R^2	0.455	0.595	0.735	0.833	0.606	0.890	0.663	0.787
Adj.R^2	0.441	0.565	0.707	0.782	0.564	0.816	0.520	0.734
Obs	307	119	42	35	84	21	28	41

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.19: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-1.604**	3.287	8.630**	28.614***	54.942***	4.226*	34.987	14.364*
	(0.758)	(8.861)	(3.791)	(11.535)	(17.313)	(11.859)	(30.284)	(10.061)
$\ln F_{it\text{-}1}$ (β_1)	-0.273	0.035	0.767	5.960**	-0.214	0.760	6.019**	1.856***
	(0.816)	(1.160)	(0.896	(2.619)	(0.329)	(0.816)	(3.392)	(1.004)
$\ln F_{jt\text{-}1}$ (β_2)	0.244***	-0.154	-0.027	-1.873**	-4.418*	0.191	-4.280*	-1.367*
	(0.058)	(0.752)	(0.302)	(0.887)	(3.389)	(0.439)	(2.721)	(0.851)
$\ln F_{it\text{-}1} / \Sigma \ln F_{jt\text{-}1}$ (β_3)	311.661	37.464	-65.345	-283.716**	-67.80	-18.696	-245.665**	-158.352**
	(446.002)	(217.078)	(63.585)	(146.819)	(411.32)	(24.204)	(146.98)	(90.999)
$\ln A_{it\text{-}1}$ (β_4)	0.090	0.328*	-0.534	-0.449	-1.846**	0.156	-5.375	0.833***
	(0.110)	(0.200)	(0.511)	(1.358)	(0.838)	(0.677)	(4.507)	(0.174)
$\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	-4.625	-98.283***	40.300	20.368	195.424**	8.132	259.597*	15.695***
	(58.883)	(29.526)	(38.673)	(84.345)	(113.852)	(25.995)	(199.957)	(3.602)
$\ln V_{it\text{-}1}$ (β_6)	0.657***	1.005***	0.742***	0.098	0.359**	0.330	0.400	-0.001
	(0.061)	(0.128)	(0.086)	(0.237)	(0.186)	(1.203)	(0.5491)	(0.157)
$\ln Age_{it\text{-}1}$ (β_7)	0.024	-0.028	-0.429	-0.976***	2.161***	-0.978**	2.537	0.264
	(0.113)	(0.132)	(0.455)	(0.282)	(0.426)	(0.519)	(2.176)	(0.354)
$\ln AC_{it\text{-}1}$ (β_8)	-0.208***	0.027	0.188*	-0.175	0.077	-0.277	0.071	0.769***
	(0.074)	(0.118)	(0.140)	(0.200)	(0.168)	(0.869)	(0.253)	(0.180)
R^2	0.502	0.580	0.798	0.831	0.670	0.671	0.719	0.838
Adj. R^2	0.489	0.550	0.749	0.779	0.626	0.450	0.601	0.806
Obs	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.20: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_7 \ln AC_{it-1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-0.853	2.638	3.342***	44.302***	57.569***	16.255	49.428	-9.801**
	(0.781)	(3.358)	(0.927)	(10.516)	(19.970)	(17.481)	(39.020)	(4.806)
$\ln F_{it-1}$ (β_1)	0.369***	0.356*	-0.044	8.835***	5.818*	1.475*	5.843*	0.751**
	(0.075)	(0.252)	(0.882)	(3.149)	(3.857)	(0.919)	(3.785)	(0.391)
$\ln F_{jt-1}$ (β_2)	-0.397	0.028	-0.043	-4.022***	-5.796***	-0.070	-5.627*	1.054**
	(0.790)	(0.083)	(0.163)	(1.071)	(1.927)	(0.347)	(3.527)	(0.530)
$\ln F_{it-1} / \Sigma \ln F_{jt-1}$ (β_3)	347.214	-6.629	16.883	-331.979***	-689.152	-20.967*	-154.531*	-27.459
	(420.478)	(30.224)	(106.628)	(126.291)	(459.410)	(14.108)	(115.080)	(21.936)
$\ln A_{it-1}$ (β_4)	0.067	-1.438	-0.103	-0.240	0.429	0.876	-4.141	0.022
	(0.112)	(0.766)	(0.235)	(0.409)	(0.857)	(0.807)	(7.010	(0.411)
$\ln A_{it-1} / \Sigma \ln A_{jt-1}$ (β_5)	-7.075	94.239	1.041	5.812	-52.820	-11.402	131.951	23.031
	(59.412)	(100.237)	(36.142)	(13.128)	(104.733)	(18.359)	(203.726)	(27.029)
$\ln V_{it-1}$ (β_6)	0.663***	1.264***	0.756***	0.088	0.347***	-0.460	0.283	0.413**
	(0.064)	(0.299)	(0.074)	(0.228)	(0.142)	(1.433)	(0.496)	(0.216)
$\ln Age_{it-1}$ (β_7)	0.029	-0.071	-0.284***	-0.897***	1.704***	-0.414	1.340	-0.675**
	(0.114)	(0.245)	(0.085)	(0.282)	(0.228)	(0.757)	(2.437)	(0.366)
$\ln AC_{it-1}$ (β_8)	-0.091*	0.327**	0.164**	0.113	0.161*	-0.890	0.050	0.152**
	(0.065)	(0.182)	(0.071)	(0.129)	(0.111)	(0.977)	(0.560)	(0.084)
R^2	0.492	0.515	0.722	0.831	0.620	0.693	0.701	0.817
AdjR^2	0.478	0.458	0.693	0.779	0.580	0.489	0.576	0.781
S.E.OR	1.305	1.139	0.725	0.532	1.028	0.478	1.042	0.668
Obs.	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.21: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_7 \ln AC_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	2.359	11.681***	-2.121	29.370***	58.447***	4.425	19.321	-3.328
	(3.631)	(4.291)	(3.343)	(6.658)	(13.273)	(9.973)	(28.742)	(5.160)
$\ln F_i$ (β_1)	1.362**	0.609**	0.088	3.842***	7.432***	0.746**	4.382*	-0.955***
	(0.756)	(0.326)	(0.092)	(1.480)	(2.736)	(0.346)	(2.714)	(0.380)
$\ln F_j$ (β_2)	-0.045	-0.146*	0.412*	-1.860***	-5.583***	-0.178	-4.205**	0.935***
	(0.283)	(0.101)	(0.255)	(0.531)	(1.206)	(0.323)	(2.306)	(0.389)
$\ln F_i / \mathrm{Ln}\Sigma F$ (β_3)	-490.256	-28.605	4.462	-171.729**	-980.701***	-15.132*	-202.163*	123.397***
	(409.729)	(39.348)	(4.428)	(79.189)	(366.100)	(9.624)	(125.250)	(45.144)
$\ln A_i$ (β_4)	-0.0004***	-1.934**	0.421*	1.117	-0.187	0.146	1.385**	-1.392***
	(0.00005)	(1.062)	(0.265)	(0.877)	(0.8989)	(0.576)	(0.691)	(0.523)
$\ln A_i / \ln\Sigma A$ (β_5)	-44.321	188.947	-67.804**	-78.278*	28.424	-2.705	-45.942*	121.697***
	(40.650)	(166.150)	(40.394)	(52.803)	(133.236)	(23.552)	(31.278)	(52.096)
$\ln V_i$ (β_6)	0.632***	0.001**	0.709***	0.364**	0.313***	0.451	1.143***	0.781***
	(0.068)	(0.000)	(0.076)	(0.199)	(0.124)	(0.742)	(0.464)	(0.085)
lnAgei (β_7)	0.096	0.150	-0.260***	-1.289***	1.766***	-1.058***	5.472***	-0.721**
	(0.126)	(0.258)	(0.080)	(0.250)	(0.182)	(0.253)	(1.924)	(0.311)
lnAC (β_8)	-0.116**	0.161	0.102*	-0.047	0.174**	0.547*	0.218	-0.357***
	(0.058)	(0.227)	(0.077)	(0.160)	(0.104)	(0.384)	(0.365)	(0.112)
R^2	0.460	0.223	0.624	0.826	0.618	0.830	0.720	0.788
Adjusted R^2	0.447	0.145	0.590	0.781	0.582	0.739	0.623	0.752
S.E. of regression	1.321	1.439	0.899	0.523	1.008	0.322	0.964	0.665
Obs.	352	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.22: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_7 \ln AC_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	1.233	12.664***	-9.995**	36.523***	63.065***	3.198	11.403	0.041
	(3.868)	(4.416)	(5.840)	(8.831)	(15.928)	(9.616)	(26.131)	(4.905)
$\ln F_i$ (β_1)	2.289**	0.602**	-1.074**	5.247***	7.765**	0.918**	5.314*	-0.939***
	(1.274)	(0.341)	(0.584)	(2.171)	(3.380)	(0.494)	(3.352)	(0.399)
$\ln F_j$ (β_2)	0.039	-0.148*	1.092**	-3.127***	-6.251***	-0.329	-5.144**	0.907**
	(0.303)	(0.104)	(0.487)	(0.875)	(1.566)	(0.432)	(2.876)	(0.399)
$\ln F_i / \ln\Sigma F$ (β_3)	-968.569*	-25.099	155.852**	-187.905**	-907.048**	-10.758*	-154.716*	94.455***
	(672.835)	(36.407)	(80.190)	(84.210)	(400.820)	(7.414)	(96.443)	(36.665)
$\ln A_i$ (β_4)	-1.269	-2.005**	0.336	1.001	-0.658	0.033	1.469***	-1.303***
	(1.490)	(1.067)	(0.276)	(0.954)	(0.787)	(0.592)	(0.609)	(0.518)
$\ln A_i/\ln\Sigma A$ (β_5)	780.586	172.750	-50.966*	-50.920	80.536	1.263	-34.016**	86.993**
	(967.391)	(144.449)	(35.107)	(41.621)	(95.287)	(15.273)	(19.020)	(40.032)
$\ln V_i$ (β_6)	0.631***	0.001**	0.721***	0.465**	0.309***	0.572	1.345***	0.788***
	(0.068)	(0.000)	(0.075)	(0.201)	(0.127)	(0.893)	(0.471)	(0.088)
lnAgei (β_7)	0.101	0.147	-0.264***	-1.216***	1.777***	-1.095***	6.670***	-0.673**
	(0.126)	(0.258)	(0.081)	(0.256)	(0.183)	(0.410)	(1.998)	(0.310)
lnAC (β_8)	-0.114**	0.158	0.104*	-0.023	0.167*	0.591*	0.267	-0.349***
	(0.058)	(0.227)	(0.076)	(0.176)	(0.103)	(0.387)	(0.370)	(0.114)
R^2	0.461	0.225	0.628	0.823	0.612	0.828	0.729	0.782
Adjusted R^2	0.448	0.147	0.593	0.777	0.577	0.736	0.635	0.744
S.E. of regression	1.321	1.437	0.895	0.528	1.015	0.323	0.948	0.675
Obs.	352	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.23: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.248	-0.312	-3.639	47.942***	27.322	31.276***	53.318***	-18.410**
	(5.658)	(2.697)	(4.203)	(11.134)	(21.649)	(8.045)	(15.692)	(8.088)
$\ln F_i$ (β_1)	0.124	0.413	0.131**	8.379***	5.250*	-0.029	3.929**	0.697
	(1.384)	(0.331)	(0.078)	(2.965)	(3.941)	(0.506)	(1.956)	(0.688)
$\ln F_j$ (β_2)	0.307	-0.068	0.466*	-3.609***	-2.321*	0.699	-2.715**	-0.682
	(0.449)	(0.213)	(0.347)	(0.891)	(1.881)	(0.428)	(1.559)	(0.583)
$\ln F_i / \Sigma \ln F$ (β_3)	134.849	-35.734	5.921	-430.695***	-571.793	-5.505	-156.337**	-92.678*
	(759.763)	(60.630)	(4.867)	(163.928)	(510.727)	(16.522)	(77.028)	(65.634)
$\ln A_i$ (β_4)	-0.620	-0.018	-0.426	-0.930	3.114**	0.156	-0.194	-1.239
	(1.418)	(0.171)	(0.414)	(1.795)	(1.553)	(0.290)	(0.673)	(1.222)
$\ln A_i / \Sigma \ln A$ (β_5)	348.255	-21.027	66.038	-41.799	-455.672**	-41.398***	12.931	72.621
	(946.636)	(38.581)	(69.485)	(109.115)	(229.860)	(11.720)	(29.571)	(121.939)
$\ln V_i$ (β_6)	0.688***	0.958***	0.654***	-0.465**	-0.109	-2.635***	-0.521***	0.957***
	(0.064)	(0.111)	(0.066)	(0.267)	(0.185)	(0.849)	(0.184)	(0.140)
$\ln Gi$ (β_7)	0.025	0.185***	0.138***	0.456***	-0.119	-0.004	-1.530***	0.157**
	(0.046)	(0.045)	(0.044)	(0.181)	(0.263)	(0.084)	(0.368)	(0.081)
R^2	0.452	0.627	0.732	0.782	0.326	0.838	0.796	0.716
Adjusted R^2	0.439	0.604	0.708	0.725	0.264	0.751	0.725	0.656
S.E. of regression	1.322	0.934	0.706	0.594	1.360	0.298	0.839	0.763
Observations	307	119	42	35	84	21	28	41

NOTES: A dependent variable is Log of Total Donations (Di), Table 5.7 presents definition of dependent variables, ***, **,* significant at 1, 5, 10 %.

Table 6.24: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	-2.287	-0.173	-3.554	60.316***	34.169*	30.466***	56.983***	-19.294***
	(5.649)	(2.623)	(4.102)	(13.049)	(24.738)	(7.969)	(15.709)	(7.751)
$\ln F_i$ (β_1)	-0.005	0.443*	0.131*	9.682***	7.298*	0.198	5.369**	0.792
	(1.379)	(0.332)	(0.082)	(3.087)	(4.646)	(0.711)	(2.385)	(0.750)
$\ln F_j$ (β_2)	0.313	-0.086	0.476*	-5.710***	-3.554*	0.513	-3.861**	-0.752
	(0.449)	(0.214)	(0.352)	(1.278)	(2.340)	(0.594)	(1.901)	(0.619)
$\ln F_i / \Sigma \ln F$ (β_3)	199.840	-38.528	5.414	-369.914***	-760.868*	-0.174	-136.738**	-79.555*
	(736.110)	(56.216)	(5.490)	(124.478)	(540.948)	(12.077)	(60.235)	(55.974)
$\ln A_i$ (β_4)	-0.561	0.003	-0.424	-0.091	3.991***	0.205	-0.103	-1.354
	(1.415)	(0.167)	(0.394)	(1.498)	(1.233)	(0.282)	(0.641)	(1.222)
$\ln A_i / \Sigma \ln A$ (β_5)	308.332	-24.790	59.972	-4.637	-482.650***	-23.901***	6.204	64.848
	(944.623)	(35.240)	(60.211)	(66.775)	(150.372)	(6.506)	(18.456)	(94.063)
$\ln V_i$ (β_6)	0.688***	0.957***	0.648***	-0.342	-0.046	-2.700***	-0.523***	0.956***
	(0.064)	(0.111)	(0.067)	(0.298)	(0.180)	(0.835)	(0.180)	(0.140)
$\ln Gi$ (β_7)	0.025	0.186***	0.133***	0.409**	-0.147	0.050	-1.564***	0.155**
	(0.046)	(0.045)	(0.042)	(0.181)	(0.250)	(0.088)	(0.359)	(0.081)
R^2	0.452	0.628	0.731	0.792	0.375	0.843	0.803	0.718
Adj R^2	0.440	0.605	0.706	0.739	0.317	0.759	0.734	0.658
S.E. of regression	1.322	0.933	0.708	0.579	1.310	0.293	0.824	0.760
Observations	307	119	42	35	84	21	28	41

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of dependent variables, ***, **,* significant at 1, 5, 10 %

Table 6.25: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Hum.	Global	Disability	Animal	Science	Rural
β_0	-1.324**	17.014**	7.754***	52.607***	22.733	-4.998	58.112**	-13.523*
	(0.772)	(8.548)	(3.319)	(12.806)	(18.735)	(8.432)	(26.173)	(9.728)
$\ln F_i$	-0.531	1.857**	0.867	9.050***	0.134	0.266	6.365**	-0.359
	(0.823)	(1.115)	(0.844)	(2.919)	(0.390)	(0.711)	(2.945)	(0.960)
$\ln F_j$	0.275***	-1.276**	-0.087	-3.939***	-7.565**	0.4061	-3.578*	0.896
	(0.058)	(0.715)	(0.283)	(1.003)	(3.978)	(0.348)	(2.270)	(0.776)
$\ln F_i$	455.886	-313.952*	-75.219*	-471.916***	502.235	-7.626	-240.68**0	75.453
$/\Sigma \ln F$	(449.410)	(209.077)	(58.282)	(163.561)	(466.94)	(21.40	(125.38)	(85.656)
$\ln A_i$	0.029	-0.070	-0.910**	-0.891	-0.865	0.554	-5.167*	1.150***
	(0.108)	(0.178)	(0.496)	(1.481)	(0.959)	(0.603)	(3.891)	(0.164)
$\ln A_i$	-9.134	-75.615***	53.405*	39.791	252.695**	-3.976	240.512*	-1.676
$/\Sigma \ln A$	(59.530)	(27.041)	(36.656)	(91.962)	(135.03)	(21.16)	(172.22)	(2.801)
$\ln V_i$	0.692***	0.874***	0.696***	-0.568**	0.175	1.172*	-0.534***	0.090
	(0.061)	(0.111)	(0.076)	(0.273)	(0.215)	(0.744)	(0.222)	(0.123)
lnGi	0.025	0.280***	0.248**	0.510***	0.079	-0.33**	-1.285***	-0.515***
	(0.049)	(0.059)	(0.130)	(0.188)	(0.275)	(0.120)	(0.496)	(0.112)
R^2	0.489	0.650	0.787	0.787	0.527	0.731	0.773	0.844
$AdjR^2$	0.477	0.628	0.743	0.731	0.474	0.586	0.694	0.818
S.E.OR	1.306	0.940	0.527	0.587	1.197	0.431	0.884	0.609
Obs.	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.26: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Hum.	Global	Disability	Animal	Science	Rural
β_0	-1.229*	4.124*	1.555**	67.707***	7.648	-5.031	68.053**	-7.666**
	(0.761)	(3.025)	(0.817)	(11.790)	(24.396)	(6.666)	(34.856)	(3.489)
$\ln F_{it\text{-}1}$ (β_1)	0.304***	0.451**	0.232	12.222***	-1.993	0.381	6.528**	-0.085
	(0.063)	(0.247)	(0.877)	(3.103)	(4.467)	(0.628)	(3.468)	(0.403)
$\ln F_{jt\text{-}1}$ (β_2)	-0.499	-0.065	-0.105	-6.499***	-0.137	0.349**	-5.232*	0.586*
	(0.794)	(0.089)	(0.132)	(1.168)	(2.183)	(0.191)	(3.289)	(0.369)
$\ln F_{it\text{-}1} / \Sigma \ln F_{jt\text{-}1}$ (β_3)	409.235	-24.792	-1.335	-472.399***	343.783	-5.980	-169.13*	33.396*
	(422.423)	(30.441)	(105.658)	(124.309	(527.990)	(10.460)	(111.157)	(24.765)
$\ln A_{it\text{-}1}$ (β_4)	0.027	-1.243**	-0.046	-0.403	0.691	0.530	-3.154	1.519***
	(0.107)	(0.735)	(0.240)	(0.381)	(7.519)	(0.641)	(4.029)	(0.513)
$\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	-8.321	83.589	-5.925	7.101	-0.220	-2.074	97.164	-41.838*
	(59.492)	(97.319)	(37.108)	(12.634)	(0.140)	(13.495)	(117.026)	(28.707)
$\ln V_{it\text{-}1}$ (β_6)	0.692***	1.009***	0.660***	-0.481**	-0.010	1.136*	-0.401**	0.153
	(0.061)	(0.254)	(0.072)	(0.263)	(0.201)	(0.706)	(0.214)	(0.125)
$\ln G_{it\text{-}1}$ (β_7)	0.028	0.313**	0.135***	0.435***	-0.365	-0.313***	-1.212***	-0.558***
	(0.050)	(0.139)	(0.042)	(0.183)	(0.241)	(0.127)	(0.244)	(0.201)
R^2	0.489	0.561	0.723	0.802	0.373	0.732	0.759	0.862
$AdjR^2$	0.477	0.516	0.698	0.750	0.315	0.588	0.674	0.838
S.E.OR	1.306	1.076	0.718	0.566	1.312	0.429	0.913	0.574
Obs.	308	119	42	35	84	21	28	49

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

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Table 6.27: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	2.602	12.8954***	-3.067	44.893***	17.991	7.723	55.914***	8.324*
	(3.590)	(2.310)	(3.112)	(9.672)	(18.213)	(9.302)	(11.855)	(6.242)
$\ln F_i$ (β_1)	1.200*	-0.291***	0.147**	5.080***	1.681	0.387	4.869***	-0.018
	(0.748)	(0.097)	(0.077)	(1.875)	(3.201)	(0.398)	(1.620)	(0.339)
$\ln F_j$ (β_2)	-0.073	0.428**	0.360*	-3.388***	-1.268	0.007	-3.203***	-0.158
	(0.280)	(0.255)	(0.238)	(0.779)	(1.471)	(0.441)	(1.354)	(0.417)
$\ln F_i / \text{Ln}\Sigma F$ (β_3)	-430.246	-57.208**	3.314	-247.460***	-95.507	-7.421	-187.069***	-10.408
	(408.077)	(32.424)	(4.955)	(103.373)	(424.167)	(12.448)	(70.586)	(39.110)
$\ln A_i$ (β_4)	-0.0005***	-2.074**	0.405**	1.137	0.234	0.880**	0.105	-1.087**
	(0.00004)	(0.906)	(0.245)	(1.052)	(1.214)	(0.408)	(0.909)	(0.570)
$\ln A_i / \ln\Sigma A$ (β_5)	-71.345**	206.453*	-61.200*	-88.704*	-31.740	-29.806*	-0.298	80.079*
	(33.254)	(141.623)	(38.462)	(65.732)	(177.833)	(19.199)	(34.431)	(52.204)
$\ln V_i$ (β_6)	0.657***	0.001***	0.605***	-0.425*	-0.210*	0.278	-0.535***	0.833***
	(0.065)	(0.000)	(0.073)	(0.265)	(0.150)	(0.657)	(0.187)	(0.111)
lnGi (β_7)	0.007	0.587***	0.148***	0.487***	-0.258*	-0.255***	-1.392***	0.091
	(0.049)	(0.100)	(0.045)	(0.158)	(0.191)	(0.069)	(0.310)	(0.108)
R^2	0.453	0.503	0.639	0.756	0.332	0.805	0.773	0.686
$AdjR^2$	0.441	0.459	0.611	0.703	0.279	0.719	0.706	0.640
S.E. of reg.	1.328	1.145	0.867	0.609	1.324	0.334	0.850	0.801
Obs.	352	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

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Table 6.28: OLS estimation for Australian charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	1.478	13.775***	-7.434*	54.417***	19.504	7.749	58.897***	9.410*
	(3.831)	(2.434)	(4.897)	(11.215)	(19.924)	(9.375)	(13.397)	(6.314)
$\ln F_i$ (β_1)	2.136**	0.444**	-0.475	6.609***	2.045	0.486	6.214***	0.006
	(1.287)	(0.265)	(0.460)	(2.441)	(3.678)	(0.537)	(2.288)	(0.385)
$\ln F_j$ (β_2)	0.013	-0.297***	0.728**	-5.081***	-1.580	-0.045	-4.285**	-0.167
	(0.303)	(0.101)	(0.402)	(1.088)	(1.758)	(0.558)	(1.903)	(0.446)
$\ln F_i / \text{Ln}\Sigma F$ (β_3)	-915.233*	-52.049**	84.528*	-249.527***	-135.175	-5.256	-153.092***	-9.724
	(679.208)	(29.740)	(65.325)	(95.738)	(432.342)	(8.808)	(61.927)	(34.136)
$\ln A_i$ (β_4)	-1.284	-2.023**	0.386*	1.308	1.132	0.816**	-0.074	-1.052**
	(1.486)	(0.908)	(0.262)	(1.088)	(1.165)	(0.358)	(0.796)	(0.569)
$\ln A_i / \ln\Sigma A$ (β_5)	764.803	170.868*	-53.996*	-71.384*	-135.386	-16.678*	4.428	59.302*
	(967.589)	(122.221)	(34.469)	(49.611)	(139.745)	(10.526)	(19.950)	(40.428)
$\ln V_i$ (β_6)	0.656***	0.001***	0.615***	-0.212	-0.177*	0.038	-0.580***	0.833***
	(0.065)	(0.000)	(0.073)	(0.260)	(0.154)	(0.766)	(0.149)	(0.112)
$\ln Gi$ (β_7)	0.008	0.584***	0.148***	0.481***	-0.254*	-0.197**	-1.504***	0.089
	(0.049)	(0.099)	(0.046)	(0.157)	(0.181)	(0.085)	(0.288)	(0.107)
R^2	0.454	0.502	0.641	0.766	0.339	0.811	0.778	0.685
Adjusted R^2	0.443	0.458	0.612	0.714	0.286	0.728	0.710	0.639
S.E. of regression	1.328	1.146	0.874	0.594	1.318	0.328	0.845	0.802
Obs.	351	136	48	40	96	24	32	56

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.29: OLS estimation for Australian charities with State

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon$$

	ACT	Victoria	NSW	QLD	WA	SA
β_0	27.314	36.250**	6.911	24.669	37.686	-771.311
	(133.709)	(17.192)	(6.546)	(15.101)	(48.976)	(1240.132)
$\ln F_i$	2.763	4.462**	0.314	-0.366	3.589	-55.411
	(7.515)	(2.375)	(0.789)	(3.193)	(4.944)	(84.271)
$\ln F_j$	-3.243	-3.170**	0.014	0.425	-2.061	58.568
	(6.726)	(1.448)	(0.979)	(1.481)	(3.917)	(85.227)
$\ln F_i / \Sigma \ln F$	-79.370	-816.334**	-17.482	-2.083	-169.601	1659.846
	(214.942)	(494.868)	(136.333)	(140.908)	(215.299)	(2520.335)
$\ln A_i$	-0.427	0.833	0.613	-1.517***	0.220	-3.921*
	(0.392)	(1.443)	(1.116)	(0.506)	(2.409)	(2.461)
$\ln A_i / \Sigma \ln A$	3.737	-257.436	-97.735	63.897***	-0.593	1.779
	(4.799)	(358.908)	(221.735)	(95.283)	(114.469)	(9.812)
$\ln V_i$	3.622	0.606***	0.293***	1.667***	-1.313**	2.959*
	(4.777)	(0.090)	(0.070)	(0.338)	(0.728)	(2.274)
lnAgei	0.710	0.544***	-0.632***	-6.095***	0.846*	-10.270
	(5.026)	(0.128)	(0.182)	(1.826)	(0.645)	(10.944)
R^2	0.976	0.707	0.450	0.909	0.382	0.768
Adj R^2	0.948	0.689	0.407	0.877	0.166	0.494
Obs	14	143	98	28	28	14

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.30: OLS estimation for Australian charities with State

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon$$

	ACT	Victoria	NSW	QLD	WA	SA
β_0	-52.592	38.393**	7.476	26.934**	30.782	-1180.859
	(214.302)	(17.496)	(6.592)	(15.346)	(50.436)	(1388.800)
$\ln F_i$ (β_1)	-2.454	4.882**	0.317	1.290	2.604	-86.387
	(15.011)	(2.436)	(0.794)	(3.664)	(5.179)	(95.999)
$\ln F_j$ (β_2)	2.135	-3.374**	-0.033	-0.222	-1.146	90.605
	(14.909)	(1.480)	(0.534)	(1.640)	(4.154)	(97.474)
$\ln F_i / \Sigma \ln F_j$ (β_3)	73.020	-902.123**	-27.396	-68.281	-130.309	2586.585
	(435.813)	(510.689)	(137.083)	(158.237)	(224.316)	(2872.861)
$\ln A_i$ (β_4)	-0.576	0.643	0.642	-1.658***	0.631	-3.143
	(0.556)	(1.471)	(1.119)	(0.530)	(2.501)	(2.739)
$\ln A_i / \Sigma \ln A$ (β_5)	5.403	-213.142	-103.244	62.975***	-7.225	9.611
	(6.560)	(356.143)	(222.211)	(25.394)	(116.166)	(14.344)
$\ln V_i$ (β_6)	5.403	0.573***	0.285***	1.502***	-1.794**	3.196*
	(6.560)	(0.102)	(0.071)	(0.382)	(0.987)	(2.374)
$\ln Age_i$ (β_7)	4.475	0.537***	-0.705***	-4.987**	0.801	-16.516
	(5.546)	(0.128)	(0.202)	(2.184)	(0.656)	(13.914)
$\ln G_i$ (β_8)	-1.050	0.056	0.041	0.232	-0.163	-4.306
	(2.545)	(0.079)	(0.049)	(0.249)	(0.223)	(5.568)
R^2	0.977	0.570	0.454	0.913	0.399	0.793
Adj.R^2	0.939	0.543	0.405	0.876	0.146	0.462
Obs.	14	126	98	35	28	14

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.31: OLS Estimation for Australian charities with States

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1}\ \varepsilon$$

	ACT	Victoria	NSW	QLD	WA	SA
β_0	304.994*	29.024**	6.928	26.592	30.613	-872.581
	(217.615)	(17.166)	(6.581)	(23.808)	(51.390)	(1246.396)
$\ln F_i$ (β_1)	18.817*	3.233*	0.324	-0.354	2.621	-60.334
	(12.475)	(2.374)	(0.795)	(3.277)	(5.316)	(84.557)
$\ln F_j$ (β_2)	-19.967*	-2.510**	0.011	0.297	-1.189	61.533
	(12.481)	(1.450)	(0.533)	(1.939)	(4.275)	(85.421)
$\ln F_i / \Sigma \ln F_j$ (β_3)	-543.667*	-537.115	-19.258	-3.469	-130.254	1772.952
	(359.597)	(500.580)	(137.343)	(145.112)	(229.928)	(2527.242)
$\ln A_i$ (β_4)	0.153	1.291	0.583	-1.459**	0.544	-3.772*
	(0.518)	(1.431)	(1.132)	(0.748)	(2.518)	(2.470)
$\ln A_i / \Sigma \ln A$ (β_5)	-0.368	-355.052	-93.113	62.943**	-4.971	0.428
	(5.095)	(354.914)	(224.082)	(27.445)	(116.732)	(9.923)
$\ln V_i$ (β_6)	-1.761	0.601***	0.292***	1.648***	-1.689**	3.010*
	(5.562)	(0.089)	(0.071)	(0.389)	(0.998)	(2.279)
$\ln Age_i$ (β_7)	-4.709	0.556***	-0.637***	-6.205***	0.804	6.466
	(5.753)	(0.125)	(0.184)	(2.138)	(0.661)	(20.148)
lnAgei (β_8)	1.334*	-0.213**	0.013	-0.030	-0.150	-2.780
	(0.870)	(0.092)	(0.062)	(0.277)	(0.266)	(2.808)
R^2	0.984	0.720	0.450	0.909	0.392	0.806
Adj.R^2	0.957	0.701	0.400	0.871	0.137	0.496
Obs.	14	126	98	35	24	14

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.32: OLS estimation for Australian charities with States

$$lnD_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	ACT	Victoria	NSW	QLD	WA	SA
β_0	34.436	35.689**	11.108*	29.982**	60.044*	-77.376
	(84.683)	(18.667)	(6.901)	(16.821)	(44.931)	(1066.350)
$\ln F_i$ (β_1)	2.755	4.531**	0.742	6.070**	5.340	-6.910
	(6.329)	(2.599)	(0.834)	(3.309)	(4.277)	(71.100)
$\ln F_j$ (β_2)	-2.876	-3.051**	0.390	-2.330*	-3.314	10.191
	(6.990)	(1.578)	(0.555)	(1.492)	(3.802)	(72.432)
$\ln F_i / \Sigma \ln F_j$ (β_3)	-73.957	-837.460*	-113.000	-282.503**	-254.239	218.708
	(202.331)	(544.979)	(142.998)	(140.205)	(202.523)	(2136.655)
$\ln A_i$ (β_4)	-0.433	0.690	0.485	-1.821***	0.359	-4.714**
	(0.388)	(1.571)	(1.185)	(0.578)	(2.521)	(2.478)
$\ln A_i / \ln \Sigma A$ (β_5)	3.912	-213.651	-95.975	58.541**	-1.252	8.891
	(4.938)	(41.424)	(235.593)	(27.859)	(117.484)	(14.812)
$\ln V_i$ (β_6)	2.574	0.692***	0.366***	1.802***	-1.670**	0.805
	(2.448)	(0.104)	(0.071)	(0.395)	(0.993)	(1.299)
lnGi (β_7)	-0.331	0.085	-0.034	0.542***	-0.188	-0.470
	(1.623)	(0.084)	(0.047)	(0.230)	(0.224)	(4.686)
R^2	0.976	0.664	0.379	0.889	0.352	0.735
Adj.R^2	0.948	0.644	0.331	0.850	0.125	0.425
	0.578	1.187	0.729	0.820	1.084	0.896
Obs.	16	144	112	40	24	16

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.33: Summary of results of major model in Australia: Correct signs

	expected sign / industry	$+F_i$	$-F_j$	$+K_1$	$+A_i$	$+K_2$	$+V_i$	$+Age_i$	$+G_i$	$+AC_i$	R^2
M1	All	+		+		+	+***	+			0.46
	Welfare	+			+		+***				0.57
	Human	+		+		+	+***				0.71
	Global	+***	–***			+	+				0.83
	Disability	+***	–***		+**		+***	+ ***			0.61
	Animal			+	+						0.84
	Science	+***	–***		+		+*	+			0.64
	Rural					+	+***				0.79
	ACT	+	–			+	+	+			0.98
	Victoria	+	– **		+		+***	+ ***			0.71
	NSW	+			+		+***				0.45
	QLD					+ **	+***				0.91
	WA	+	–		+			+ *			0.38
	SA					+	+*				0.77
M2	All	+				+	+***	+*	+		0.46
	Welfare	+	–	–			+***		+***		0.63
	Human	+				+	+***		+***		0.75
	Global	+	– **	– **		+	+				0.83
	Disability	+	– **	– ***	+*		+***	+***			0.63
	Animal	+			+		–***		+		0.84
	Science	+	– **	– **		+	–***				0.80
	Rural	+	–	–		+	+***		+		0.79
	ACT			+		+	+	+			0.98
	Victoria	+ **	– **		+		+***	+ ***	+		0.57
	NSW	+	–		+		+***		+		0.45
	QLD	+	–			+***	+***		+		0.91
	WA	+	–		+			+			0.40
	SA			+		+	+*				0.79
M3	All	+		+		+	+***	+			0.46
	Welfare	+					+***			+***	0.60
	Human	+		+***		+	+***			+***	0.74
	Global	+***	–***			+	+				0.83
	Disability	+***	–***		+*		+***	+***		+	0.62
	Animal			+						+***	0.89
	Science	+**	–**		+		+				0.65
	Rural	+	–			+	+***	+		+	0.79
	ACT	+*	–*		+					+*	0.98
	Victoria	+*	–**		+		+***	+***			0.72
	NSW	+			+		+***			+	0.45
	QLD					+**	+***				0.91
	WA	+	–		+			+			0.39
	SA			+		+	+*	+			0.81

Note: M1, M2, M3, M4 are major models in a family of empirical models (See in Figure 6.)
F = fundraising expenditure; i = a charity i; j = competing charities j; K_1 = the ratio of Fi/ΣF or Fi/ΣFj (Fj = ΣF– F); K_2 = the ratio of Ai/ΣA or Ai/ΣAj (A_j = ΣA– A_i); A = Fixed Assets; V = the number of volunteers; Age = the Organisational age; G = Government Grants; AC = Administrative costs. ***, **,* significant at 1, 5, 10 %

Table 6.33: Summary of results: Correct signs (cont.)

	expected sign / industry	$+F_i$	$-F_j$	$+K_1$	$+A_i$	$+K_2$	$+V_i$	$+Age_i$	$+G_i$	$+AC_i$	R^2
M4	<u>All</u>	+		+		+	$+^{***}$		+		0.45
	<u>Welfare</u>	+	–				$+^{***}$		$+^{***}$		0.63
	Human	$+^{**}$		+		+	$+^{***}$		$+^{***}$		0.73
	<u>Global</u>	$+^{***}$	$-^{***}$						$+^{***}$		0.78
	<u>Disability</u>	$+^{*}$	$-^{*}$		$+^{**}$						0.33
	<u>Animal</u>				+						0.84
	<u>Science</u>	$+^{**}$	$-^{**}$			+					0.80
	<u>Rural</u>	+	–			+	$+^{*}$		$+^{**}$		0.72
	ACT	+	–			+	+				0.98
	Victoria	$+^{***}$	$-^{**}$		+		$+^{***}$		+		0.66
	NSW	+			+		$+^{***}$				0.38
	QLD	$+^{**}$	$-^{*}$			$+^{**}$	$+^{***}$		$+^{***}$		0.89
	WA	+	–		+						0.35
	SA			+		+	+				0.74

Table 6.34: Summary of major models in Australia: Incorrect signs

	expected sign / industry	$+F_i$	$-F_j$	$+K_1$	$+A_i$	$+K_2$	$+V_i$	$+Age_i$	$+G_i$	$+AC_i$	R^2
M1	<u>All</u>		+		–						0.46
	<u>Welfare</u>		+	–		–		–			0.57
	Human		+*		–			–			0.71
	<u>Global</u>			$-^{***}$	–			–			0.83
	<u>Disability</u>			$-^{***}$		$-^{***}$					0.61
	<u>Animal</u>	–	+			$-^{***}$	–	–			0.84
	<u>Science</u>			$-^{***}$		–					0.64
	<u>Rural</u>		+	–	–			–			0.79
	ACT			–	–						0.98
	Victoria			$-^{**}$		–					0.71
	NSW		+	–		–		–			0.45
	QLD	–	+	–	–			–			0.91
	WA			–		–	–				0.38
	SA	–	+	–	–			–			0.77
M2	<u>All</u>		+		–						0.46
	<u>Welfare</u>			–	–	–		–			0.63
	Human		+		–			–			0.75
	<u>Global</u>			$-^{**}$	–			–	–		0.83
	<u>Disability</u>			$-^{***}$		–			–		0.63
	<u>Animal</u>		+			–	$-^{***}$	–			0.84
	<u>Science</u>			$-^{**}$	–		$-^{***}$	–	–		0.80
	<u>Rural</u>			–	–			–			0.79
	ACT	–	+		–				–		0.98
	Victoria			–		–					0.57
	NSW			–		–		–			0.45

Note: M1, M2, M3, M4 are major models in a family of empirical models (See in Figure 6.)
F = fundraising expenditure; i = a charity i; j = competing charities j; K_1 = the ratio of Fi/ΣF or Fi/ΣFj (Fj = ΣF– F); K_2 = the ratio of Ai/ΣA or Ai/ΣAj (A_j = ΣA– A_i); A = Fixed Assets; V = the number of volunteers; Age = the Organisational age; G = Government Grants; AC = Administrative costs. ***, **,* significant at 1, 5, 10 %

Table 6.34: Summary of major models in Australia: Incorrect signs (cont.)

	expected sign / industry	+ Fi	– Fj	+K1	+Ai	+K2	+Vi	+Agei	+Gi	+ACi	*R2*
	QLD			–	–			–			0.91
	WA			–		–	–		–		0.40
	SA	–	+		–			–	–		0.79
M3	All		+		–					–	0.46
	Welfare		+	–	–	–		–			0.60
	Human		+		–			–			0.74
	Global			–	–			–		–	0.83
	Disability			–		–					0.62
	Animal	–	+		–	–	–	–			0.89
	Science			–		–		–		–	0.65
	Rural			–	–						0.79
	ACT			–		–	–	–			0.98
	Victoria			–		–				–	0.72
	NSW		+	–		–		–			0.45
	QLD	–	+	–	–			–		–	0.91
	WA			–		–	–			–	0.39
	SA	–	+		–					–	0.81
M4	All				–						0.45
	Welfare			–	–	–					0.63
	Human		+		–						0.73
	Global			–	–	–	–				0.78
	Disability			–		–	–		–		0.33
	Animal	–	+	–		–	–		–		0.84
	Science			–	–		–		–		0.80
	Rural			–	–						0.72
	ACT			–	–				–		0.98
	Victoria			–		–					0.66
	NSW		+	–		–			–		0.38
	QLD			–	–						0.89
	WA			–		–	–		–		0.35
	SA	–	+		–				–		0.74

Note: M1, M2, M3, M4 are Major models in a family of empirical models (See in Figure 6.)
F = fundraising expenditure; i = a charity i; j = competing charities j; K_1 = the ratio of Fi/ΣF or Fi/ΣFj (Fj = ΣF– F); K_2 = the ratio of Ai/ΣA or Ai/ΣAj (A_j = ΣA– A_i); A = Fixed Assets; V = the number of volunteers; Age = the Organisational age; G = Government Grants; AC = Administrative costs. ***, **,* significant at 1, 5, 10 %

6.4 **Preliminary results for Japanese data**

This section presents the results testing hypotheses using empirical models, ordinary least squared (OLS) regression models. A sample of charitable organisations is grouped into eight groups: All (384 observations), Welfare (72), Humanitarian (40), Global (72), Disability (32), Culture (72), Education (56) and Environment (48). As with the Australian Models, the purpose of grouping is to compare or to find an effect from competitors, different organisation with similar missions and objectives, aiming to cover research topics and answer the research questions by testing the hypotheses discussed in Chapter 5.

6.4.1 Competition model 1

6.4.1.2 Major family of competition model 1

In Table 6.35 the results are presented. The empirical Model 1, Equation (1), is modified from the previous studies' demand equation (Posnett and Sandler, 1989; Castaneda et al., 2007) by introducing additional the competition index variables as an addition. The estimation used OLS regression. The dependent variable of interest is total private donations, the variable used in the previous studies of donations. As developed in Chapter 5, Model 1 is as follows:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \qquad (1)$$

where the variables and subscipts are defined as in above section in Chapter 6.

As shown in Table 6.35, the explanatory power, i.e. R^2 and adjusted R^2, of the models for donations in combined lagged and unlagged independent variables in all group data, All, is 0.329 and 0.315. The Educational group has the highest R^2 at 0.732 (adjusted R^2 at 0.687). This is followed by Environment in the R^2 at 0.674 (0.607), Humanitarian at 0.660 (0.572), Welfare at 0.641 (0.595), Disability at 0.475 (0.282), Global at 0.393 (0.316), Culture at 0.382 (0.303). The lowest is All as discussed above.

The results are significantly lower than for Australia and this continues throughout the Japanese results. The results higher in explanatory power in the seven groups indicate several issues: 1. a sample of Japanese charitable organisations is successfully allocated in an appropriate charity group; 2. the Japanese sample of charitable organisations are competing for donations within the same industry group of organisation; 3. the competition models are well associated with these industry groups of charitable organisations; and 4. each variable in the competition models is related to total donations.

Table 6.35 presents the regression coefficient of Model 1. In the first column, the coefficients of lnF_i are positive and significant in Environment, and positive but insignificant in the Humanitarian and Global groups, whereas those are negative but significant in the All, Disability, Culture and Educational support groups, and negative and insignificant in Welfare, and their ranges are between -11.334 and 2.431. Hypothesis one is tested: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the Humanitarian, Global and Environment groups, whereas the Null Hypothesis is not rejected in the All, Welfare, Disability, Culture and Education support groups.

The coefficients on lnF_j are negative but significant in Environment industry, and negative and insignificant in the Welfare, Humanitarian and Global groups, while those are positive and significant in All, Disability and Educational support (hereafter refered to as Education) groups, and positive but insignificant in Culture industry, and their ranges are between -1.029 and 11.471. Hypothesis 2 is tested as: H_0: $F_j \geq 0$ and H_1: $F_j < 0$. The Null Hypothesis is rejected in the Welfare, Humanitarian, Global and Environment groups, while the Null Hypothesis is not rejected in the All, Disability, Science and Education groups.

The coefficients on the ratio of lnFi to all competitors, lnFi / ∑lnF, are positive and significant in the All, Disability, Culture and Education groups, and are positive in Welfare, whereas those are significantly negative in Environment, and insignificant and negative in the Humanitarian and Global 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 in the All, Welfare, Disability, Culture and Education groups, whereas the Null Hypothesis is not rejected in the Humanitarian, Global and Environment groups.

The coefficient on size (lnAi) is positive and significant in the Welfare and Environment groups, and insignificant but positive in the Disability, whereas those are significantly negative in the Global and Culture, and negative in All, Humanitarian and Education. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in Welfare, Disability and Environment, while the Null Hypothesis is not rejected in the All, Humanitarian, Global, Culture and Education groups. The coefficient on the ratio of size to competitors' size is significantly positive in the Culture, and positive in the All, Humanitarian, Global and Education groups, while those are significantly negative in Welfare, and negative in the Disability and Environment groups. 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 Education group, whereas the Null Hypothesis is not rejected in the Welfare, Disability and Environment groups

The coefficients on volunteers (lnV) are positive and significant in the All and Welfare, and positive in the Disability, Culture and Education groups, whereas those are significantly negative in the Humanitarian and Environment groups, and negative in the Global industry. 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, Disability, Culture and Education, and not rejected in the Humanitarian, Global and Environment groups.

The coefficient on age (lnAge) is positive and significant in the Culture, while and significantly negative in the Welfare and Global, and negative in the All, Humanitarian, Disability, Education and Environment. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in the Culture, and not rejected in the All, Welfare, Global, Humanitarian, Disability, Education and Environment.

In Table 6.36, the results of the regression analysis, the explanatory power (R^2) of the regression Model 1_J and the standardised regression coefficients (β) are presented. Model 1_J is a sub-family model of Model 1. Thus this model is modification of Model 1 by using the ratios of fundraising expenditure and fixed assets calculating the proportion to competing charities *j* presenting as $\ln F_i$ / $\sum \ln F_j$ and $\ln A_i$ / $\sum \ln A_j$, respectively. Equation (2) is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \varepsilon \qquad (2)$$

In Table 6.36, the explanatory power, i.e. R^2 and adjusted R^2, of the models is very similar to those of Model 1. The highest R^2 is the Education group at 0.738 (adjusted R^2 at 0.693). This is followed by Environment at 0.666 (0.598), Humanitarian at 0.661 (0.573), Welfare at 0.639 (0.593), Disability at 0.492 (0.305), Culture at 0.375 (0296), Global at 0.397 (0.32), and the lowest is All combined at 0.326 (0.312), as expected.

As shown in Table 6.36, the coefficients of lnF_i are also similar in significance and sign of each variable with each industry to those in Model 1, however the ranges of coefficients are more widely spread out than those of Model 1. They are positive and significant in the Environment, and positive in the Humanitarian and Global groups, whereas those are significantly negative in the Disability, Culture and Educational support groups, and negative in the All and Welfare, and their ranges are between -19.554 and 4.248.

The coefficients on lnF_j are also similar in significance and sign to those of Model 1, except Welfare, which is now positive and significant to total donation, and their ranges are more widely spread out than that of Model 1. They are negative but significant in the Environment industry, and insignificant and negative in the Humanitarian and Global groups, while those are significantly positive in the All, Disability and Education, and positive in the Welfare and Culture, and their ranges are between -1.750 and 17.793.

The coefficients on the ratio of lnFi to all competitors, lnFi / ∑lnF, are also similar to those of Model 1 except Humanitarian, which is positive. They are positive and significant in the Disability, Culture and Education groups, and positive in the All, Welfare and Humanitarian groups, whereas those are significantly negative in the Environment, and insignificant and negative in the Global industry group.

The coefficients on size (lnAi) are also very similar to those in Model 1 except Education, which is a positive sign. They are significantly positive in Welfare, and insignificant but positive in Disability, Education and Environment, whereas those are significantly negative in Global and Culture, and negative in All and Humanitarian.

The coefficients on the ratio of size to competitors' size are similar to those of Model 1, except signs in Disability and Education, which change to positive and negative, respectively. They are positive and significant in Culture and Humanitarian, and positive in the All, Global and Disability groups, while those are significantly negative in Welfare, and negative in the Education and Environment groups.

The coefficients on volunteers (lnV) are, similar to those of Model 1, significantly positive in Welfare, and positive in the All, Disability, Culture and Education groups, whereas those are significantly negative in the Humanitarian and Environment groups, and negative in Global industry, and their ranges are between -0.442 and 0.204.

The coefficients on age (lnAge) are also similar to those in Model 1, positive in Culture, while those are significantly negative in Welfare and Global, and negative in All, Humanitarian, Disability, Education and Environment.

6.4.1.2 Minor family of competition model 1: (Lagged variables)

In Table 6.37 the results of the regression analysis, the explanatory power (R^2) of the regression Model 1_L and the standardised regression coefficients (β) are presented. Model 1_L is a family model of Model 1. Thus, this model is a modification of Model 1 by employing lagged independent variables only, and fundraising expenditure with lag are expected to perform better on the level of total donation in the estimation model (Marcuello and Salas, 2001). Equation (3) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \quad (3)$$

These results are not considered in detail.

The results indicate that variables in each industry are not affected by using all lagged independent variables nor have fundraising expenditure show any difference except the explanatory power of models. The R^2 and adjusted R^2 in each industry are lower than those in Model 1.

Table 6.38 presents the results of Model 1_LJ. This Model 1_LJ is a family of Model 1. Thus, this model is a modification of Model 1 by including lagged independent variables only and using the value of competing charities *j* for the denominators in the ratios of fundraising expenditure and fixed assets, such as $\ln F_i$ / $\sum \ln F_j$ and $\ln A_i$ / $\sum \ln A_j$, respectively. Equation (4) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon \qquad (4)$$

As before the results of this sub-family model are not examined in detail given their similarity to previous results.

6.4.1.3 Minor family of competition model 1: (No time lags)

In Table 6.39 the results of the regression analysis, the explanatory power (R^2) of the regression Model 1_U and the standardised regression coefficients (β) are presented. Model 1_U is a family of Model 1. Thus, this model is a modification of Model 1 by employing unlagged independent variables only. Equation (5) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon \qquad (5)$$

Table 6.40 presents the results of Model 1_UJ. Model 1_UJ is a family of Model 1. Thus, this model is a modification of Model 1 by employing unlagged independent variables only and using the value of competing charities *j* as denominators in the ratios of fundraising expenditure, F_i / F_j, and fixed assets A_{it} /A_{jt}. Equation (6), tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon \qquad (6)$$

Summary of Model 1

The results indicate that the effectiveness of fundraising activities of charitable organisations and volunteers have a positive effect on the level of total donations. The results are summarised thus: 1. Fundraising expenditure are positive and significant and the competitors' fundraising expenditure are negative on total donations in three groups;

Humanitarian, Global and Environment; 2. organisational size is positive but insignificant on total donations in the Welfare, Disability and Education groups; 4. organisational age is positive in the Humanitarian and Culture groups; 4. volunteers are positive on total donations in the All, Disability and Culture groups; 5. the ratio of fundraising expenditure to those of competitors are positive in the Disability, Culture and Education groups; and 6. the ratio of organisational size to competitors' size is positive in the All, Global, Humanitarian, Disability, Culture, Environment groups.

The results of Model 1s for the Japanese sample indicate as being weaker than those of Australian sample, especially in the areas of: 1. explanatory power, 2. the effectiveness of fundraising spending; 3. significance of volunteers. Thus, the results of the Australian sample are more stable and consistenty in outcomes of groups throughout family models, while those of the Japanese sample vary with the variation of models. These differences may be due to the immaturity of Japanese charitable organisations which have less support but are strongly controlled by government. Without tax exemptions for donations and deductible gift tax, it is difficult for Japanese charitable organisation to collect donations from the public.

6.4.2 Competition model 2

6.4.2.1 Major family of competition model 2

In Table 6.41 the results of the regression analysis, the explanatory power (R^2) of the regression Model 2 and the standardised regression coefficients (β) are presented. Model 2 is a family of Model 1 and this model is a modification of Model 1 by including an additional variable, government grants (G) on Model 1. Analyses in the Australian sample data find government grants to total donations are positively correlated in some groups which are consistent with the findings in previous studies (Posnett and Sandler, 1989; Callen, 1994; Khanna et al., 1995; Khanna and Sandler, 2000; Okten and Weisbrod, 2000; Marcuello and Salas, 2001). The variable of government grants is expected to have a positive effect on total donation. Equation (7), tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln G_{it\text{-}1} + \varepsilon \qquad (7)$$

These results are consistent with the results of Model 1 and the summary is: 1. fundraising expenditure are positive to total donations, and at the same time, the competing charities fundraising expenditure is negative to total donations in the Humanitarian, Global and Environment groups; 2. organisational size is positive in the Welfare, Disability, Education and Environment groups; 3. volunteers are positive to total donations in the All, Welfare, Disability and Culture groups; 4. Age is mostly negative to total donations except Culture; 5. Government grants are a positive to total donations in all groups.

Table 6.42 presents the results of the regression analysis, the explanatory power (R^2) of the regression Model 2_J and the standardised regression coefficients (β). Model 2_J is a family of Model 2 and Model 2 is also a family of Model 1. Model 2_J is a modification of Model 1 by including an additional variable, government grants, (G); and uses competing charities *j* as denominators for the calculation of the ratios of fundraising expenditure and fixed assets, as $\ln F_i$ / $\sum \ln F_j$ and $\ln A_i$ / $\sum \ln A_j$, respectively. Model 2_J of tested Equation (8) is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_t + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln G_{it\text{-}1} + \varepsilon \qquad (8)$$

These results are consistent with the results of Model 2.

6.4.2.2 Minor family of competition model 2: (Lagged variables)

In Table 6.43 the results of the regression analysis, the explanatory power (R^2) of the regression Model 2_L and the standardised regression coefficients (β) are presented. Model 2_L is a family of Model 2 and Model 2 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing lagged independent variables only. Equation (9) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln G_{it\text{-}1} + \varepsilon \qquad (9)$$

Table 6.44 presents the results of Model 2_LJ. Model 2_LJ is a family of Model 2 and Model 2 is also a family of Model 1. Thus, this model is a modification of Model 1 by including lagged independent variables only and uses the value of competing charities j for the denominators in the ratios of fundraising expenditure and fixed assets, such as ln F_i / Σln F_{jt-1} and ln A_i / Σln A_{jt-1}, respectively. Equation (10) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{i-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon \qquad (10)$$

6.4.2.3 Minor family of competition model 2: (No time lags)

In Table 6.45 the results of the regression analysis, the explanatory power (R^2) of the regression Model 2_U and the standardised regression coefficients (β) are presented. Model 2_U is a family of Model 2 and Model 2 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing unlagged independent variables only. Model 2_U, Equation (11) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon \qquad (11)$$

These results indicate that the explanatory powers of models are slightly lower than for all of the groups in Model 1.

Table 6.46 presents the results of Model 2_UJ. Model 2_UJ is a family of Model 2 and Model 2 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing unlagged independent variables only and using the ratio of F_i to competitors, F_j and the ratio of organisational size, A_i, to competitors, A_j, presenting as, ln F_{it} / Σln F_{jt} and ln A_{it} / Σln A_{jt}, respectively. Equation (12) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon \qquad (12)$$

Summary of Model 2

These results from model 2 can be summarised as: 1. in the Welfare, Global and Environment groups, fundraising expenditure is a positive to total donations and the competing charities' fundraising expenditure is a negative to total donations as expected; 2. in the All, Humanitarian, Disability, Culture, and Education groups, the ratios of fundraising expenditure are positive as expected; 3. in the Welfare, Disability and Education (occasionally Environment) groups, organisational size is a positive on total donations as expected; 4. in the All, Disability and Culture groups (occasionally Welfare) volunteers are positive on total donations as expected; 5. Government grants are a positive to total donations in most of groups except Welfare and Environment.

6.4.3 Major family of competition model 3

6.4.3.1 Major family of competition model 3

Table 6.47 presents the results of the regression analysis, the explanatory power (R^2) of the regression Model 3, and the standardised regression coefficients (β) are presented. Model 3 is a sub-family of Model 1. Thus, this model is a modification of Model 1 by including an additional independent variable, administrative costs (AC).

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_i + \beta_8 \ln AC_i + \varepsilon \qquad (13)$$

Table 6.48 presents the results of Model 3_J. Model 3_J is a family of Model 3 and Model 3 is also a family of Model 1. Thus, this model is a modification of Model 1 by including an additional variable, administrative costs (AC) and using the ratio of fundraising expenditure to competing charities *j* and the ratio of size to competing charities *j*, as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (14) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \qquad (14)$$

The explanatory power, the R^2 and adjusted R^2, are similar to those in Model 3, Table 6.47. Education industry is the highest in the R^2at 0.877 (adjusted R^2 at 0.816), All is the lowest at 0.346 (0.33), as expected, and the explanatory power of models in other groups are very similar but slightly lower than those in Model 3, Table 7.15.

The coefficients of administrative costs (AC) are a positive in most of groups except in Welfare where the results are consistent with those in Models 1 and 3. Thus, they are significantly positive in the All, Disability, Culture and Education groups, positive in the Humanitarian, Global and the Environment groups, while negative in the Welfare industry, and ranges between -0.033 and 1.102. Hypotheses 9 is tested as: H_0: $AC_i \leq 0$; and H_1: $AC_i > 0$. The Null Hypothesis is rejected in the All, Humanitarian, Global, Disability, Culture, Education and Environment groups, while the Null Hypothesis is not rejected Welfare industry.

6.4.3.2 Minor family of competition model 3: (Lagged variables)

In Table 6.49 the results of the regression analysis, the explanatory power (R^2) of the regression Model 3_L and the standardised regression coefficients (β) are presented. Model 3_L is a family of Model 3 and Model 3 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing lagged independent variables only. Equation (15) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1}/ \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1} + \varepsilon \qquad (15)$$

In Table 6.49, the explanatory power of regression model, the R^2 and adjusted R^2 is the highest in Education industry at 0.865 and at 0.839, respectively. This is followed by Disability of the R^2 (adjusted R^2) at 0.813 (0.735), Environment at 0.695 (0.621), Humanitarian at 0.548 (0.409), Global at 0.515 (0.444), Culture at 0.411 (0.324), Welfare at 0.346 (0.249), and the lowest is All at 0.312 (0.298).

The coefficients of fundraising are insignificant but positive in the Welfare, Humanitarian, Global, Disability, Education and Environment groups, whereas those are negative in the All and Culture groups, with ranges between -0.283 and 1.808. Hypothesis one is tested: H_0: $F_i = 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the Humanitarian, Welfare, Disability, Global, Education and Environment groups, whereas the Null Hypothesis is not rejected in the All and Culture groups.

Table 6.50 presents the results of Model 3_LJ. Model 3_LJ is a family of Model 3 and Model 3 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing lagged independent variables only and using the ratio of fundraising expenditure to competing charities *j* and the ratio of size to competing charities *j*, as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (16) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{i-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln AC_{it-1} + \varepsilon \quad (16)$$

The explanatory power of regression model, the R^2 (adjusted R^2) are consistent with those in Model 1_L as the highest is in Education industry at 0.865 (0.837) and the lowest in All at 0.312 (0.298), and other groups are also very similar. These results indicate that uses of alternative calculation of ratios have no significant impact on the explanatory power of regression models.

6.4.3.3 Minor family of competition model 3: (No time lags)

In Table 6.51, the results of the regression analysis, the explanatory power (R^2) of the regression Model 3_U and the standardised regression coefficients (β) are presented. Model 3_U is a family of Model 3 and Model 3 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing unlagged independent variables only. Equation (17) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln AC_{it} + \varepsilon \quad (17)$$

The explanatory power of regression models is higher than those in Model 1 in most groups. Disability industry is the highest of the R^2at 0.88 (adjusted R^2 at 0.839). This is followed by Education in the R^2at 0.856 (0.831), Humanitarian at 0.658 (0.569), Environment at 0.621 (0.544), Welfare at 0.614 (0.565), Global at 0.61 (0.56), Culture at 0.411 (0.336) and, as expected, All is the lowest at 0.363 (0.349).

The coefficients of $\ln F_i$ are similar to most of groups in Model 1 and Model 1_U. Thus, they are significantly positive in Humanitarian and Environment, and positive in the Global and Education groups, whereas those are insignificant and negative in the All, Welfare, Disability and the Culture groups, and their ranges are between -1.092and 1.273. Hypothesis one is tested: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the Humanitarian, Global, Education and Environment groups, whereas the Null Hypothesis is not rejected in the All, Welfare, Disability and Culture groups.

Table 6.52 presents the results of Model 3_UJ. Model 3_UJ is a family of Model 3 and Model 3 is also a family of Model 1. Thus, this model is a modification of Model 1 by including unlagged independent variables only and employing the alternative calculation for the ratios of fundraising expenditure and fixed assets, such as $\ln F_i$ / $\sum \ln F_j$ and $\ln A_i$ / $\sum \ln A_j$, respectively. Equation (18) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln AC_{it} + \varepsilon \qquad (18)$$

Summary of Model 3

These results from model 3 are summarised as: 1. fundraising expenditure are expected to be positive to total donations and at the same time the competing charities fundraising expenditure is negative to total donations in the Global and Environment groups (or/and occasionally Welfare and Humanitarian), in Model 3; 2. the ratio of fundraising expenditure is expected to be positive, and All and Culture (or/and Disability and Humanitarian) are positive in Model 3; 3. Organisational size is positive on total donations in Welfare only in Model 3; 4. Volunteers are positive on total donations in All and Disability in Model 3 (or/and occasionally Welfare) as expected; 5. Organisational age is positive in Humanitarian only in Model 3; 6. Administrative costs are positive to total donations in most groups (occasionally except Welfare and Environment).

6.4.4 Competition model 4

6.4.4.1 Major family of competition model 4

In Table 6.53 the results of the regression analysis, the explanatory power (R^2) of the regression Model 4 and the standardised regression coefficients (β) are presented. Model 4 is a family of Model 1. Thus, this model is a modification of Model 1 by excluding an independent variable, organisational age (Age) and including an additional variable, government grants (G) on Model 1. As discussed in Chapter 3, previous studies found the mixed results from government grants on function of donation; however, this study expects a positive effect on collection of total donation, as government grants increase credibility of the organisation (Posnett and Sandler, 1989; Callen, 1994; Khanna et al., 1995; Khanna and Sandler, 2000; Okten and Weisbrod, 2000; Marcuello and Salas, 2001). Thus, government grants are expected to have a positive effect on total donation. Model 4, Equation (19) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon \qquad (19)$$

The explanatory power of regression model is the highest in Education industry in the R^2at 0.769 (adjusted R^2 at 0.729). This is followed by Humanitarian at 0.681 (0.598), Environment at 0.665 (0.596), Welfare at 0.56 (0.504), Disability at 0.487 (0.298), Global at 0.408 (0.333), Culture at 0.368 (0.288) and the lowest is All at 0.331 (0.317). These results indicate that the explanatory power of regression models is consistently slightly lower than each group in Model 1.

Table 6.54 presents the results of Model 4_J. Model 4_J is a family of Model 4 and Model 4 is also a family of Model 1. Thus, this model is a modification of Model 1 by excluding an independent variable of organisational age, including an additional variable, government grants (G); and using the ratio of fundraising expenditure to competing charities *j* and the ratio of size to competing charities *j*, presenting as, $\ln F_{it}$ / $\Sigma \ln F_{jt}$ and $\ln A_{it\text{-}1}$ / $\Sigma \ln A_{jt\text{-}1}$. Equation (20) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1}$$
$$+ \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon \qquad (20)$$

In Table 6.54, consistent with the results of Model 1, the explanatory power in the R^2 (adjusted $R^{2,}$) is the highest in Education at 0.763 (0.722). This is followed by Humanitarian in the R^2at 0.68 (0.597), Environment at 0.657(0.586), Welfare at 0.563 (0.507), Disability at 0.493 (0.305), Global at 0.409 (0.334), Culture at 0.366 (0.285) and as expected, the lowest is All at 0.327 (0.313).

These above results indicate that they are consistent with the results of Model 1 and the summary is: 1. the explanatory power is higher than 30%; 2. fundraising expenditure are positive to total donations in 3 groups, Humanitarian, Global and Environment; 4. competing charities fundraising expenditure is negative to total donations in the Humanitarian, Global and Environment groups, whereas the ratios of fundraising to all competitors are negative in those organisations; 4. volunteers are positive to total donations in the All, Welfare, Disability and Culture groups; 4. government grants in this sample are positive in most organisation except the Humanitarian and Welfare groups and this may indicate that government grants provide credibility to some charities but not for the Humanitarian and Welfare groups in Japan.

6.4.4.2 Minor family of competition model 4: (Lagged variables)

In Table 6.55 the results of the regression analysis, the explanatory power (R^2) of the regression Model 4_L and the standardised regression coefficients (β) are presented. Model 4_L is a family of Model 4 and Model 4 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing lagged independent variables only. Equation (21) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{t\text{-}1} + \beta_3 (\ln F_{it\text{-}1} / \Sigma \ln F_{t\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon \quad (21)$$

The explanatory power of regression model is the highest in Education industry in the R^2at 0.704 (adjusted R^2 at 0.653). This is followed by Environment at 0.665 (0.596), Humanitarian at 0.554 (0.439), Welfare at 0.545 (0.12), Global at 0.448 (0.378), Disability at 0.375 (0.156), Culture at 0.22 (0.288) and the lowest is All at 0.331 (0.317). These results indicate that the explanatory power of regression models is slightly lower than each industry in Model 1.

Table 6.56 presents the results of Model 4_LJ. Model 4_LJ is a family of Model 4 and Model 4 is also a family of Model 1. Thus, this model is a modification of Model 1 by including lagged independent variables only and using the value of competing charities *j* for both denominators in the ratios of fundraising expenditure and fixed assets, those calculations as $\ln F_i / \Sigma \ln F_{jt\text{-}1}$ and $\ln A_i / \Sigma \ln A_{jt\text{-}1}$, respectively. Equation (22) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it\text{-}1} + \beta_2 \ln F_{jt\text{-}1} + \beta_3 (\ln F_{i\text{-}1} / \Sigma \ln F_{jt\text{-}1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon \quad (22)$$

6.4.4.3 Minor family of competition model 4: (No time lags)

In Table 6.57 the results of the regression analysis, the explanatory power (R^2) of the regression Model 4_U and the standardised regression coefficients (β) are presented. Model 4_U is a family of Model 4 and Model 4 is also a family of Model 1. Thus, this model is a modification of Model 1 by employing unlagged independent variables only. Equation (23) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln G_{it} + \varepsilon \quad (23)$$

The explanatory power of regression model, the R^2 (adjusted R^2), is the highest in Education industry at 0.718 (0.677). This is followed by Humanitarian at 0.647 (0.57), Environment at 0.634 (0.57), Welfare at 0.596 (0.552), Global at 0.444 (0.384), Disability at 0.446 (0.285), and All at 0.329 (0.316). However, the explanatory power was expected to be higher in the industry level than All, only Culture industry in empirical model 4 is lower than All in the R^2 (adjusted R^2) at 0.289 (0.211).

These results above indicate that they are consistent with the results of Model 1 and they are summarised as: 1. fundraising expenditure is positive to total donations and at the same time the competing charities fundraising expenditure is negative to total donations in the Welfare, Humanitarian, Global and Environment groups; 2. organisational size is positive on total donations in the Welfare, Disability and Education groups; 3. volunteers are positive effect on total donations in the All, Disability and Culture groups; 4. government grants are a positive to total donations in most groups except Welfare and Environment.

Table 6.58 presents the results of Model 4_UJ and the results of the regression analysis, the explanatory power (R^2) of the regression Model 4_UJ and the standardised regression coefficients (β) are presented. Model 4_UJ is a family of Model 4 and Model 4 is also a family of Model 1. Thus, this model is a modification of Model 1 by including unlagged independent variables only and using the value of competing charities *j* for the denominators in both of the ratios of fundraising expenditure and fixed assets, such as $\ln F_i / \sum \ln F_j$ and $\ln A_i / \sum \ln A_j$, respectively. Equation (24) tested is:

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it}$$
$$+ \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln G_{it} + \varepsilon \tag{24}$$

The explanatory powers of regression models in each industry, the R^2 (adjusted R^2), are consistent with the results of Model 4_U (Table 7.25). The highest is in Education industry at 0.718 (0.677) and the lowest in Culture at 0.303 (0.227). This is followed by Humanitarian at 0.648 (0.571), Environment at 0.65 (0.589), Welfare at 0.597 (0.553), Global at 0.442 (0.381), Disability at 0.516 (0.375), and All at 0.329 (0.316).

Summary of Model 4:

These above results indicate that they are consistent with the results of Model 1 and are summarised as: 1. fundraising expenditure are positive to total donations and at the same time the competing charities fundraising expenditure is negative to total donations in the Welfare, Global and Environment groups in Model 4; 2. Organisational size is positive on total donations in the Disability and Education groups in Model 4; 3. volunteers are positive effect on total donations in the All, Disability and Culture groups; 4. government grants are a positive to total donations in most groups except Welfare and Environment.

6.4.5 Competitive models in geographic grouping

This section presents the results of empirical models with geographical groups. As discussed in Chapter 2, a sample of charitable organisations is divided into geographical location grouping in Tokyo, Kanagawa and Kyoto. The number of observations is: Tokyo with 251 observations, Kanagawa with 28 observations and Kyoto with 16 observations. The following section presents the results of competition models 1 to 4. However, a sample of data in Kanagawa receives no government grants; therefore, Kanagawa will not report Models 2 and 4.

6.4.5.1 Competition model 1 with geographic grouping

Table 6.59 presents the results of the regression analysis of Model 1. Initial empirical Model 1 has two models; Model 1 and Model 1_J in equation (1) and (2). As explained in Section 7.2.1.1, the difference between Model 1 in equation (1) and Model 1_J in equation (2), the denominators in the calculation of the ratios of fundraising expenditure and fixed assets are used a total of $\sum F$ (or $\sum A$) and $\sum F_j$ (or $\sum A_j$), respectively. The left side of Table 7.27 presents the results of Model 1 in equation (1) and the right side is the results of Model 1_J in equation (2).

The explanatory power of regression models with the data in the Kyoto area is the highest at 0.719 and 0.725 in the R^2. This is followed by the R^2 of Kanagawa at 0.476 and 0.493, and Tokyo, with the lowest in explanatory power at 0.476 in Model 1 for both equation (1) and (2). Overall, the explanatory power of Model 1 is higher than 0.47 in geographic groups.

The coefficients of fundraising expenditure in both equations of Model 1 are insignificant but positive in Kanagawa and Kyoto, whereas in Tokyo it is significantly negative. Hypothesis one is tested as follows: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, while the Null Hypothesis is not rejected in Tokyo.

The coefficients on $\ln F_j$ in both equations of Model 1 are insignificant and negative in Kanagawa and Kyoto, while significantly positive in Tokyo. Hypothesis 2 is tested as: H_0: $F_j \geq 0$ and H_1: $F_j < 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, whereas the Null Hypothesis is not rejected in Tokyo.

The coefficients on the ratio of lnFi to competing charities in both equations of Model 1 are significantly positive in Tokyo, while those are insignificantly negative in Kanagawa and Kyoto except Kyoto in equation (2) is significantly negative. Hypothesis 3: H_0: $F_i /F \leq 0$ and H_1: $F_i /F > 0$ (or, $F_i /F_j \leq 0$ and $F_i /F_j > 0$). The Null Hypothesis is rejected in Tokyo, whereas the Null Hypothesis is not rejected in Kanagawa and Kyoto.

The coefficients on size in both equations are insignificant and positive in Kanagawa and Kyoto, whereas those in Tokyo are negative. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, while the Null Hypothesis is not rejected in Tokyo.

The coefficients on the ratios of sizes to competing size in both equations are insignificant but positive in Tokyo and Kyoto, while those are significantly negative in Kanagawa. Hypothesis 5 is tested as: H_0: $A_i /\sum A \leq 0$ and H_1: $A_i /\sum A > 0$ (or, H_0: A_i

$/\sum A_j \leq 0$ and H_1: $A_i /\sum A_j > 0$). The Null Hypothesis is rejected in Tokyo and Kyoto, whereas the Null Hypothesis is not rejected in Kanagawa.

The coefficients on volunteers in both equations are significantly positive in Tokyo and Kyoto, while those in Kanagawa are significantly negative. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in Tokyo and Kyoto, whereas the Null Hypothesis is rejected in Kanagawa.

The coefficients on age in both equations are insignificantly negative in all three geographic groups. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is not rejected in Tokyo, Kanagawa and Kyoto.

Despite the explanatory powers of Model 1s are relatively high in geographic group, the most variables are insignificant with some exceptiton. These exceptitons are the ratio of fundraising expenditure in Tokyo and volunteers in Kyoto and Tokyo. Thus, the results in the geographic groups show as being much weaker than those in similar industry groups.

6.4.5.2 Competition model 2 and 4 with geographic grouping

Table 6.60 presents the results of the regression analysis of Model 2 on the left side of the table and Model 4 on the right. Both Models 2 and 4 are modifications of Model 1 with an additional variable of government grants (G), or an additional variable of government grants (G) after excluding organisational age, respectively. As explained previously, the sample of charitable organisations in Kanagawa did not receive government grants; therefore there are no results of Models 2 and 4 in Kanagawa.

On the left of Table 6.60, the results of Model 2 and Model 2_J are reported and on the right of Table 6.60, the results of Model 4 and Model 4_J are reported.

The explanatory power of regression models with the data in Kyoto is higher than Tokyo at 0.848 and 0.852 in Model 2 and 0.798 and 0.799 in Model 4, whereas those in Tokyo are consistent in both Models 2 and 4 at 0.394

As shown in Table 6.60, the coefficients of fundraising expenditure in Models 2 and 4 are positive but insignificant in Kyoto in both models, except show as positive and significant in Model 4_J, whereas in Tokyo they are all negative but significant. Hypothesis one is tested as follows: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in Kyoto, while the Null Hypothesis is not rejected in Tokyo.

The coefficients on lnF_j in Kanagawa and Kyoto with Models 2 are negative but significant, and that of Model 4 are positive but insignificant, while in Tokyo these are positive and significant in both Models 2 and 4. Hypothesis 2 is tested as: H_0: $F_j \geq 0$ and H_1: $F_j < 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, while the Null Hypothesis is not rejected in Tokyo.

The coefficients on the ratio of lnF_i to competing charities in both models are consistent with each other in their signs and significance, such as being positive and significant in Tokyo, while they are negative but significant in Kyoto. Hypothesis 3: H_0: $F_i /F \leq 0$ and H_1: $F_i /F > 0$ (or, $F_i /F_j \leq 0$ and $F_i /F_j > 0$). The Null Hypothesis is rejected Tokyo, whereas the Null Hypothesis is not rejected in Kyoto.

The coefficients on size are also the same in signs and significance. They are positive but insignificant in Kyoto, but negative and insignificant in Tokyo. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in Kyoto, while the Null Hypothesis is not rejected in Tokyo.

The coefficients on the ratios of sizes to competing size are positive and significant in Model 4, and positive but insignificant in Model 2 in Tokyo, whereas in Kyoto, those in Model 4 are positive and significant but in Model 2 negative and insignificant. Hypothesis 5 is tested as: H_0: $A_i /\sum A \leq 0$ and H_1: $A_i /\sum A > 0$ (or, H_0: $A_i /\sum A_j \leq 0$ and H_1: $A_i /\sum A_j > 0$). The Null Hypothesis is rejected in Models 2 and 4 in Tokyo and Kyoto, and not rejected in Model 2 in Kyoto.

The coefficients on volunteers are positive and significant in Tokyo and Kyoto, except those in Tokyo in Model 2 are positive but insignificant. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in Tokyo and Kyoto.

The coefficients on age are negative and insignificant in Tokyo and Kyoto. H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is not rejected in Tokyo and Kyoto.

The coefficients on government grants are positive and significant in Kyoto and positive but insignificant in Tokyo. H_0: $G_i \leq 0$ and H_1: $G_i > 0$. The Null Hypothesis is rejected in Tokyo and Kyoto.

6.4.5.3 Competition model 3 with geographic grouping

Table 6.61 presents the results of the regression analyses of Model 3 and Model 3_J. On the left the results of Model 3 are presented and on the right are the results of Model 3_J. The explanatory power of regression models with the data in Kanagawa is the highest at 0.782 of Model 3_J and in Model 3 at 0.771. This is followed by the R^2 of Kyoto in Model 3_J at 0.729 and Model 3 at 0.723 and in Tokyo in Model 3_J at 0.437 and Model 3 at 0.436.

The coefficients of fundraising expenditure are positive and significant in Kanagawa and positive but insignificant in Kyoto, whereas in Tokyo it is negative but significant in Model 3_J and negative and insignificant in Model 3. Hypothesis 1 is tested as follows: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, and not rejected in Tokyo.

The coefficients on $\ln F_j$ are negative but significant in Kanagawa, and negative and insignificant in Kyoto, while in Tokyo these are positive and significant. Hypothesis 2 is tested as: H_0: $F_j \geq 0$ and H_1: $F_j < 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, and not rejected in Tokyo.

The coefficients on the ratio of $\ln F_i$ to competing charities are positive and significant in Tokyo, while those are negative but significant in Kanagawa, and negative and insignificant in Kyoto. Hypothesis 3: H_0: $F_i /F \leq 0$ and H_1: $F_i /F > 0$ (or, $F_i /F_j \leq 0$ and $F_i /F_j > 0$). The Null Hypothesis is rejected in Tokyo, and not rejected in Kanagawa and Kyoto.

The coefficients on size in Model 3 and Model 3_J are both positive but insignificant in Kanagawa and Kyoto except in Model 3 those are positive and significant in Kanagawa, whereas in Tokyo those are both negative and significant. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in Kanagawa and Kyoto, and not rejected in Tokyo.

The coefficients on the ratios of sizes to competing size in both equations are positive and significant in Tokyo and positive but insignificant in Kyoto, while those are negative but significant in Kanagawa. Hypothesis 5 is tested as: H_0: $A_i /\sum A \leq 0$ and H_1: $A_i /\sum A > 0$ (or, H_0: $A_i /\sum A_j \leq 0$ and H_1: $A_i /\sum A_j > 0$). The Null Hypothesis is rejected in Tokyo and Kyoto, and not rejected in Kanagawa.

The coefficients on volunteers in both equations are positive and significant in Tokyo and Kyoto, while in Kanagawa these are negative but significant in Model 3_J and negative and insignificant in Model 3. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in Tokyo and Kyoto, and not rejected in Kanagawa.

The coefficients on age are positive but insignificant in Tokyo, while in Kanagawa these are negative but significant, and in Kyoto they are negative and insignificant. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in Tokyo, and not rejected in Kanagawa and Kyoto.

The coefficients on administrative costs (AC) are positive and significant in Tokyo, while in Kanagawa these are negative but significant, and in Kyoto negative and insignificant. Hypothesis 7 is tested as: H_0: $AC_i \leq 0$ and H_1: $AC_i > 0$. The Null Hypothesis is rejected in Tokyo, and not rejected in Kanagawa and Kyoto.

As discussed in the results, the signs and significance of independent variables in geographic groups are consistent with all Models 1 to 4.

6.4.6 Summary of Japanese results

A sample of Japanese charitable organisations shows that fundraising expenditure (F_i) has a positive effect on donations in the Humanitarian, Global and Environment groups in the current year, while competitors' fundraising expenditure (F_j) has negative effect in the Humanitarian, Global and Environment groups. This is for current year. However, when government grants are included in the empirical models (Models 2 and 4), competitors' fundraising expenditures in the Welfare and Rural groups also shows a negative effect on donations.

The ratio of fundraising expenditure to the competitors' fundraising expenditure (K_1) has a consistently positive and significant effect on donations in the All Groups, Disability, Culture and Education groups in the current year. The number of volunteers (V) has significantly positive effect on donations but is consistently very small (from 0.047 to 0.214) in the All, Welfare and Disability groups and has positive but insignificant effect on donations on the Culture and Education groups in the following year. Organisational size (A) has a significantly positive effect on donations in the Welfare and Environment groups, and positive but insignificant on donation in the Disability industry in the following years, while organisational age has a positive and significant effect on donation but only in the Culture group, and other groups show a negative effect. On the other hand, government grants (G) have a positive effect on donations in most of the groups in the following year. Administrative costs (AC) have a consistently significant positive effect on donations in most groups except the Welfare group in the following year.

As discussed in Section 2.5.2, the samples of Japanese charitable organisations are classified into three geographical groups of Tokyo, Kanagawa and Kyoto. The results of these geographic groups show similarities with those of the industry groups. But the results of these geographic groups distinct were much weaker than those for the industry groups in Japan. These results indicate that a sample of Japanese charitable organisations consistently show that only a few group indicate a positive effect on donations. However, each of the charitable organisations in the All, Humanitarian, Global, Disability, Culture, Education and Environment shows an interest in the major decisions of their competitors in terms of fundraising.

The results of Australian charities are far better than the results of Japanese charities, including significance and expected sign of explanatory variables and overall levels of explanation. There remain some concerns with the multicollinearity problems between variables in these family models. Firstly the empirical results of family models may be biased due to the muliticollinearity problem, especially among the logarithms of fundraising expenditure of a charity *i* (lnFi), competitors' fundraising expenditure (lnFj) and the ratio of logged fundraising expenditure in each group (lnFi/ΣlnF). Secondly, the variables among donations, fundraising expenditure and volunteers may be simultaneously related to each other. This simultaneity may affect the results of family models. This is because volunteers and donations are both contributions to charitable organisations by individuals, one in the form of people's time and labour and the other in monetary form, and many volunteers in each organisation are engaged in fundraising events to increase donations. Thirdly in both Australia and Japan the significant effect of volunteers on total donations places more emphasis on volunteers. This is a very different input to production that is found in normal oligopoly models.

Table 6.35: OLS estimation for Japanese charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon$$

cc	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-103.570**	8.055	13.634	26.833	-110.868***	-21.007*	-17.073***	18.961***
	(48.327)	(8.724)	(14.090)	(24.196)	(35.138)	(15.533)	(6.915)	(7.667)
$\ln F_i$ (β_1)	-5.873*	-1.039	0.315	2.431	-11.334**	-2.843*	-1.625 *	1.531**
	(3.655)	(1.138)	(0.305)	(3.390)	(6.132)	(2.201)	(1.117)	(0.797)
$\ln F_j$ (β_2)	5.319**	-0.240	-0.198	-1.029	11.471***	1.581	1.828***	-0.945*
	(2.536)	(0.754)	(0.888)	(1.343)	(3.664)	(1.395)	(0.568)	(0.658)
$\ln F_i / \mathrm{Ln}\Sigma F$ (β_3)	5905.489**	119.195	-0.091	-203.700	469.279**	340.304**	117.920**	-87.072*
	(3341.950)	(111.123)	(34.843)	(353.743)	(212.868)	(205.689)	(85.180)	(57.216)
$\ln A_{i\,t\text{-}1}$ (β_4)	-0.659	3.669***	-0.190	-0.260**	0.573	-2.936*	-0.148	0.597**
	(0.864)	(1.173)	(0.177)	(0.146)	(0.989)	(1.904)	(0.786)	(0.347)
$\ln A_{i\,t\text{-}1}/\ln\Sigma A_{t\text{-}1}$ (β_5)	816.089	-262.818***	13.946	3.901	-4.205	316.886**	16.141	-21.453
	(832.076)	(108.995)	(11.073)	(11.489)	(86.145)	(190.610)	(53.806)	(23.113)
$\ln V_{i\,t\text{-}1}$ (β_6)	0.080*	0.214**	-0.295***	-0.089	0.180	0.147	0.052	-0.436***
	(0.058)	(0.125)	(0.078)	(0.257)	(0.344)	(0.126)	(0.121)	(0.081)
$\ln Age_{i\,t\text{-}1}$ (β_7)	-0.108	-3.619***	-0.544	-0.660**	-0.269	2.314**	-0.096	-0.479
	(0.156)	(1.028)	(0.878)	(0.387)	(1.385)	(1.388)	(0.525)	(0.417)
R^2	0.329	0.641	0.660	0.393	0.475	0.382	0.732	0.674
Adj R^2	0.315	0.595	0.572	0.316	0.282	0.303	0.687	0.607
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.36: OLS estimation for Japanese charities

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

cc	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-78.789*	3.703	12.937	37.727	-141.074***	-21.265	-17.592***	19.758***
	(47.345)	(9.483)	(14.216)	(30.362)	(43.760)	(16.693)	(6.963)	(7.580)
$\ln F_i$ (β_1)	-4.073	-1.474	0.298	4.248	-19.554**	-3.435*	-2.553**	1.755**
	(3.728)	(1.371)	(0.295)	(4.570)	(9.175)	(2.569)	(1.138)	(0.935)
$\ln F_j$ (β_2)	4.084*	0.088	-0.143	-1.750	17.793***	2.063	2.064***	-1.182*
	(2.524)	(0.905)	(0.9098)	(1.813)	(5.636)	(1.662)	(0.6218)	(0.739)
$\ln F_i / \text{Ln}\Sigma F$ (β_3)	4125.400	138.867	1.742	-342.880	500.863***	334.423**	199.011***	-77.610*
	(3301.068)	(114.606)	(29.578)	(415.837)	(211.661)	(203.580)	(69.742)	(49.917)
$\ln A_{i\,t-1}$ (β_4)	-0.661	3.626***	-0.197	-0.249**	0.397	-2.553*	0.575	0.372
	(0.880)	(1.205)	(0.179)	(0.141)	(0.917)	(1.820)	(0.722)	(0.343)
$\ln A_{i\,t-1}/\ln\Sigma A_{t-1}$ (β_5)	787.383	-218.963**	11.501*	3.079	9.838	236.647*	-24.498	-4.850
	(822.214)	(94.556)	(8.865)	(8.775)	(65.865)	(155.558)	(38.019)	(17.456)
$\ln V_{i\,t-1}$ (β_6)	0.073	0.204*	-0.294***	-0.078	0.184	0.147	0.009	-0.442***
	(0.058)	(0.125)	(0.078)	(0.257)	(0.339)	(0.127)	(0.115)	(0.082)
$\ln Age_{i\,t-1}$ (β_7)	-0.114	-3.595***	-0.592	-0.665**	-0.374	2.005	-0.167	-0.458
	(0.157)	(1.054)	(0.896)	(0.381)	(1.338)	(1.338)	(0.496)	(0.424)
R^2	0.326	0.639	0.661	0.397	0.492	0.375	0.738	0.666
Adjusted R^2	0.312	0.593	0.573	0.320	0.305	0.296	0.693	0.598
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.37: OLS estimation for Japanese charities

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{t-1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-26.634	10.228	18.992	25.757	-52.940**	-21.717*	-8.915	22.610***
	(45.867)	(9.172)	(17.336)	(20.622)	(31.782)	(15.442)	(7.050)	(6.537)
$\ln F_i$ (β_1)	-1.217	0.570	0.087	1.163	-3.964	-0.683	-1.179	1.994***
	(3.605)	(1.158)	(3.045)	(2.936)	(5.809)	(1.960)	(0.966)	(0.713)
$\ln F_j$ (β_2)	1.307	-0.690	-0.577	-0.978	5.747**	1.845*	1.244**	-1.255**
	(2.412)	(0.802)	(0.999)	(1.127)	(3.415)	(1.373)	(0.596)	(0.588)
$\ln F_i / \text{Ln}\Sigma F$ (β_3)	1552.904	-47.046	19.583	-79.346	180.176	134.042	132.366**	-117.577***
	(3284.517)	(114.138)	(310.599)	(305.298)	(192.847)	(183.649)	(75.225)	(49.216)
$\ln A_{i\,t\text{-}1}$ (β_4)	-0.788	2.281**	-0.153	-0.331***	0.115	-6.009**	-0.149	0.530*
	(1.453)	(1.112)	(0.189)	(0.137)	(0.956)	(2.774)	(0.729)	(0.364)
$\ln A_{i\,t\text{-}1}/\ln\Sigma A_{t\text{-}1}$ (β_5)	986.392	-125.015	11.370	18.302**	30.301	631.459**	18.784	-15.746
	(1395.207)	(101.782)	(10.586)	(9.771)	(82.871)	(279.248)	(50.019)	(24.115)
$\ln V_{i\,t\text{-}1}$ (β_6)	0.071	0.187*	-0.211***	-0.293*	0.490*	0.111	-0.061	-0.462***
	(0.060)	(0.135)	(0.084)	(0.224)	(0.315)	(0.147)	(0.142)	(0.079)
$\ln Age_{i\,t\text{-}1}$ (β_7)	-0.085	-1.961***	-0.148	-0.505*	-1.266	2.265**	-0.353	-0.384
	(0.145)	(0.772)	(0.624)	(0.342)	(1.566)	(1.236)	(0.370)	(0.387)
R^2	0.286	0.583	0.548	0.451	0.376	0.254	0.673	0.695
Adjusted R^2	0.270	0.530	0.431	0.381	0.158	0.159	0.617	0.632
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.38: OLS estimation for Japanese charities

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

cc	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-29.624	7.138	-5.756	23.987	-89.909**	-25.833*	-10.557*	22.962***
	(48.327)	(10.091)	(22.478)	(26.198)	(43.211)	(16.287)	(7.414)	(6.478)
$\ln F_i$ (β_1)	-1.502	0.278	-5.230	0.781	-12.497*	-2.611	-1.897**	2.146***
	(3.584)	(1.429)	(4.195)	(4.045)	(8.976)	(2.368)	(1.0857)	(0.8557)
$\ln F_j$ (β_2)	1.499	-0.499	0.961	-0.876	11.532**	1.619**	1.495**	-1.489**
	(2.460)	(0.971)	(1.380)	(1.555)	(5.645)	(1.373)	(0.679)	(0.658)
$\ln F_i / \mathrm{Ln}\Sigma F$ (β_3)	1757.111	-14.874	492.090*	-34.069	316.952*	263.364*	150.571**	-99.661**
	(3164.694)	(120.307)	(374.614)	(367.298)	(203.775)	(189.458)	(68.237)	(43.921)
$\ln A_{i\,t-1}$ (β_4)	-0.795	2.183**	-0.094	-0.323***	0.162	-4.440**	0.551	0.315
	(1.415)	(1.155)	(0.185)	(0.136)	(0.906)	(2.407)	(0.700)	(0.373)
$\ln A_{i\,t-1}/\ln\Sigma A_{t-1}$ (β_5)	963.377	-98.114	5.717	14.230**	25.248	404.536**	-21.840	-1.145
	(1317.580)	(89.390)	(8.303)	(7.621)	(64.007)	(206.627)	(37.141)	(18.833)
$\ln V_{i\,t-1}$ (β_6)	0.070	0.185*	-0.188**	-0.302*	0.552**	1.699	-0.086	-0.477***
	(0.060)	(0.136)	(0.082)	(0.224)	(0.302)	(1.124)	(0.135)	(0.079)
$\ln Age_{i\,t-1}$ (β_7)	-0.089	-1.900***	0.075	-0.517*	-0.894	0.110*	-0.219	-0.337
	(0.145)	(0.800)	(0.584)	(0.339)	(1.499)	(0.148)	(0.367)	(0.396)
R^2	0.286	0.579	0.576	0.450	0.420	0.258	0.676	0.691
Adj. R^2	0.271	0.526	0.466	0.380	0.217	0.163	0.621	0.627
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.39: OLS estimation for Japanese charities with unlag

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-53.035	4.308	30.711***	21.694	-67.862***	-18.588*	-12.649**	24.991***
	(44.180)	(8.580)	(12.378)	(20.529)	(28.627)	(13.635)	(6.656)	(7.605)
$\ln F_i$ (β_1)	-2.164	-0.369	0.619***	1.968	-7.625*	-0.452	-2.022**	1.866**
	(3.443)	(1.077)	(0.217)	(2.944)	(5.292)	(1.750)	(0.9907)	(0.830)
$\ln F_j$ (β_2)	2.704	-0.251	-0.864*	-0.804	7.069**	1.474	1.719***	-1.533**
	(2.358)	(0.752)	(0.604)	(1.132)	(3.070)	(1.224)	(0.6168)	(0.678)
$\ln F_i / \mathrm{Ln}\Sigma F$ (β_3)	2412.957	64.669	30.588*	-149.874	310.419**	119.458	161.907***	-112.583**
	(3040.205)	(105.997)	(23.446)	(306.081)	(175.626)	(164.556)	(61.909)	(57.581)
$\ln A_{i\,t-1}$ (β_4)	-0.630	2.579***	-0.789	-0.364***	0.389	-6.356***	0.224	-0.266
	(1.326)	(1.033)	(0.731)	(0.137)	(0.465)	(2.209)	(0.640)	(0.433)
$\ln A_{i\,t-1}/\ln\Sigma A_{t-1}$ (β_5)	808.252	-155.172*	-3.210	13.481*	14.640	663.242***	-5.233	38.102
	(1272.053)	(95.568)	(6.063)	(9.467)	(34.052)	(222.919)	(33.962)	(28.799)
$\ln V_{i\,t-1}$ (β_6)	0.055	-0.029	-0.201***	-0.071	0.437*	0.105	-0.071	-0.483***
	(0.054)	(0.122)	(0.066)	(0.210)	(0.283)	(0.121)	(0.114)	(0.091)
$\ln Age_{i\,t-1}$ (β_7)	-0.132	-1.557**	0.797	-0.462*	-0.827	2.340***	-0.364	-0.240
	(0.128)	(0.715)	(0.793)	(0.311)	(1.418)	(0.909)	(0.314)	(0.417)
R^2	0.325	0.613	0.655	0.416	0.439	0.344	0.700	0.620
Adjusted R^2	0.312	0.571	0.580	0.352	0.275	0.272	0.656	0.553
Obs.	383	63	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.40: OLS estimation for Japanese charities with unlag

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Science	Education	Environment
β_0	55.031	0.661	22.750**	27.575	-119.187***	14.850	-14.195**	27.634***
	(44.162)	(9.323)	(10.257)	(25.930)	(38.837)	(18.345)	(8.193)	(7.824)
$\ln F_i$ (β_1)	-2.167	-0.807	0.611***	2.492	-18.539**	-2.014	-2.022**	1.589*
	(3.438)	(1.316)	(0.227)	(4.048)	(7.967)	(2.128)	(0.990)	(0.972)
$\ln F_j$ (β_2)	2.713	0.049	-0.811*	-1.046	14.844***	2.214*	1.719***	-1.494**
	(2.360)	(0.901)	(0.628)	(1.559)	(4.966)	(1.455)	(0.616)	(0.738)
$\ln F_i / \mathrm{Ln}\Sigma F$ (β_3)	2416.043	92.123	-25.000	-178.118	459.567***	222.259*	161.907***	-72.702*
	(3035.822)	(110.421)	(20.871)	(367.271)	(180.735)	(170.485)	(61.909)	(50.104)
$\ln A_{i\,t-1}$ (β_4)	-0.638	2.553***	-0.060	-0.346***	0.499	-5.189***	0.244	-0.580*
	(1.332)	(1.069)	(0.160)	(0.136)	(0.432)	(1.938)	(0.640)	(0.427)
$\ln A_{i\,t-1}/\ln\Sigma A_{t-1}$ (β_5)	791.209	-129.304*	3.571	9.840*	9.711	465.584***	-5.233	44.867**
	(1230.345)	(83.474)	7(.019)	(7.370)	(24.904)	(166.698)	(33.962)	(21.627)
$\ln V_{i\,t-1}$ (β_6)	0.055	-0.035	-0.216***	-0.071	0.479**	0.095	-0.071	-0.488***
	(0.054)	(0.122)	(0.066)	(0.210)	(0.263)	(0.121)	(0.114)	(0.088)
$\ln Age_{i\,t-1}$ (β_7)	-0.132	-1.548**	0.018	-0.473*	-0.479	1.983***	-0.364	-0.123
	(0.128)	(0.736)	(0.492)	(0.308)	(1.320)	(0.839)	(0.314)	(0.412)
R^2	0.325	0.612	0.644	0.415	0.500	0.347	0.700	0.638
Adjusted R^2	0.312	0.574	0.566	0.350	0.355	0.276	0.656	0.575
S.E.	1.337	1.172	0.594	1.397	1.446	1.555	0.866	0.635
Obs.	383	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.41: OLS estimation for Japanese charities with combined (M2)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-105.901**	10.486	15.746	23.947	-110.403***	-23.251*	-15.974***	16.216**
	(48.318)	(8.913)	(13.983)	(23.269)	(35.816)	(15.717)	(6.513)	(8.029)
$\ln F_i$ (β_1)	-6.053**	-1.204	0.302	1.378	-11.667**	-2.945*	-1.151	1.184*
	(3.655)	(1.141)	(0.300)	(3.286)	(6.236)	(2.205)	(1.067)	(0.853)
$\ln F_j$ (β_2)	5.450**	-0.325	-0.308	-0.697	11.103***	1.873*	1.799***	-0.635
	(2.535)	(0.754)	(0.879)	(1.298)	(3.664)	(1.428)	(0.534)	(0.713)
$\ln F_i / \Sigma \ln F$ (β_3)	6056.505**	124.279	-3.843	-120.163	477.538**	352.862**	145.430**	-66.231
	(3341.043)	(110.721)	(34.469)	(341.547)	(216.160)	(206.239)	(81.072)	(60.019)
$\ln A_{i\,t\text{-}1}$ (β_4)	-0.689	4.099***	-0.196	-0.418***	0.928	-3.234**	-0.235	0.699**
	(0.863)	(1.221)	(0.174)	(0.156)	(1.126)	(1.930)	(0.739)	(0.357)
$\ln A_{i\,t\text{-}1} / \Sigma \ln A_{t\text{-}1}$ (β_5)	843.503	-301.8548***	12.079	4.686	-6.603	343.748**	25.093	-27.430
	(831.601)	(108.995)	(11.008)	(11.039)	(87.413)	(192.768)	(50.691)	(23.651)
$\ln V_{i\,t\text{-}1}$ (β_6)	0.062	0.201**	-0.327***	-0.100	0.166	0.100	-0.149	-0.467***
	(0.060)	(0.125)	(0.081)	(0.247)	(0.349)	(0.135)	(0.139)	(0.085)
$\ln Age_{i\,t\text{-}1}$ (β_7)	-0.133	-4.117***	-0.306	-0.767**	-0.344	2.064*	-0.173	-0.661*
	(0.157)	(1.102)	(0.884)	(0.374)	(1.409)	(1.413)	(0.494)	(0.447)
$\ln G_{i\,t\text{-}1}$ (β_8)	0.028	0.062	0.042*	0.135**	0.105	0.095	0.100***	0.047
	(0.022)	(0.051)	(0.031)	(0.057)	(0.151)	(0.099)	(0.039)	(0.042)
R^2	0.333	0.650	0.682	0.451	0.489	0.392	0.769	0.686
Adjusted R^2	0.316	0.598	0.584	0.369	0.262	0.302	0.723	0.609
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.42: OLS estimation for Japanese charities with combined (M2)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{jt-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon$$

cc	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-78.848**	6.203	15.016	32.797	-139.061***	-22.994*	-14.746**	17.539**
	(47.316)	(9.790)	(14.117)	(29.264)	(45.289)	(16.841)	(6.817)	(7.973)
$\ln F_i$ (β_1)	-4.073	-1.488	0.283	2.864	-19.259**	-3.504*	-2.010**	1.439*
	(3.726)	(1.370)	(0.291)	(4.433)	(9.447)	(2.575)	(1.122)	(0.998)
$\ln F_j$ (β_2)	4.095*	-0.051	-0.254	-1.272	17.398***	2.323*	1.810***	-0.907
	(2.523)	(0.915)	(0.901)	(1.755)	(5.909)	(1.691)	(0.608)	(0.799)
$\ln F_i / \Sigma \ln Fj$ (β_3)	4113.312	132.072	-1.304	-239.620	493.026**	342.185**	166.366***	-63.239
	(3299.068)	(114.752)	(29.280)	(402.182)	(218.288)	(204.180)	(68.693)	(52.424)
$\ln A_{i\,t-1}$ (β_4)	-0.681	3.946***	-0.202	-0.410***	0.540	-2.803*	0.728	0.447
	(0.879)	(1.244)	(0.176)	(0.152)	(1.043)	(1.846)	(0.696)	(0.353)
$\ln A_{i\,t-1} / \Sigma \ln A_{jt-1}$ (β_5)	813.817	-243.233***	9.973	3.700	10.067	255.623*	-30.543	-8.178
	(822.015)	(95.401)	(8.826)	(8.440)	(67.488)	(157.348)	(36.606)	(17.868)
$\ln V_{i\,t-1}$ (β_6)	0.056	0.193*	-0.327***	-0.090	0.178	0.104	-0.171	-0.467***
	(0.060)	(0.126)	(0.081)	(0.247)	(0.347)	(0.137)	(0.139)	(0.086)
$\ln Age_{i\,t-1}$ (β_7)	-0.136	-3.978***	-0.357	-0.765**	-0.438	1.751	-0.250	-0.610*
	(0.158)	(1.118)	(0.902)	(0.368)	(1.386)	(1.371)	(0.478)	(0.456)
$\ln G_{i\,t-1}$ (β_8)	0.026	0.052	0.041*	0.134***	0.048	0.088	0.088**	0.039
	(0.022)	(0.051)	(0.031)	(0.057)	(0.151)	(0.099)	(0.041)	(0.043)
R^2	0.329	0.646	0.682	0.453	0.495	0.384	0.765	0.675
Adjusted R^2	0.312	0.593	0.584	0.372	0.270	0.293	0.717	0.596
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.43: OLS estimation for Japanese charities with lag(M2)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{t-1}) + \beta_4 \ln A_{it-1} + \beta_5 (\ln A_{it-1} / \Sigma \ln A_{t-1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_8 \ln G_{it-1} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-30.155	11.123	19.489	27.944*	-56.329**	-22.411*	-6.291	21.453***
	(45.896)	(9.622)	(17.558)	(20.229)	(32.285)	(15.527)	(6.690)	(6.627)
$\ln F_{it-1}$ (β_1)	-1.573	0.805	0.201	0.683	-4.342	-0.951	-0.945	1.819***
	(3.612)	(1.3601)	(3.087)	(2.887)	(5.872)	(1.998)	(0.911)	(0.723)
$\ln F_{jt-1}$ (β_2)	1.501	-0.814	-0.592	-0.944	5.711**	1.965*	1.060**	-1.165**
	(2.414)	(0.888)	(1.011)	(1.104)	(3.442)	(1.387)	(0.563)	(0.594)
$\ln F_{it-1} / \Sigma \ln F_{jt-1}$ (β_3)	1863.285	-65.984	5.890	-51.790	191.474	157.962	116.576**	-108.559**
	(3289.565)	(128.085)	(315.029)	(299.329)	(194.809)	(186.978)	(70.821)	(49.944)
$\ln A_{it-1}$ (β_4)	-0.729	2.124**	-0.1626	-0.405***	0.518	-6.072**	0.028	0.522*
	(1.452)	(1.214)	(0.192)	(0.140)	(1.081)	(2.785)	(0.687)	(0.364)
$\ln A_{it-1} / \Sigma \ln A_{jt-1}$ (β_5)	938.158	-110.027	10.886	12.254	32.596	635.313**	9.881	-15.023
	(1394.193)	(111.855)	(10.739)	(10.121)	(83.557)	(280.352)	(47.041)	(24.104)
$\ln V_{it-1}$ (β_6)	0.029	0.190*	-0.227***	-0.288*	0.469*	0.057	-0.285**	-0.455***
	(0.023)	(0.137)	(0.088)	(0.219)	(0.318)	(0.164)	(0.159)	(0.079)
$\ln Age_{it-1}$ (β_7)	-0.109	-1.864**	-0.102	-0.651**	-1.368	2.196**	-0.520*	-0.358
	(0.146)	(0.830)	(0.636)	(0.344)	(1.583)	(1.244)	(0.353)	(0.388)
$\ln G_{it-1}$ (β_8)	0.029*	-0.023	0.023	0.108**	0.137	0.082	0.107***	-0.028
	(0.023)	(0.069)	(0.037)	(0.059)	(0.164)	(0.108)	(0.042)	(0.027)
R^2	0.289	0.584	0.555	0.483	0.398	0.262	0.719	0.704
Adjusted R^2	0.272	0.522	0.418	0.406	0.145	0.153	0.663	0.632
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.44: OLS estimation for Japanese charities with lag (M2)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it-1} + \beta_2 \ln F_{jt-1} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_7 \ln G_{it-1} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-30.692	-6.512	-4.491	28.395	-98.373**	4.720	-12.163*	19.289***
	(46.019)	(13.881)	(23.037)	(25.487)	(45.230)	(21.368)	(8.597)	(7.075)
$\ln F_{it-1}$ (β_1)	-1.654	0.440	-5.112	0.220	-13.086*	-2.878	-1.404*	2.016***
	(3.582)	(1.609)	(4.255)	(3.973)	(9.041)	(2.399)	(1.041)	(0.864)
$\ln F_{jt-1}$ (β_2)	1.564	-0.558	0.936	-0.804	11.666**	2.877**	1.073*	-1.377**
	(2.458)	(1.005)	(1.399)	(1.523)	(5.673)	(1.632)	(0.662)	(0.666)
$\ln F_{it-1} / \Sigma \ln F_{jt-1}$ (β_3)	1877.883	-26.144	479.891	-2.906	329.398*	283.484	119.591**	-92.410**
	(3163.073)	(131.065)	(301.101)	(360.026)	(205.180)	(191.774)	(65.505)	(44.437)
$\ln A_{it-1}$ (β_4)	-0.752	2.070**	-0.101	-0.401***	0.584	-4.491**	0.921*	0.349
	(1.414)	(1.267)	(0.187)	(0.139)	(1.024)	(2.416)	(0.676)	(0.374)
$\ln A_{it-1} / \Sigma \ln A_{jt-1}$ (β_5)	931.049	-89.005	5.370	9.569	27.120	406.579**	-38.766	-2.692
	(1316.560)	(98.647)	(8.433)	(7.881)	(64.337)	(207.338)	(35.659)	(18.874)
$\ln V_{it-1}$ (β_6)	0.053	0.187*	-0.202***	-0.296*	0.529**	0.055	-0.315**	-0.469***
	(0.061)	(0.137)	(0.087)	(0.219)	(0.304)	(0.164)	(0.157)	(0.0799
$\ln Age_{it-1}$ (β_7)	-0.112	-1.829**	0.120	-0.662**	-1.003	1.623*	-0.355	-0.323
	(0.146)	(0.864)	(0.597)	(0.341)	(1.511)	(1.132)	(0.350)	(0.396)
$\ln G_{it-1}$ (β_8)	0.029	-0.015	0.020	0.108**	0.142	0.085	0.108***	-0.028
	(0.022)	(0.067)	(0.036)	(0.059)	(0.158)	(0.107)	(0.044)	(0.027)
R^2	0.289	0.580	0.581	0.483	0.444	0.266	0.720	0.701
Adj R^2	0.272	0.518	0.452	0.406	0.209	0.158	0.663	0.628
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.45: OLS estimation for Japanese charities with unlag (M2)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_7 \ln G_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-54.908	5.839	30.769***	22.319	-69.948***	-20.377*	-10.016	23.117***
	(44.040)	(8.850)	(12.499)	(19.549)	(28.976)	(13.642)	(6.534)	(7.650)
$\ln F_i$ (β_1)	-2.320	0.064	0.581***	1.002	-8.046*	-0.784	-1.664	1.671**
	(3.432)	(1.227)	(0.228)	(2.825)	(5.361)	(1.761)	(0.969)	(0.833)
$\ln F_j$ (β_2)	2.817	-0.471	-0.865*	-0.634	7.017**	1.680*	1.469*	-1.383**
	(2.351)	(0.810)	(0.610)	(1.080)	(3.095)	(1.229)	(0.606)	(0.680)
$\ln F_i / \Sigma \ln F_j$ (β_3)	2533.043	29.702	-28.559	-78.487	322.661**	150.275	140.155*	-98.230**
	(3030.423)	(116.227)	(23.900)	(292.589)	(177.705)	(165.542)	(60.547)	(57.946)
$\ln A_{it}$ (β_4)	-0.665	2.276**	-0.778	-0.474***	0.620	-6.760***	0.436	-0.292
	(1.321)	(1.114)	(0.738)	(0.136)	(0.553)	(2.221)	(0.625)	(0.429)
$\ln A_{it} / \Sigma \ln A_{jt}$ (β_5)	851.241	-126.370	-3.825	6.552	18.301	701.081***	-14.903	39.973
	(1267.886)	(103.374)	(6.202)	(9.359)	(34.636)	(223.828)	(33.056)	(28.530)
$\ln V_{it}$ (β_6)	0.030	-0.018	-0.218***	-0.077	0.444*	0.037	-0.212**	-0.240
	(0.055)	(0.123)	(0.072)	(0.200)	(0.285)	(0.132)	(0.128)	(0.413)
$\ln Age_{it}$ (β_7)	-0.155	-1.376**	0.843	-0.610**	-0.788	2.411***	-0.370	-0.475***
	(0.128)	(0.757)	(0.8056)	(0.301)	(1.430)	(0.907)	(0.3038)	(0.090)
$\ln G_{it}$ (β_8)	0.039**	-0.044	0.019	0.147***	0.104	0.117	0.081**	-0.043*
	(0.021)	(0.059)	(0.0307)	(0.053)	(0.132)	(0.092)	(0.0389)	(0.032)
R^2	0.331	0.616	0.659	0.478	0.454	0.361	0.727	0.637
Adjusted R^2	0.317	0.568	0.572	0.412	0.263	0.279	0.681	0.563
Obs.	383	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.46: OLS estimation for Japanese charities with unlag (M2)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_8 \ln G_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Science	Education	Environment
β_0	-54.758	2.267	22.866**	28.114	-124.808***	15.858	-13.025**	25.647***
	(44.021)	(9.617)	(10.355)	(24.678)	(39.422)	(18.287)	(7.918)	(7.953)
$\ln F_i$ (β_1)	-2.340	-0.374	0.572***	1.397	-19.368***	-2.332	-1.664**	1.411*
	(3.427)	(1.449)	(0.237)	(3.872)	(8.041)	(2.134)	(0.969)	(0.978)
$\ln F_j$ (β_2)	2.819	-0.179	-0.805	-0.807	15.052***	2.397**	1.469***	-1.331**
	(2.352)	(0.957)	(0.634)	(1.486)	(4.986)	(1.456)	(0.606)	(0.747)
$\ln F_i / \Sigma \ln F_j$ (β_3)	251.299	62.117	-23.168	-104.350	476.998***	247.068*	140.155**	-62.512
	(3026.333)	(118.318)	(21.263)	(350.554)	(182.243)	(170.947)	(60.547)	(50.540)
$\ln A_{it}$ (β_4)	-0.649	2.240**	-0.064	-0.462***	0.762*	-5.500***	0.436	-0.549*
	(1.318)	(1.157)	(0.161)	(0.136)	(0.518)	(1.946)	(0.625)	(0.425)
$\ln A_{it} / \Sigma \ln A_{jt}$ (β_5)	811.071	-104.261	3.168	4.493	12.571	489.782***	-14.903	43.357**
	(1226.201)	(90.634)	(7.113)	(7.275)	(25.168)	(167.144)	(33.056)	(21.543)
$\ln V_{it}$ (β_6)	0.030	-0.024	-0.233***	-0.075	0.487**	0.030	-0.212**	-0.478***
	(0.055)	(0.123)	(0.072)	(0.200)	(0.264)	(0.132)	(0.128)	(0.088)
$\ln Age_{it}$ (β_7)	-0.155	-1.360	0.070	-0.617**	-0.421	2.025***	-0.370	-0.140
	(0.128)	(0.783)	(0.503)	(0.298)	(1.325)	(0.836)	(0.303)	(0.410)
$\ln G_{it}$ (β_8)	0.039**	-0.042	0.020	0.148***	0.115	0.133	0.081**	-0.037
	(0.021)	(0.057)	(0.031)	(0.053)	(0.124)	(0.091)	(0.038)	(0.031)
R^2	0.331	0.616	0.648	0.478	0.518	0.363	0.727	0.651
Adjusted R^2	0.317	0.567	0.558	0.412	0.351	0.282	0.681	0.580
Obs.	383	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.47: OLS estimation for Japanese charities with combined (M3)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-81.752**	10.486	14.899	21.160	-45.839**	-14.707	4.459	14.294*
	(48.202)	(8.818)	(14.497)	(23.075)	(27.408)	(15.770)	(6.559)	(10.637)
$\ln F_i$ (β_1)	-4.373	-1.049	0.315	2.799	-7.710**	-2.149	0.973	1.183
	(3.639)	(1.168)	(0.309)	(3.222)	(4.216)	(2.209)	(0.973)	(0.971)
$\ln F_j$ (β_2)	4.083*	-0.231	-0.307	-0.860	4.782**	0.989	-0.165	-0.645
	(2.535)	(0.786)	(0.925)	(1.277)	(2.838)	(1.420)	(0.564)	(0.813)
$\ln F_i / \Sigma \ln Fj$ (β_3)	4459.452*	120.561	-4.386	-246.415	285.269**	257.342	-56.108	-63.729
	(3330.459)	(110.721)	(36.305)	(336.281)	(148.966)	(208.767)	(77.564)	(68.305)
$\ln A_{i\ t\text{-}1}$ (β_4)	-0.795	3.669***	-0.169	-0.403***	0.058	-2.373	-0.220	0.607**
	(0.853)	(1.184)	(0.183)	(0.149)	(0.678)	(1.906)	12.951	(0.350)
$\ln A_{i\ t\text{-}1} / \Sigma \ln A_{\ jt\text{-}1}$ (β_5)	890.296	-262.711***	13.436	5.345	-26.044	242.999	25.093	-24.522
	(521.504)	(110.019)	(11.271)	(10.923)	(58.468)	(193.030)	(41.039)	(23.806)
$\ln V_{i\ t\text{-}1}$ (β_6)	0.074*	0.221**	-0.283***	-0.187	-0.026	0.080	-0.176**	-0.430***
	(0.057)	(0.129)	(0.083)	(0.247)	(0.237)	(0.131)	(0.101)	(0.082)
$\ln Age_{i\ t\text{-}1}$ (β_7)	-0.098	-3.615***	-0.420	-0.455***	-0.264***	1.770	-0.176	-0.453
	(0.1547)	(1.042)	(0.923)	(0.375)	(0.937)	(1.406)	(0.401)	(0.423)
$\ln AC_{i\ t\text{-}1}$ (β_8)	0.223**	-0.007	0.054	0.472	1.123**	0.431*	0.672***	0.165
	(0.071)	8.031	(0.105)	(0.179)	(0.232)	(0.262)	(0.122)	(0.258)
R^2	0.349	0.641	0.664	0.463	0.772	0.411	0.848	0.678
Adjusted R^2	0.333	0.587	0.560	0.383	0.671	0.324	0.818	0.600
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.48: OLS estimation for Japanese charities with combined (M3)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_8 \ln AC_{it\text{-}1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-56.670**	3.442	14.199	33.942	-51.110*	-14.851	3.537	15.720*
	(47.207)	(9.642)	(14.637)	(28.820)	(37.676)	(16.832)	(6.691)	(10.610)
$\ln F_i$ (β_1)	-2.481	-1.553	0.298	4.939	-9.191*	-2.609	0.732	1.427
	(3.711)	(1.431)	(0.299)	(4.341)	(7.013)	(2.571)	(1.075)	(1.117)
$\ln F_j$ (β_2)	2.811	0.151	-0.253	-1.710	6.806*	1.349	-0.101	-0.896
	(2.521)	(0.958)	(0.9485)	(1.719)	(4.778)	(1.686)	(0.629)	(0.910)
$\ln F_i / \Sigma \ln Fj$ (β_3)	2641.510	146.787	-1.833	-411.064	223.709*	253.262	-29.729	-61.025
	(3288.778)	(121.313)	(30.839)	(395.066)	(164.988)	(205.659)	(68.969)	(58.767)
$\ln A_{i\,t\text{-}1}$ (β_4)	-0.822	3.637***	-0.177	-0.387***	-0.159	-2.020	-0.122	0.397
	(0.869)	(1.216)	(0.186)	(0.143)	(0.671)	(1.816)	(0.574)	(0.349)
$\ln A_{i\,t\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	891.156	-219.330**	11.086	3.864	-6.104	175.889	4.534	-7.771
	(811.569)	(95.401)	(9.029)	(8.325)	(47.473)	(156.979)	(29.932)	(18.420)
$\ln V_{i\,t\text{-}1}$ (β_6)	0.068	0.198	-0.283***	-0.171	-0.017	0.078	-0.159	-0.435***
	(0.057)	(0.129)	(0.082)	(0.246)	(0.248)	(0.131)	(0.094)	(0.083)
$\ln Age_{i\,t\text{-}1}$ (β_7)	-0.099	-3.583***	-0.469	-0.463	-0.523	1.500	-0.242	-0.439
	(0.155)	(1.064)	(0.941)	(0.369)	(0.962)	(1.348)	(0.401)	(0.430)
$\ln AC_{i\,t\text{-}1}$ (β_8)	0.229***	-0.033	0.053	0.477***	1.102***	0.447**	0.657***	0.146
	(0.072)	(0.153)	(0.105)	(0.178)	(0.254)	(0.261)	(0.123)	(0.266)
R^2	0.346	0.639	0.664	0.468	0.751	0.408	0.847	0.669
Adj R^2	0.330	0.586	0.561	0.389	0.641	0.320	0.816	0.589
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.49: OLS estimation for Japanese charities with lag (M3)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{t-1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_7 \ln AC_{it-1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-6.885	10.364	18.674	20.885	2.861	-16.024	6.288	20.951**
	(45.199)	(9.224)	(17.982)	(19.628)	(19.710)	(14.743)	(4.997)	(9.857)
$\ln F_{it\text{-}1}$ (β_1)	-0.263	0.668	0.019	0.943	2.508	-0.283	0.975*	1.808**
	(3.547)	(1.175)	(3.187)	(2.784)	(3.403)	(1.853)	(0.689)	(0.939)
$\ln F_{jt\text{-}1}$ (β_2)	0.153	-0.804	-0.552	-0.817	0.354	1.262	-0.279	-1.146*
	(2.380)	(0.825)	(1.053)	(1.070)	(2.081)	(1.315)	(0.436)	(0.766)
$\ln F_{it\text{-}1} / \Sigma \ln F_{jt\text{-}1}$ (β_3)	591.683	-62.160	27.651	-65.215	-97.736	74.149	-56.875	-108.791**
	(3233.656)	(117.157)	(327.831)	(289.387)	(116.025)	(174.960)	(54.853)	(63.121)
$\ln A_{it\text{-}1}$ (β_4)	-0.724	2.361**	-0.155	-0.435***	-0.716*	-4.548**	-0.189	0.524*
	(1.421)	(1.125)	(0.194)	(0.135)	(0.553)	(2.675)	(0.473)	(0.370)
$\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	864.752	-134.137*	11.287	15.779**	-2.281	454.894**	9.333	-16.322
	(1365.223)	(103.319)	(10.822)	(9.307)	(46.785)	(271.670)	(32.490)	(24.589)
$\ln V_{it\text{-}1}$ (β_6)	0.071	0.207*	-0.225**	-0.388**	0.083	-0.010	-0.247***	-0.458***
	(0.059)	(0.140)	(0.096)	(0.215)	(0.187)	(0.146)	(0.096)	(0.082)
$\ln Age_{it\text{-}1}$ (β_7)	-0.098	-2.063***	-0.155	-0.437*	-1.087	1.373	-0.357*	-0.377
	(0.1547)	(0.793)	(0.640)	(0.325)	(0.880)	(1.213)	(0.240)	(0.394)
$\ln AC_{it\text{-}1}$ (β_8)	0.267***	0.106	-0.015	0.448***	1.595***	0.697***	0.702***	0.060
	(0.074)	(0.165)	(0.156)	(0.167)	(0.239)	(0.254)	(0.093)	(0.264)
R^2	0.312	0.586	0.548	0.515	0.813	0.346	0.865	0.695
Adj. R^2	0.298	0.525	0.409	0.444	0.735	0.249	0.839	0.621
Obs.	335	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.50: OLS estimation for Japanese charities with lag (M3)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it-1} / \Sigma \ln F_{jt-1}) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}) + \beta_6 \ln V_{it-1} + \beta_7 \ln Age_{it-1} + \beta_7 \ln AC_{it-1}\ \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-12.463	-8.085	-5.206	26.575	7.168	3.557	7.940	19.215**
	(45.491)	(12.352)	(23.150)	(24.654)	(30.540)	(20.160)	(6.653)	(10.069)
$\ln F_{it\text{-}1}$ (β_1)	-0.603	0.400	-5.249	1.367	2.270	-1.791	0.986	2.008**
	(3.529)	(1.456)	(4.275)	(3.842)	(5.804)	(2.261)	(0.809)	(1.073)
$\ln F_{jt\text{-}1}$ (β_2)	0.476	-0.621	0.980	-0.992	0.022	1.989	-0.275	-1.376*
	(2.433)	(1.003)	(1.413)	(1.474)	(3.811)	(1.559)	(0.504)	(0.846)
$\ln F_{it\text{-}1} / \Sigma \ln F_{jt\text{-}1}$ (β_3)	876.598	-29.089	495.111*	-95.247	-60.622	180.275	-45.965	-92.933**
	(3118.293)	(123.863)	(382.200)	(348.992)	(134.707)	(181.889)	(51.883)	(54.223)
$\ln A_{it\text{-}1}$ (β_4)	-0.630	2.238**	-0.098	-0.424***	-0.698	-3.378*	-0.292	0.318
	(1.391)	(1.167)	(0.1919	(0.134)	(0.522)	(2.312)	(0.472)	(0.378)
$\ln A_{it\text{-}1} / \Sigma \ln A_{jt\text{-}1}$ (β_5)	749.327	-103.519	5.675	11.794*	-2.265	288.513*	12.275	-1.955
	(1295.621)	(90.513)	(8.463)	(7.282)	(38.009)	(200.151)	(24.750)	(19.461)
$\ln V_{it\text{-}1}$ (β_6)	0.069	0.202*	-0.194**	-0.386**	0.114	-0.010	-0.231***	-0.472***
	(0.059)	(0.140)	(0.094)	(0.215)	(0.192)	(0.147)	(0.090)	(0.082)
$\ln Age_{it\text{-}1}$ (β_7)	-0.076	-1.977***	0.059	-0.441*	-0.932	0.954	-0.400**	-0.332
	(0.143)	(0.817)	(0.606)	(0.323)	(0.844)	(1.098)	(0.241)	(0.402)
$\ln AC_{it\text{-}1}$ (β_8)	0.265***	0.091	-0.021	0.448***	1.575***	0.690***	0.699***	0.058
	(0.074)	(0.166)	(0.146)	(0.167)	(0.254)	(0.254)	(0.094)	(0.265)
R^2	0.313	0.582	0.576	0.515	0.808	0.347	0.865	0.691
Adj. R^2	0.296	0.520	0.446	0.443	0.728	0.251	0.837	0.617
S.E.	1.396	1.241	0.674	1.291	0.939	1.626	0.602	0.554
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.51: OLS estimation for Japanese charities with unlag (M3)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_7 \ln AC_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture&Science	Education	Environment
β_0	-32.347	4.506	30.695***	11.995	-2.823	-13.543	3.094	21.714**
	(43.230)	(8.647)	(12.532)	(16.995)	(15.243)	(13.162)	(5.160)	(11.253)
$\ln F_i$ (β_1)	-1.092	-0.302	0.604***	1.273	-0.240	-0.007	0.700	1.598*
	(3.359)	(1.095)	(0.223)	(2.428)	(2.623)	(1.680)	(0.792)	(1.075)
$\ln F_j$ (β_2)	1.480	-0.330	-0.904*	-0.457	0.681	0.941	0.054	-1.315*
	(2.310)	(0.778)	(0.617)	(0.934)	(1.606)	(1.186)	(0.491)	(0.877)
$\ln F_i / \mathrm{Ln}\Sigma F$ (β_3)	1358.213	54.474	-33.155*	-93.184	-2.755	58.364	-23.662	-95.203*
	(2968.161)	(109.250)	(24.377)	(252.271)	(89.580)	(158.861)	(50.584)	(72.709)
$\ln A_i$ (β_4)	-0.406	2.630***	-0.761	-0.559***	-0.700***	-5.326***	-0.606*	-0.276
	(1.292)	(1.047)	(0.742)	(0.118)	(0.249)	(2.145)	(0.464)	(0.439)
$\ln A_i / \ln\Sigma A$ (β_5)	523.418	-160.876**	-2.280	10.453*	2.521	534.644***	28.721	36.942
	(1240.359)	(97.081)	(6.459)	(7.815)	(16.122)	(218.340)	(24.264)	(29.251)
$\ln V_i$ (β_6)	0.047	-0.016	-0.189***	-0.278*	-0.030	-0.005	-0.214***	-0.475***
	(0.053)	(0.126)	(0.072)	(0.177)	(0.143)	(0.123)	(0.083)	(0.094)
$\ln Age_i$ (β_7)	-0.122	-1.617**	0.815	-0.326	-0.560	1.727**	-0.580***	-0.235
	(0.124)	(0.733)	(0.804)	(0.257)	(0.670)	(0.899)	(0.222)	(0.422)
$\ln AC_i$ (β_8)	0.314***	0.065	0.053	0.799***	1.641***	0.596***	0.646***	0.115
	(0.067)	(0.149)	(0.114)	(0.143)	(0.178)	(0.223)	(0.091)	(0.287)
R^2	0.363	0.614	0.658	0.610	0.880	0.411	0.856	0.621
Adjusted R^2	0.349	0.565	0.569	0.560	0.839	0.336	0.831	0.544
Obs.	382	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.52: OLS estimation for Japanese charities with unlag (M3)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_{jt}) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_{jt}) + \beta_6 \ln V_{it} + \beta_7 \ln Age_{it} + \beta_7 \ln AC_{it} + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture&Science	Education	Environment
β_0	-32.392	0.900	22.977**	26.660	-6.755	15.226	7.278	25.943**
	(43.210)	(9.417)	(10.394)	(21.295)	(23.375)	(17.551)	(6.482)	(11.280)
$\ln F_{it}$ (β_1)	-1.086	-0.730	0.589***	3.141	-2.092	-1.210	0.700	1.447
	(3.355)	(1.346)	(0.234)	(3.326)	(4.409)	(2.058)	(0.792)	(1.194)
$\ln F_{jt}$ (β_2)	1.489	-0.028	-0.859*	-1.150	1.790	1.506	0.054	-1.373*
	(2.312)	(0.936)	(0.644)	(1.280)	(2.905)	(1.417)	(0.491)	(0.943)
$\ln F_{it} / \mathrm{Ln}\Sigma F_t$ (β_3)	1352.744	83.352	-26.926	-251.031	41.244	142.780	-23.662	-65.682
	(2964.005)	(114.361)	(21.507)	(301.898)	(102.426)	(165.864)	(50.584)	(60.692)
$\ln A_{it}$ (β_4)	-0.422	2.583***	-0.048	-0.583***	-0.648***	-4.434***	-0.606*	-0.547*
	(1.289)	(1.081)	(0.163)	(0.117)	(0.254)	(1.876)	(0.464)	(0.433)
$\ln A_{it}/\ln\Sigma A_t$ (β_5)	523.129	-132.241*	3.768	6.781	1.024	379.988***	28.721	43.830**
	(1199.519)	(84.536)	(7.117)	(6.077)	(12.453)	(162.751)	(24.264)	(22.437)
$\ln V_{it}$ (β_6)	0.047	-0.026	-0.203***	-0.261*	-0.001	-0.013	-0.214***	-0.483***
	(0.053)	(0.126)	(0.073)	(0.176)	(0.142)	(0.123)	(0.083)	(0.092)
$\ln Age_{it}$ (β_7)	-0.122	-1.587**	0.075	-0.318	-0.441	1.459**	-0.580***	-0.123
	(0.124)	(0.750)	(0.512)	(0.255)	(0.658)	(0.826)	(0.222)	(0.417)
$\ln AC_{it}$ (β_8)	0.314***	0.049	0.056	0.805***	1.604***	0.589***	0.646***	0.059
	(0.067)	(0.150)	(0.117)	(0.143)	(0.187)	(0.244)	(0.091)	(0.281)
R^2	0.363	0.613	0.646	0.611	0.881	0.412	0.856	0.639
Adjusted R^2	0.349	0.564	0.555	0.562	0.840	0.337	0.831	0.564
S.E.	1.340	1.180	11.204	1.147	11.938	1.488	0.606	0.643
Obs.	382	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.53: OLS estimation for Japanese charities with combined (M4)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-103.855**	-0.622	19.884***	23.236	-110.339***	-19.014	-16.528***	18.716***
	(48.236)	9.339	(7.147)	(23.934)	(34.918)	(15.605)	(6.250)	(7.985)
$\ln F_i$ (β_1)	-5.818*	0.230	0.378*	2.880	-12.395**	-2.116	-0.974	1.164*
	(3.643)	(1.194)	(0.200)	(3.295)	(5.341)	(2.153)	(0.928)	(0.868)
$\ln F_j$ (β_2)	5.326**	-0.060	-0.576*	-0.824	11.061***	1.845	1.788***	-0.958*
	(2.530)	(0.834)	(0.413)	(1.333)	(3.655)	(1.443)	(0.525)	(0.690)
$\ln F_i / \Sigma \ln F$ (β_3)	5843.584**	11.404	-13.966	-263.587	499.513***	279.886*	132.534**	-69.385
	(3330.095)	(118.391)	(17.976)	(343.887)	(191.637)	(202.154)	(71.444)	(61.018)
$\ln A_i$ (β_4)	-0.950	-0.093	-0.165	-0.402***	1.001	-1.330	-0.328	0.600**
	(0.806)	(0.533)	(0.147)	(0.160)	(1.059)	(1.439)	(0.683)	(0.357)
$\ln A_i / \Sigma \ln A$ (β_5)	1095.662*	86.011**	9.321	10.043	-16.356	151.148	31.292	-20.872
	(775.983)	(49.968)	(7.475)	(11.033)	(75.818)	(142.095)	(46.986)	(23.634)
$\ln V_i$ (β_6)	0.066	0.139	-0.325***	-0.102	0.199	0.119	-0.141	-0.456***
	(0.059)	(0.138)	(0.079)	(0.254)	(0.314)	(0.136)	(0.135)	(0.087)
$\ln Gi$ (β_7)	0.025	-0.009	0.044*	0.121**	0.102	0.122	0.099***	0.024
	(0.022)	(0.052)	(0.030)	(0.058)	(0.147)	(0.098)	(0.0394)	(0.040)
R^2	0.331	0.560	0.681	0.408	0.487	0.368	0.769	0.665
$AdjR^2$	0.317	0.504	0.598	0.333	0.298	0.288	0.729	0.596
S.E. of regression	1.374	1.261	8.903	1.413	1.463	1.585	0.777	0.568
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.54: OLS estimation for Japanese charities with combined (M4)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-74.976*	-1.652	19.803***	31.256	-140.324***	-19.778	-15.702***	19.662***
	(47.084)	(10.500)	(7.136)	(30.122)	(44.030)	(16.747)	(6.508)	(7.903)
$\ln F_i$ (β_1)	-3.673	-0.021	0.368**	4.226	-20.544***	-2.632	-1.787**	1.386*
	(3.695)	(1.438)	(0.194)	(4.514)	(8.321)	(2.497)	(1.029)	(1.009)
$\ln F_j$ (β_2)	3.874*	0.104	-0.570*	-1.383	17.657***	2.200*	1.848***	-1.182*
	(2.509)	(1.006)	(0.414)	(1.806)	(5.711)	(1.698)	(0.598)	(0.781)
$\ln F_i / \Sigma \ln F$ (β_3)	3760.216	30.941	-11.189	-351.591	519.831***	277.131*	153.676***	-63.701
	(3272.256)	(122.393)	(14.988)	(410.376)	(196.291)	(198.856)	(63.681)	(53.026)
$\ln A_i$ (β_4)	-0.962	-0.130	-0.165	-0.381***	0.607	-1.268	0.617	0.351
	(0.816)	(0.533)	(0.147)	(0.156)	(0.996)	(1.408)	(0.657)	(0.350)
$\ln A_i / \Sigma \ln A$ (β_5)	1077.322*	75.401**	7.429	7.660	0.874	123.002	-24.975	-3.302
	(762.769)	(42.305)	(5.944)	(8.466)	(59.429)	(118.898)	(34.707)	(17.693)
$\ln V_i$ (β_6)	0.060	0.138	-0.324***	-0.097	0.222	0.122	-0.155	-0.457***
	(0.059)	(0.137)	(0.079)	(0.254)	(0.311)	(0.137)	(0.135)	(0.087)
$\ln G_i$ (β_7)	0.024	-0.009	-0.044*	0.120**	0.041	0.114	0.086**	0.019
	(0.022)	(0.053)	(0.030)	(0.058)	(0.146)	(0.098)	(0.041)	(0.040)
R^2	0.327	0.563	0.680	0.409	0.492	0.366	0.763	0.657
Adj R^2	0.313	0.507	0.597	0.334	0.305	0.285	0.722	0.586
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.55: OLS estimation for Japanese charities with lag (M4)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture&Science	Education	Environment
β_0	-27.859	8.473	19.950	21.835	-52.382**	-15.178	-6.323	23.232***
	(45.761)	(9.894)	(17.007)	(20.432)	(31.757)	(15.261)	(6.785)	(6.327)
$\ln F_{it-1}$ (β_1)	-1.623	1.644	0.004	2.046	-7.047*	-1.412	-0.860	1.751***
	(3.6083)	(1.355)	(2.781)	(2.861)	(4.936)	(2.019)	(0.922)	(0.717)
$\ln F_{jt-1}$ (β_2)	1.367	-0.923	-0.628	-0.803	5.211*	1.646	0.992**	-1.356***
	(2.406)	(0.9194)	(0.969)	(1.127)	(3.372)	(1.401)	(0.570)	(0.556)
$\ln F_{it-1} / \Sigma \ln F_{jt-1}$ (β_3)	1906.919	-129.028	25.048	-171.651	269.855*	189.228	107.592*	-108.618**
	(3286.805)	(129.494)	(34.469)	(299.327)	(171.301)	(189.678)	(71.559)	(49.836)
$\ln A_{it-1}$ (β_4)	-0.821	-0.333	-0.149	-0.422***	0.496	-1.724*	0.199	0.434
	(1.446)	(0.548)	(0.173)	(0.143)	(1.074)	(1.322)	(0.687)	(0.350)
$\ln A_{it-1} / \Sigma \ln A_{jt-1}$ (β_5)	1026.906	115.852**	9.913	20.067**	-20.151	198.314*	-1.849	-8.700
	(1388.140)	(50.847)	(8.710)	(9.454)	(81.783)	(133.860)	(47.020)	(23.060)
$\ln V_{it-1}$ (β_6)	0.058	0.154	-0.226***	-0.185	0.584**	0.099	-0.253*	-0.456***
	(0.061)	(0.141)	(0.087)	(0.217)	(0.288)	(0.165)	(0.160)	(0.078)
$\ln G_{it-1}$ (β_7)	0.027	-0.077	0.024	0.082*	0.126	0.096	0.096**	-0.029
	(0.022)	(0.067)	(0.036)	(0.059)	(0.162)	(0.109)	(0.042)	(0.027)
R^2	0.288	0.545	0.554	0.448	0.375	0.220	0.704	0.665
$AdjR^2$	0.273	0.487	0.439	0.378	0.156	0.120	0.653	0.596
Obs.	335	63	35	63	27	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.56: OLS estimation for Japanese charities with lag (M4)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-27.002	10.612	-4.762	23.118	-99.940***	-13.357	-13.754*	21.354***
	(45.739)	(11.631)	(22.585)	(25.971)	(44.533)	(17.418)	(8.456)	(6.575)
$\ln F_{it-1}$ (β_1)	-1.581	1.511	-4.845	1.740	-16.057***	-3.215*	-1.441*	1.906**
	(3.579)	(1.575)	(3.968)	(3.992)	(7.744)	(2.410)	(1.041)	(0.849)
$\ln F_{jt-1}$ (β_2)	1.358	-0.877	0.962	-0.744	12.141***	2.754**	1.076*	-1.519***
	(2.442)	(1.079)	(1.368)	(1.560)	(5.548)	(1.645)	(0.663)	(0.640)
$\ln F_{it-1} / \Sigma \ln F_{jt-1}$ (β_3)	1811.678	-100.235	457.093	-120.934	390.955***	304.719*	120.434**	-90.062**
	(3159.919)	(130.238)	(356.188)	(363.678)	(180.448)	(193.028)	(65.524)	(44.126)
$\ln A_{it-1}$ (β_4)	-0.866	-0.363	-0.115	-0.407***	0.570	-1.512	1.050*	0.254
	(1.406)	(0.549)	(0.170)	(0.143)	(1.009)	(1.246)	(0.664)	(0.354)
$\ln A_{it-1} / \Sigma \ln A_{jt-1}$ (β_5)	1038.829	100.192**	6.322	15.660**	19.779	151.492*	-45.820*	2.374
	(1308.237)	(43.025)	(6.844)	(7.410)	(62.486)	(107.523)	(34.989)	(17.738)
$\ln V_{it-1}$ (β_6)	0.057	0.156	-0.203***	-0.195	0.612***	0.096	-0.283**	-0.477***
	(0.061)	(0.141)	(0.085)	(0.218)	(0.274)	(0.163)	(0.154)	(0.078)
$\ln G_{it-1}$ (β_7)	0.027	-0.067	0.019	0.082*	0.134	0.098	0.101***	-0.029
	(0.022)	(0.065)	(0.035)	(0.059)	(0.155)	(0.107)	(0.043)	(0.027)
R^2	0.288	0.545	0.580	0.446	0.431	0.238	0.712	0.695
AdjR^2	0.273	0.478	0.471	0.376	0.231	0.142	0.663	0.632
S.E.	1.419	1.282	0.658	1.366	1.577	1.740	0.866	0.543
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.57: OLS estimation for Japanese charities with unlag (M4)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-48.972	3.245	19.983***	18.977	-67.990***	-12.342	-10.436*	24.385***
	(43.796)	8.890	7.103	(19.945)	(28.337)	(13.919)	(6.559)	(7.271)
$\ln F_{it}$ (β_1)	-2.326	0.656	0.524***	2.509	-9.674**	-1.130	-1.728**	1.613**
	(3.434)	(1.204)	(0.222)	(2.791)	(4.409)	(1.838)	(0.972)	(0.820)
$\ln F_{jt}$ (β_2)	2.487	-0.499	-0.580	-0.614	6.728**	1.322	1.438***	-1.519***
	(2.337)	(0.824)	(0.546)	(1.105)	(3.006)	(1.278)	(0.608)	(0.633)
$\ln F_{it} / \text{Ln}\Sigma F_t$ (β_3)	2532.522	-15.131	-18.994	-218.320	369.958***	171.876	141.932***	-97.705**
	(3032.357)	(115.605)	(22.123)	(291.134)	(153.338)	(173.006)	(60.841)	(57.457)
$\ln A_{it}$ (β_4)	-0.680	0.426	-0.145	-0.483***	0.688*	-1.692*	0.692	-0.376
	(1.322)	(0.459)	(0.425)	(0.140)	(0.531)	(1.193)	(0.248)	(0.401)
$\ln A_{it}/\ln\Sigma A_t$ (β_5)	868.901	45.436	1.231	12.858*	7.170	191.641	-28.439	45.869**
	(1268.612)	(42.580)	(3.904)	(9.037)	(27.727)	(121.074)	(31.306)	(26.443)
$\ln V_{it}$ (β_6)	0.036	-0.042	-0.226**	-0.014	0.507**	0.095	-0.191*	-0.481***
	(0.055)	(0.125)	(0.072)	(0.202)	(0.258)	(0.136)	(0.128)	(0.089)
$\ln G_{it}$ (β_7)	0.037**	-0.078*	0.016	0.128***	0.106	0.102	0.081**	-0.043*
	(0.021)	(0.057)	(0.030)	(0.054)	(0.130)	(0.096)	(0.038)	(0.032)
R^2	0.329	0.596	0.647	0.444	0.446	0.289	0.718	0.634
Adj R^2	0.316	0.552	0.570	0.384	0.285	0.211	0.677	0.570
Obs.	383	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.58: OLS estimation for Japanese charities with unlag (M4)

$$\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it} + \beta_5 (\ln A_{it} / \Sigma \ln A_t) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	-48.873	1.811	21.853***	25.664	-125.984***	-8.355	-15.219**	26.641***
	(43.781)	(9.764)	(7.280)	(25.275)	(38.505)	(15.889)	(7.752)	(7.316)
$\ln F_{it}$ (β_1)	-2.341	0.389	0.568***	3.065	-20.666***	-2.600	-1.728**	1.350*
	(3.429)	(1.403)	(0.232)	(3.884)	(6.792)	(2.211)	(0.972)	(0.951)
$\ln F_{jt}$ (β_2)	2.492	-0.332	-0.738**	-0.879	15.260***	2.246*	1.438***	-1.392**
	(2.338)	(0.968)	(0.403)	(1.523)	(4.849)	(1.509)	(0.608)	(0.717)
$\ln F_{it} / \mathrm{Ln}\Sigma F_t$ (β_3)	2546.215	9.364	-22.176	-240.438	503.884***	263.509*	141.932***	-60.936
	(3028.232)	(116.150)	(19.733)	(353.069)	(158.307)	(177.196)	(60.841)	(49.768)
$\ln A_{it}$ (β_4)	-0.672	0.392	-0.072	-0.461***	0.799*	-1.581*	0.692	-0.603*
	(1.318)	(0.462)	(0.149)	(0.139)	(0.496)	(1.123)	(0.592)	(0.390)
$\ln A_{it}/\ln\Sigma A_t$ (β_5)	834.942	40.652	3.694	9.350*	8.027	154.203*	-28.439	46.209***
	(1226.814)	(36.096)	(5.944)	(7.062)	(20.306)	(97.114)	(31.306)	(19.628)
$\ln V_{it}$ (β_6)	0.036	-0.043	-0.233***	-0.014	0.519**	0.093	-0.191*	-0.481***
	(0.055)	(0.125)	(0.071)	(0.203)	(0.239)	(0.134)	(0.128)	(0.087)
$\ln G_{it}$ (β_7)	0.037**	-0.075*	0.019	0.128***	0.116	0.104	0.081**	-0.037
	(0.021)	(0.055)	(0.030)	(0.054)	(0.121)	(0.094)	(0.038)	(0.031)
R^2	0.329	0.597	0.648	0.442	0.516	0.303	0.718	0.650
Adj R^2	0.316	0.553	0.571	0.381	0.375	0.227	0.677	0.589
S.E.	1.373	1.195	0.590	1.363	1.422	1.606	0.839	0.625
Obs.	383	72	40	72	32	72	56	48

NOTE: Dependent variable is ln of Total Donations (D_i), see Table 5.7 for definition of variables, ***, **,* significant at 1, 5, 10 %.

Table 6.59: OLS estimation for Japanese charities in geographic group (M2)

Model 1: $\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \varepsilon$

	Tokyo	Kanagawa	Kyoto	Tokyo	Kanagawa	Kyoto
β_0	-109.669***	247.322	19.664	-120.663***	265.731*	16.201
	(42.919)	(297.846)	(20.107)	(38.497)	(199.568)	(19.522)
$\ln F_i$ (β_1)	-5.908**	16.030	0.341	-6.828***	17.298	0.470
	(3.134)	(21.932)	(0.741)	(2.590)	(14.382)	(0.817)
$\ln F_j$ (β_2)	5.599***	-12.299	-0.540	6.310***	-13.308	-0.721
	(3.134)	(15.771)	(0.844)	(2.060)	(10.537)	(0.909)
$\ln F_i / \Sigma \ln F_j$ (β_3)	4451.821**	-1227.759	-41.893			
	(2138.015)	(1654.701)	(33.549)			
$\ln F_i / \Sigma \ln F_j$ (β_3)				4870.917***	-1323.164	-12.643*
				(1710.601)	(1087.623)	(9.583)
$\ln A_{it}$ (β_4)	-0.763	0.048	0.262	-0.783	0.069	0.256
	(0.950)	(0.112)	(1.019)	(0.827)	(0.116)	(1.020)
$\ln A_i / \Sigma \ln A$ (β_5)	700.078	-12.531*	15.826			
	(672.017)	(8.018)	(31.866)			
$\ln A_i / \Sigma \ln A_j$ (β_5)				684.123	-8.715*	4.005
				(562.185)	(5.759)	(7.987)
$\ln V_i$ (β_6)	0.105*	-0.106*	0.315*	0.103*	-0.108**	0.326**
	(0.074)	(0.079)	(0.196)	(0.065)	(0.064)	(0.190)
$\ln Age_i$ (β_7)	-0.020	-0.233	-0.515	-0.015	-0.230	-0.580
	(0.183)	(0.244)	(1.942)	(0.115)	(0.207)	(1.903)
R^2	0.392	0.476	0.719	0.392	0.493	0.725
Adj R^2	0.374	0.239	0.391	0.375	0.315	0.405
S.E. of regression	1.390	0.355	0.448	1.389	0.349	0.443
Obs	251	28	14	251	28	14

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.60: OLS estimation for Japanese charities for geographic groups

Model 2: $\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln Age_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon$

Model 4: $\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_i / \Sigma \ln F) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it} + \beta_7 \ln G_i + \varepsilon$

	Tokyo	Kyoto	Tokyo	Kyoto	Tokyo	Kyoto	Tokyo	Kyoto
β_0	-109.796***	26.399***	-119.660***	15.180	-109.667***	34.527***	-119.598***	26.559***
	(42.923)	(10.938)	(37.752)	(14.672)	(42.833)	(9.396)	(37.782)	(8.931)
$\ln F_i$ (β_1)	-5.934**	0.314	-6.764***	0.389	-5.914**	0.151	-6.752***	0.186***
	(3.134)	(0.436)	(2.524)	(0.468)	(3.127)	(0.548)	(2.526)	(0.569)
$\ln F_j$ (β_2)	5.611***	-0.436	6.261***	-0.554	5.600***	-0.872**	6.255***	-0.967**
	(2.264)	(0.512)	(2.018)	(0.599)	(2.259)	(0.475)	(2.020)	(0.530)
$\ln F_i / \Sigma \ln F_j$ (β_3)	4461.726**	-37.407**			4448.701**	-44.643**		
	(2138.198)	(17.684)			(2132.945)	(23.999)		
$\ln F_i / \Sigma \ln F_j$ (β_3)			4821.600***	-10.700**			4814.361***	-12.030**
			(1668.446)	(5.720)			(1669.496)	(6.616)
$\ln A_i$ (β_4)	-0.785	0.681	-0.793	0.687	-0.885	0.133	-0.878	0.111
	(0.950)	(0.769)	(0.827)	(0.760)	(0.801)	(0.626)	(0.750)	(0.625)
$\ln A_i / \Sigma \ln A$ (β_5)	722.215	-15.486			793.072*	4.954		
	(672.446)	(24.230)			(567.060)	(11.622)		
$\ln A_i / \Sigma \ln A_j$ (β_5)			697.878	-3.921			755.236*	1.391
			(562.848)	(6.023)			(511.423)	(2.782)
$\ln V_i$ (β_6)	0.085	0.397***	0.084	0.402***	0.087	0.306***	0.086*	0.305***
	(0.076)	(0.168)	(0.067)	(0.163)	(0.076)	(0.104)	(0.066)	(0.101)
$\ln Age_i$ (β_7)	-0.036	-1.579	-0.030	-1.618				
	(0.183)	(1.963)	(0.114)	(1.908)				
lnGi (β_7) or (β_8)	0.024	0.110***	0.022	0.110***	0.024	0.081***	0.022	0.080***
	(0.025)	(0.044)	(0.020)	(0.043)	(0.024)	(0.024)	(0.020)	(0.024)
R^2	0.394	0.848	0.394	0.852	0.394	0.798	0.394	0.799
Adj R^2	0.374	0.605	0.374	0.617	0.374	0.561	0.377	0.564
S.E. of regression	1.390	0.361	1.390	0.356	1.390	0.381	1.387	0.380
Obs	251	14	251	14	251	14	251	14

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.61: OLS estimation for Japanese charities for geographic groups

Model 3: $\ln D_t = \beta_0 + \beta_1 \ln F_{it} + \beta_2 \ln F_{jt} + \beta_3 (\ln F_{it} / \Sigma \ln F_t) + \beta_4 \ln A_{it\text{-}1} + \beta_5 (\ln A_{it\text{-}1} / \Sigma \ln A_{t\text{-}1}) + \beta_6 \ln V_{it\text{-}1} + \beta_7 \ln G_{it\text{-}1} + \varepsilon$

	Tokyo	Kanagawa	Kyoto	Tokyo	Kanagawa	Kyoto
β_0	-89.805**	393.141***	22.996	-100.083***	410.106**	18.832
	(41.661)	(198.989)	(18.373)	(35.234)	(200.203)	(17.440)
$\ln F_i$ (β_1)	-4.501	26.834**	0.354	-5.367*	28.064**	0.479
	(3.041)	(14.830)	(0.781)	(2.313)	(14.932)	(0.860)
$\ln F_j$ (β_2)	4.363**	-19.935**	-0.457	5.018***	-20.877**	-0.635
	(2.202)	(10.534)	(1.065)	(1.891)	(10.605)	(1.133)
$\ln F_i / \Sigma \ln F_j$ (β_3)	3438.834**	-2028.557**	-40.092			
	(2075.922)	(1120.073)	(37.563)			
$\ln F_i / \Sigma \ln F_j$ (β_3)				3864.082***	-2121.146**	-12.137
				(1554.897)	(1127.426)	(10.698)
$\ln A_i$ (β_4)	-1.344*	0.079**	0.287	-1.405**	0.091	0.282
	(0.926)	(0.094)	(1.133)	(0.746)	(0.092)	(1.134)
$\ln A_i / \Sigma \ln A$ (β_5)	1042.103*	-14.873***	11.778			
	(653.129)	(6.509)	(41.916)			
$\ln A_i / \Sigma \ln A_j$ (β_5)				1039.936**	-9.574***	2.999
				(508.279)	(3.922)	(10.487)
$\ln V_i$ (β_6)	0.108*	-0.175	0.367*	0.107**	-0.174***	0.376*
	(0.071)	(0.044)	(0.274)	(0.060)	(0.042)	(0.269)
$\ln Age_i$ (β_7)	0.060	-0.390***	-0.826	0.069	-0.381***	-0.882
	(0.177)	(0.136)	(2.731)	(0.115)	(0.134)	(2.662)
$\ln AC_i$ (β_8)	0.365***	-0.233***	-0.229	0.367***	-0.235***	-0.226
	(0.084)	(0.031)	(0.641)	(0.105)	(0.030)	(0.625)
R^2	0.436	0.771	0.723	0.437	0.782	0.729
Adj R^2	0.417	0.675	0.280	0.418	0.690	0.297
S.E. of regression	1.341	0.240	0.487	1.340	0.235	0.482
Obs	251	28	14	251	28	14

NOTE: Dependent variable is ln of Total Donations (Di), Table 5.7 presents definition of variables, ***, **,* significant at 1, 5, 10 %

Table 6.62: Summary results of major models in Japan: Correct signs

	expected sign / industry	$+F_i$	$-F_j$	$+K_1$	$+A_i$	$+K_2$	$+V_i$	$+Age_i$	$+G_i$	$+AC_i$	R^2
M1	All			+***		+	+*				0.33
	Welfare			+	+***		+**				0.64
	Human	+	–			+					0.66
	Global	+	–			+					0.39
	Disability			+***	+		+				0.48
	Culture			+**		+**	+	+**			0.38
	Education			+***		+	+				0.73
	Environment	+	–		+***						0.67
	Tokyo			+***		+	+*				0.39
	Kanagawa	+	–		+						0.48
	Kyoto	+	–		+	+	+*				0.72
M2	All			+**		+	+		+		0.33
	Welfare			+	+***		+**		+		0.65
	Human	+	–			+			+*		0.68
	Global	+	–			+			+***		0.45
	Disability			+***	+		+		+		0.49
	Culture			+**		+**	+	+**	+		0.39
	Education			+**		+	+		+***		0.77
	Environment	+*	–		+**				+		0.69
	Tokyo			+***		+	+***		+		0.39
	Kyoto	+	–		+				+***		0.85
M3	All			+		+	+			+***	0.35
	Welfare			+	+***		+				0.64
	Human	+	–			+				+	0.66
	Global	+	–			+				+***	0.47
	Disability			+*						+***	0.75
	Culture			+		+	+	+		+**	0.41
	Education	+	–			+				+***	0.85
	Environment	+	–		+***					+	0.67
	Tokyo			+**		+**	+**	+		+***	0.44
	Kanagawa	+**	–**		+						0.77
	Kyoto	+	–		+	+	+*				0.72
M4	All			+**		+*	+		+		0.33
	Welfare	+	–	+		+**	+				0.56
	Human	+*	–*			+			+*		0.68
	Global	+	–			+			+**		0.41
	Disability			+***	+		+		+		0.49
	Culture			+*		+	+		+		0.37
	Education			+**		+			+***		0.77
	Environment	+*	–*		+***				+		0.67
	Tokyo			+**		+*	+		+		0.39
	Kyoto	+***	–**		+	+	+***		+***		0.80

Note: M1, M2, M3, M4 are Major models in a family of empirical models (See in Figure 6.   )
F = fundraising expenditure; i = a charity i; j = competing charities j; K_1 = the ratio of $Fi/\Sigma F$ or $Fi/\Sigma Fj$ ($Fj = \Sigma F - F$); K_2 = the ratio of $Ai/\Sigma A$ or $Ai/\Sigma Aj$ ($A_j = \Sigma A - A_i$); A = Fixed Assets; V = the number of volunteers; Age = the Organisational age; G = Government Grants; AC = Administrative costs. ***, **,* significant at 1, 5, 10 %

Table 6.63: Summary results of major models in Japan: Incorrect signs

	expected sign / industry	$+F_i$	$-F_j$	$+K_1$	$+A_i$	$+K_2$	$+V_i$	$+Age_i$	$+G_i$	$+AC_i$	R^2
M1	All	–	+		–			–			0.33
	Welfare	–	+			–		–			0.64
	Human			–	–		–	–			0.66
	Global			–	–		–	–			0.39
	Disability	–	+			–		–			0.48
	Culture	–	+		–						0.38
	Education	–	+		–			–			0.73
	Environment			–		–	–	–			0.67
	Tokyo	–	+		–			–			0.39
	Kanagawa			–			–	–			0.48
	Kyoto			–				–			0.72
M2	All	–	+		–			–			0.33
	Welfare	–	+			–		–			0.65
	Human			–	–		–	–			0.68
	Global			–	–		–	–			0.45
	Disability	–	+					–			0.49
	Culture	–	+		–						0.39
	Education	–	+		–			–			0.77
	Environment						–	–			0.69
	Tokyo	–	+	*	–			–			0.39
	Kyoto			–		–	–	–			0.85
M3	All	–	+		–			–			0.35
	Welfare	–	+			–		–		–	0.64
	Human			–	–		–	–			0.66
	Global			–	–		–	–			0.47
	Disability	–	+		–	–	–	–			0.75
	Culture	–	+		–						0.41
	Education			–	–		–	–			0.85
	Environment			–		–	–	–			0.67
	Tokyo	–	+		–						0.44
	Kanagawa			–		–	–	–		–	0.77
	Kyoto			–				–		–	0.72
M4	All	–	+		–						0.33
	Welfare				–				–		0.56
	Human			–	–		–				0.68
	Global			–	–		–				0.41
	Disability	–	+			–					0.49
	Culture	–	+		–						0.37
	Education	–	+		–		–				0.77
	Environment			–		–	–				0.67
	Tokyo	–			–						0.39
	Kyoto			–							0.80

Note: M1, M2, M3, M4 are major models in a family of empirical models (See in Figure 6.) F = fundraising expenditure; i = a charity i; j = competing charities j; K_1 = the ratio of $F_i/\Sigma F$ or $F_i/\Sigma F_j$ ($F_j = \Sigma F - F$); K_2 = the ratio of $A_i/\Sigma A$ or $A_i/\Sigma A_j$ ($A_j = \Sigma A - A_i$); A = fixed assets; V = the number of volunteers; Age = the organisational age; G = government Grants; AC = administrative costs. ***, **,* significant at 1, 5, 10 %

6.5 **Conclusions**

This section discussed the results from a family of empirical models for each industry and geographic group in Australia and Japan. The primary conclusion from the Industry groups analysis is that an oligopoly model may have some empirical validity, if only for Australia. The family of empirical models were based on discussion in Chapters 1 to 5. The research framework described in Chapter 4, variables of this preliminary modelling were tested in a family of empirical models and the results show varied effects on total donations in varied groups as summarised in the previous sections (Section 6.3 Summary of Australian Results and Section 6.4 Summary of Japanese Results). Consequently the results are not discussed in detail here. Note that in this chapter, because to analysis is exploratory "*p*" values are reported rather than the "*t*" statistic of subsequent Chapters.

However, discussed in the summary of the results from Japan, there are some concerns of multicollinearity problems between variables of lnFi, lnFi/ΣlnF and lnFj, considerations of simultaneous relations between donations, fundraising and volunteers, and reaction curve of fundraising expenditure and volunteers in oligopolistic competition. Therefore several points that need to be dealt with. These are: (a) adjustment for multicollinearity; (b) adjustment for simultaneousness; (c) more emphasis on volunteers; (d) better fit with oligopolistic theory; (e) F/D > 1 in some financial years of some organisations; (f) reaction curves. In the following sections, empirical OLS models of share of donations, share of fundraising expenditure and share of volunteers are developed, the results of these models are presented.

As a result of the problems with the Japanese data and the resulting empirical estimations problems, all of the empirical analysis in the following Chapters is for Australia alone.

Chapter 7

The results of oligopolistic competition among charities

Preliminary empirical results of the family models were based on the discussion in the previous chapter. This chapter presents the analysis of Shares Models, Shares of Donations, Shares of Fundraising Expenditures and Shares of Volunteers, modeifications of the previous models designed partly to avoid multicollinearity problems with some variables. Again the emphasis is on competition between charitable organisations in an oligopolistic situation.

7.1 Introduction

Very high relationships between variables such as the natural log of fundraising expenditure of charity i (Fi) and the natural log of ratio of Fi to competitors' fundraising expenditure (Fi/F or Fi/Fj) (at 0.998 in both Australia and Japan), the natural log of fixed assets of charity i (Ai) and the natural log of ratio of Ai to competitors' fixed assets (Ai/A or Ai/Aj) (at 0.999 and 0.998, Australia and Japan, respectively) (also see Tables, 6.3 and 6.4) create concern over multicollinearity.

To avoid multicollinearity, the variables of shares were estimated combining both variables, Fi and, Fi/F or Fi/Fj, and Ai and, Ai/A or Ai/Aj into one variable, Shares of Fundraising Expenditures (ShrF) and Share of Fixed Assets (ShrA), respectively. Employing these two variables may enhance the results of regression models. However, the results of the family models in Chapter 6 provided interesting results. The fundraising expenditure and the number of volunteers presented significantly positive effects of total donations in most industy groups in Australia (but not always in Japan).

This section employs OLS estimation on Shares of Donations, Shares of Fundraising Expenditures and Share of Volunteers as dependent variables. Most dependent variables are considered to have positive effects with a time lag. The ShrD, ShrF and ShrV Models are constructed as follows:

ShrD Model: $ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon$;

$$\frac{D_{it}}{\sum_i D_{it}} = f\left(\frac{F_{it-1}}{\sum_i F_{it-1}}, \frac{A_{it-1}}{\sum_i A_{it-1}}, \frac{V_{it-1}}{\sum_i V_{it-1}}, \mathrm{Re}\,lAGE_t\right)$$

ShrF Model: $ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon$:

$$\frac{F_{it}}{\sum_i F_{it}} = f\left(\frac{D_{it-1}}{\sum_i D_{it-1}}, \frac{A_{it-1}}{\sum_i A_{it-1}}, \frac{V_{it-1}}{\sum_i V_{it-1}}, \mathrm{Re}\,lAGE_t\right) \text{; and}$$

ShrV Model: $ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon$:

$$\frac{V_{it}}{\sum_i V_{it}} = f\left(\frac{D_{it-1}}{\sum_i D_{it-1}}, \frac{F_{it-1}}{\sum_i F_{it-1}}, \frac{A_{it-1}}{\sum_i A_{it-1}}, \frac{V_{it-1}}{\sum_i V_{it-1}}, \mathrm{Re}\,lAGE_t\right).$$

Shares of Donations (ShrD) = the proportion of Total Donations of charity *i* (D_{it}) to Total Donations of all charities in the same industry at year *t* ($\sum D_{it}$);
Shares of Fundraising Expenditures (ShrF) = the proportion of Fundraising Expenditures of charity *i* (F_{it}) to total of Fundraising Expenditures of all charities in the same industry at year *t* ($\sum F_{it}$);
Shares of Fixed Assets (ShrA) = the proportion of Fixed Assets of charity *i* (A_{it}) to the total Fixed Assets of all charities in the same industry at year *t* ($\sum A_{it}$);
Shares of the Number of Volunteers (ShrV) = the proportion of the Number of Volunteers of charity *i* (V_{it}) to total the Number of Volunteers of all charities in the same industry at year *t* ($\sum V_{it}$); and
Relations of Age (RelAgeit) = the proportion of the difference between Organisational Age of charity *i* (AGE_{it}) and Average of Organisational Age of all charities in the same industry ($AvAGE_t$) to Average of Organisational Age of all charities in the same industry at year t ($AvAGE_t$).

In comparison to the results of the family models in Chapter 6, the ShrD Model increased the explanatory power of most of industry groups except Science and Rural groups in Australia, as expected. On the other hand, in the sample of Japanese charitable organisations, the ShrD Model led to a decrease in explanatory power except in the Welfare, Humanitarian, and Environment groups. The ShrV Model achieved the highest of R^2 and significance of variables in most of industry groups except for the Disability group in Australia and for the Welfare group in Japan. In terms of geographic groups, states in Australia and prefectures in Japan, the results of Shr D explanatory power indicate that ShrV models produced the best estimation results.

The analyses of Shares Models include Shares of Donations (ShrD), Shares of Fundraising Expenditures (ShrF) and Shares of total number of Volunteers (ShrV) Models. The results of Shares Models are tested with the same hypotheses as in Chapter 6 except hypothesis 9 as H_0: $D_i \leq 0$ and H_1: $D > 0$.

The consequent results are discussed in detail in the following section.

7.2 Analysis of Shares Models

This section presents the results of the analysis of Shares Models, Shares of Donations (ShrD) as a dependent variable with independent variables, including Shares of Fundraising Expenditure (ShrF), Share of Fixed Assets (ShrA), Shares of total number of Volunteers (ShrV), Relation to Age (RelAge) and those independent variables are with lagged value except RelAge.

A problem appears when lagged dependent variables are used as instrumental or independent variables. This is the problem of auto-correlation in time-series. This can cause bias in the estimated coefficients, and can also lead to instability in estimated coefficients. In the purely time-series this can be tested using the unit-root test. If found any first-order linear auto-correlation can be corrected using standard applications from those commonly available in mainstream econometrics package. However, this requires time-series of sufficient length, i.e. sufficient numbers of observations.

In the case of this thesis, the data are problematic in being (a) pooled cross-sectional time-series and (b) having that time-series are very short (mostly 8 annual-observations). This makes use of correction technique impossible. Nevertheless it is clear from some of the results in this chapter and the following chapter, that first-order auto-correlation is probably present and in some cases appears to be very strong. This implies the results from estimated efficiencies using lagged dependent variable have to be treated extreme caution.

7.2.1 Analysis of industry group in relation to the ratios of fundraising-to-donations

Before constructing Shares Models, each industry group of charitable organisations was examined to see whether the ratios of Fundraising (expenditure)-to-Donations are greater than one (F/D > 1) and the scatter plots of this calculated ratio was also examined in Australia and Japan. This is reported in the following section.

Most of the charitable organisations in the Japanese samples calculated the ratios of fundraising-to-donations as greater than one (F/D>1), whereas nine charitable organisations in the Australian samples obtained the ratios of fundraising-to-donations as less than one (F/D<1). Those nine charitable organisations showed similar temporal patterns, such as dramatically dropping donations for the years following 2004 when the world's natural disaster (The Boxing Day tsunami) occurred (1. Annecto, 2. Anglican Home Western Australia, 3. Baptist Community Care Victoria, 4. Benetas, 5.Churches of Christ Care Queensland, 6.Minda, 7. Uniting Care Victoria, 8. Villa Maria Society, 9. Wesley Mission Sydney). Total donations to the Villa Maria Society dropped in 2004 and 2005, but finally recovered to 2003 level in 2008. However, some organisations did not show any recovery, even by 2008. Annecto, Anglican Home Western Australia, Baptist Community Care Victoria, Benetas, Churches of Christ Care Queensland and Uniting Care Victoria showed dramatic decreases in donations in 2004 and these decreased amounts were almost one third of the amounts received in 2003, which did not recover, even in 2008. Similarly the fundraising-to-donations ratios to Minda were below one for the first four years (2001-2004). However, in 2004 this ratio dropped to become less than 10% in 2003 and 4% in 2004 and 2005. It didi not recover its donations in 2008. In the case of Wesley Mission Sydney, its fundraising-to-donations ratios showed slightly greater than one for seven years. These organisations were mostly in the groups of <u>Welfare</u> (6 organisations) or <u>Disability</u> (3 organisations) and these groups of organisations mainly relied government subsidies for their revenue. For example, Churches of Christ Care reported in its annual report in 2001 that the revenues received more "63% from government grants and 35% from fees and charges (on average)" (Churches of Christ Care, 2001). Thus only 2% came from donations. There is, therefore, the possibility that its fundraising expenditure may include the cost of trying to get government grants or for rewarding volunteers. These organisations were not included in the Shares Models in the Australian samples. Therefore total observations of industry groups of Australian charitable organisations were changed to:

245 observations in the All Groups group, 77 in the Welfare group and 63 in the Disability group. The number of observations on other industry groups employed same observation number, with the family models as 42 observations in the Humanitarian group, 35 in the Global group, 21 in the Animal group, 28 in the Science group and 49 in the Rural group.

In the case of Japanese industry groups the number of observations employed was the same as for the family models.

7.2.2 Shares of donation models in Australian charities

The results of the regression analysis of Shares of Total Donations (Shr D) are presented in Table 7.1. The empirical model is constructed with ShrD as the independent variable, using total donations of charity *i* divided by total donations of all charities in the same industry group ($ShrD = D_{it} / \sum D_{it}$). The independent variables are Shares of Fundraising Expenditures (ShrF), Shares of Fixed Assets (ShrFi) and Shares of Volunteers (ShrV) with lagged value and Relation of Age (RelAgei) with no time lags in ShrD regression model. The ShrD equation tested is:

$$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon \qquad (7\text{-}1)$$

Where *i* indicates the charitable organisation and *t* indicates the year;
D is total donations; $ShrD_i = D_{it} / \sum D_{it}$;
F is fundraising expenditures; $Shr\ F_{it-1} = F_{it-1} / \sum F_{it-1}$;
A is fixed assets; $Shr\ A_{it-1} = A_{it-1} / \sum A_{it-1}$;
V is the number of volunteers; $Shr\ V_{it-1} = V_{it-1} / \sum V_{it-1}$;
Age is organisational age; $RelAge_{it} = (Age_i$ □ Average Age)/Average Age
and ε is error term.

The estimation results were similar to the results of the family models. However, the explanatory power of regression models of each of the industry groups is higher than that of the aggregated All group. Compared to the results of the family models, the R^2 and adjusted R^2 of Share of Donations Models in the industry groups are slightly increased, except for the Science and Rural groups.

The coefficients of Shares of fundraising expenditure (ShrF) shows a positive relationship in most of the industry groups as expected, consistent with the results of the family models, except for the Science and Rural groups. Thus, the coefficients of ShrF are significantly positive on the Welfare, Global and Disability groups. Testing Hypothesis 1 is as H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the: All, Welfare, Humanitarian, Global, Disability and Animal groups, and not rejected in the Science and Rural groups.

The coefficients on Shares Fixed Assts (ShrA) are a positive, again as hypothesised except in the Global, Animal and Rural groups. The coefficients are significantly positive in the Welfare and Humanitarian groups and positive but insignificant in the All, Disability and Science groups. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$: The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Disability and Science groups, and not rejected in the Animal, Global and Rural groups.

The coefficients on Shares of Volunteers (ShrV) are significantly positive in the All, Humanitarian, Global, Science and Rural.groups and in the Welfare, Disability and Animal are significantly negative. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in the All, Humanitarian, Global, Science and Rural groups and not rejected in the Welfare, Disability and Animal groups.

The coefficients on Relation of Age (RelAge) show mixed results. It was significantly positive in Science group and, positive but insignificant in the Disability and Animal groups. Those of the All, Welfare, Humanitarian, Global and Rural groups are significantly negative. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in the Disability, Science and Animal groups and not rejected in the All, Welfare, Humanitarian, Global and Rural groups.

7.2.3 Shares of fundraising expenditure models in Australian charities

Table 7.2 presents the results of Shares of Fundraising Expenditure Models (ShrFs).

The tested equation (7.2) is:

$$ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon \quad (7.2)$$

Where *i* indicates the charitable organisation and *t* indicates the year;

F is fundraising expenditures; Shr $F_{it} = F_{it} / \sum F_{it}$;

D is total donations; $ShrD_i = D_{it-1} / \sum D_{it-1}$;

A is fixed assets; Shr $A_{it-1} = A_{it-1} / \sum A_{it-1}$;

V is the number of volunteers; Shr $V_{it-1} = V_{it-1} / \sum V_{it-1}$;

Age is organisational age; $RelAge_{it}$ = (Age_i □ Average Age)/Average Age

and ε is error term.

As shown in Table 7.2, the R^2 (adjusted R^2) are consistent with these of the ShrD model. In Table 7.2, ShrD shows positive relationship in the groups except for the Science and Rural groups. This is consistent with those groups in the ShrD model. The coefficients of ShrD are significantly positive in the All, Welfare, Global and Disability groups. Hypothesis 9 is tested as: H_0: $D_i \leq 0$; and H_1: $D_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Global, Disability and Animal groups, and not rejected in the Science and Rural groups.

The coefficients of ShrA show mixed results, a positive relationship in the All, Disability, Science and Rural groups, but negative in the Welfare, Humanitarian, Global and Animal groups. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$: Thus, the Null Hypothesis is rejected in the All, Disability, Science and Rural groups but not rejected in the Welfare, Humanitarian, Global and Animal groups.

The coefficients of ShrV have a positive relationship except in the Animal group. The coefficients of ShrA are significantly positive in the All, Welfare, Disability, Science and Rural groups, and positive but insignificant in the Humanitarian and Global 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, Global, Disability, Science and Rural groups but not rejected in the Animal group.

The coefficients on Relation of Age (RelAge) show positive relationship in all industry groups except Disability which has a significantly negative relationship. Significantly positive were the All, Welfare, Humanitarian, Global and Rural groups, and insignificant and positive in the Animal and Science 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, Welfare, Humanitarian, Global, Animal, Science and Rural groups, and not rejected in the Disability group.

The results indicate the effectiveness of fundraising activities of organisations is increased by the numbers of volunteers, and organisational age enhances those activities, but not the size of the organisations. However, a positive impact of shares of fundraising expenditures on the shares of total donation and shares of donation on shares of fundraising expenditures are consistent with the industry groups as expected.

7.2.4 Shares of volunteer models in Australian charities

Table 7.3 presents the results of Shares of Volunteers Models (ShrVs).

The ShrV tested equation (7.3) is:

$$\mathrm{ShrV}_t = \beta_0 + \beta_1\,\mathrm{ShrD}_{it-1} + \beta_2\,\mathrm{ShrF}_{it-1} + \beta_3\,\mathrm{ShrA}_{it-1} + \beta_4\,\mathrm{ShrV}_{it-1} + \beta_5\,\mathrm{RelAge}_{it} + \varepsilon \qquad (7.3)$$

Where i indicates the charitable organisation and t indicates the year;
V is the number of volunteers as a dependent variable; $\mathrm{ShrV}_{it} = \mathrm{V}_{it} / \sum \mathrm{V}_{it}$; and
as an independent variable: $\mathrm{ShrV}_{it-1} = \mathrm{V}_{it-1} / \sum \mathrm{V}_{it-1}$;
D is total donations; $\mathrm{Shr\ D}_{it-1} = \mathrm{D}_{it-1} / \sum \mathrm{D}_{it-1}$;
F is fundraising expenditures; $\mathrm{Shr\ F}_{it-1} = \mathrm{F}_{it-1} / \sum \mathrm{F}_{it-1}$;
A is fixed assets; $\mathrm{Shr\ A}_{it-1} = \mathrm{A}_{it-1} / \sum \mathrm{A}_{it-1}$;
Age is organisational age; RelAge_{it} = (Age_i □ Average Age)/Average Age
and ε is error term.

As shown in Table 7.3, the R^2 (adjusted R^2) are increased compared to the family models and the ShrD and ShrF models, except in the Disability group.

The highest explanatory power is the Animal group and this is because in the Animal group the Australian sample of organisations has relatively few observations which may mislead the results – e.g. the R^2 and adjusted R^2 ≈1.00. The lowest is in the Disability group (the R^2 at 0.347 and adjusted R^2 at 0.290). The second highest is in Science of the R^2 at 0.991 (adjusted R^2 at 0.989), followed by Global (the R^2 at 0.990 and adjusted R^2 at 0.988), Rural (0.967 and 0.953), Welfare (0.964 and 0.961), All (0.894 and 0.891) and the second lowest is the Humanitarian group (0.837 and 0.814). Thus, the R^2 (adjusted R^2) are shown relatively high in ShrV model except in the Disability group.

In Table 7.3, ShrD shows positive relationship in the groups except in the Welfare, Disability and Science groups which have insignificant but negative relationship. The coefficients of ShrD are significantly positive in the All and Humanitarian groups and positive but insignificant in the Global, Animal and Rural groups. Hypothesis 9 is tested as: H_0: $D_i \leq 0$; and H_1: $D_i > 0$. The Null Hypothesis is rejected in the All, Humanitarian, Global, Animal and Rural groups and not rejected in the Welfare, Disability and Science groups.

The coefficients of ShrF have a positive relationship except in the Global, Animal and Rural groups which had insignificant negative relationship. The coefficient of ShrF is significantly positive in the Science group, but insignificant and positive in the All, Welfare, Humanitarian, and Disability groups. Hypothesis 1 is tested as H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Disability and Science groups and not rejected in the Global, Animal and Rural groups.

As shown in Table 7.3, the coefficients of ShrA are positive in five industry groups, All, Welfare, Humanitarian, Global and Rural, but negative in the Disability, Animal and Science groups. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Global and Rural groups and not rejected in the Disability, Animal and Science groups.

The coefficients on lag of ShrV are significantly positive in all industry groups in the All, Welfare, Humanitarian, Global, Disability, Science, and Animal and Rural groups. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in every group.

In Table 7.3, the coefficients of RelAge are a positive relationship except in the Welfare, Humanitarian and Science groups, wich have insignificantly negative relationship. Thus, the coefficients of RelAge are significantly positive in the Animal group, and positive but insignificant in the All, Global, Disability and Rural groups. Hypothesis 7, H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in the All, Global, Disability, Animal and Rural groups and not rejected in the Welfare, Humanitarian and Science groups.

7.2.5 Shares of models in geographical groups in Australian charities

This section reports the results of the analyses on Shares Models, ShrD, ShrF and ShrV in the geographical groups. Tables 7.4, 7.5 and 7.6 present the results of ShrD (Equation 7.1), ShrF (Equation 7.2) and ShrV (Equation 7.3) models, respectively. As discussed in Chapter 2, a sample of charitable organisations is divided into geographical location grouping in 6 states (total number of observations), including ACT (14 observations), Victoria (91), NSW (98), QLD (21), WA (28) and SA (14). Shares Models and each model's equations are presented and the analyses are discussed. However, in the results of ShrD, ShrF, ShrV models, ACT is excluded because in the Australian sample data which located its head office in the ACT, there are too few organisations (2 organisations) and too few observations which could lead to untrustworthy results — e.g. R^2 close to 1.0.

7.2.5.1 Shares of donations models in Australia with state grouping

The ShrD model is:

$$\mathrm{ShrD}_t = \beta_0 + \beta_1\,\mathrm{ShrF}_{it-1} + \beta_2\,\mathrm{ShrA}_{it-1} + \beta_3\,\mathrm{ShrV}_{it-1} + \beta_4\,\mathrm{RelAge}_{it} + \varepsilon \qquad (7\text{-}1)$$

Where i indicates the charitable organisation and t indicates the year;

D is total donations; $\mathrm{ShrD}_i = \mathrm{D}_{it} / \sum \mathrm{D}_{it}$;

F is fundraising expenditures; $\mathrm{Shr\ F}_{it-1} = \mathrm{F}_{it-1} / \sum \mathrm{F}_{it-1}$;

A is fixed assets; $\mathrm{Shr\ A}_{it-1} = \mathrm{A}_{it-1} / \sum \mathrm{A}_{it-1}$;

V is the number of volunteers; $\mathrm{Shr\ V}_{it-1} = \mathrm{V}_{it-1} / \sum \mathrm{V}_{it-1}$;

Age is organisational age; $\mathrm{RelAge}_{it} = (\mathrm{Age}_i$ □ Average Age)/Average Age

and ε is error term.

Table 7.4 presents the results of ShrD model in 5 states, Victoria NSW, QLD, WA and SA. The explanatory power of the models, the R^2 and adjusted R^2, are higher than for those in the family models in the 5 states (Chapter 5), except in WA and SA. However, the percentage in terms of order is consistent with that of the family model. Overall, the explanatory power of ShrD varies enormously depending on the state. This also suggests that geographical groupings are not related to market competition for donors. This supports the Cournot modelling.

The coefficients of ShrF are positive in NSW, Victoria and WA, but negative QLD and SA. These results are consistent with the results of the major family models in terms of the fundraising expenditure related variables. Hypothesis 1 is tested as follows: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in Victoria, NSW and WA, and not rejected in QLD and SA.

The coefficients of ShrA are a negative in most states except NSW, which has a statistically significant positive relationship. Hypothesis 4 as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in NSW and not rejected in Victoria, QLD, WA and SA.

The coefficients of ShrV are positive in WA and SA, and positive and significant in NSW and OLD. However Victoria is negative and insignificant. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in NSW, QLD, WA and SA, and not rejected in Victoria.

The coefficients of RelAge are positive in Victoria and WA, and negative in NSW, QLD and SA. Those results are consistent with the results of family model in relation to organisational age related variable. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in Victoria and WA, and not rejected in NSW, QLD and SA.

7.2.5.2 Shares of fundraising expenditure in Australia with state grouping

The ShrF model is:

$$ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon \qquad (7.2)$$

Where i indicates the charitable organisation and t indicates the year;

F is fundraising expenditures; Shr $F_{it} = F_{it} / \sum F_{it}$;

D is total donations; $ShrD_i = D_{it-1} / \sum D_{it-1}$;

A is Fixed Assets; Shr $A_{it-1} = A_{it-1} / \sum A_{it-1}$;

V is the number of volunteers; Shr $V_{it-1} = V_{it-1} / \sum V_{it-1}$;
Age is organisational age; $RelAge_{it} = (Age_i$ Average Age)/Average Age
and ε is error term.

In Table 7.5, the estimation results of ShrF model using the aggregated groups of the 5 States of charitable organisations are presented. The results of the explanatory powers of regression models are similar to those of theShrD model and the family of Model 1. However, some states are slightly higher (Victoria and WA) and some are slightly lower (NSW, QLD and WA) than the previous results. The coefficients of ShrD are positive in all States except NSW and SA. Hypothesis 9 is tested as follows: H_0: $D_i \leq 0$; and H_1: $D_i > 0$. The Null Hypothesis is rejected in Victoria, QLD and WA, and not rejected in NSW and SA.

The coefficients of ShrA are positive in all states, except NSW, with a significantly positive relationship. Hypothesis 4 as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in NSW, and not rejected in Victoria, QLD, WA and SA.

The coefficients of ShrV are mostly either positive (WA and SA) or significantly positive (Victoria, NSW and QLD). Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in all States.

The coefficients of RelAge are ositive in most states, except Victoria and SA. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in NSW, QLD and WA, and not rejected in Victoria and SA.

The results indicate that significant and positive relationship between ShrF and ShrV.

7.2.5.3 Shares of volunteer in Australia with state grouping

The ShrV model is:

$$ShrV_t = \beta_0 + \beta_1\, ShrD_{it-1} + \beta_2\, ShrF_{it-1} + \beta_3\, ShrA_{it-1} + \beta_4\, ShrV_{it-1} + \beta_5\, RelAge_{it} + \varepsilon \qquad (7.3)$$

Where *i* indicates the charitable organisation and *t* indicates the year;
V is the number of volunteers as a dependent variable; $ShrV_{it} = V_{it} / \sum V_{it}$; and
as an independent variable: $ShrV_{it-1} = V_{it-1} / \sum V_{it-1}$;

D is total donations; $ShrD_i = D_{it-1} / \sum D_{it-1}$;

F is fundraising expenditures; $Shr\ F_{it-1} = F_{it-1} / \sum F_{it-1}$;

A is fixed assets; $Shr\ A_{it-1} = A_{it-1} / \sum A_{it-1}$;

Age is organisational age; $RelAge_{it} = (Age_i - \text{Average Age})/\text{Average Age}$

and ε is error term.

The results of the explanatory powers of ShrV models are increased in all states comparison to those of ShrD or ShrF models or the family of Model 1 in states. Overall, the R^2 (adjusted R^2) in 5 states are higher than 0.850.

The coefficients of ShrD are a positive in all states except in SA which is significantly negative. Hypothesis 9 is tested as follows: H_0: $D_i \leq 0$; and H_1: $D_i > 0$. The Null Hypothesis is rejected in Victoria, NSW, QLD and WA, and not rejected in SA.

The coefficients of ShrA present mixed results; positive in Victoria, QLD and WA, and negative in NSW and SA. Hypothesis 4 as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in Victoria, QLD and WA, and not rejected in NSW and SA.

The coefficients of ShrV are all positive except in SA. Hypothesis 5 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in Victoria, NSW, QLD and WA, and not rejected in SA.

The coefficients of RelAge are negative except in SA. Hypothesis 7 is tested as: H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in Victoria, NSW, QLD and WA, and not rejected in SA.

7.2.6 Shares of donation models in Japanese charities

Table 7.7 presents the results of the regression analysis of the ShrD model. The ShrD model is:

$$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon \qquad (7\text{-}1)$$

Where *i* indicates the charitable organisation and *t* indicates the year;

D is total donations; $ShrD_i = D_{it} / \sum D_{it}$;

F is fundraising expenditures; $Shr\ F_{it-1} = F_{it-1} / \sum F_{it-1}$;

A is fixed assets; $Shr\ A_{it-1} = A_{it-1} / \sum A_{it-1}$;

V is the number of volunteers; $Shr\ V_{it-1} = V_{it-1} / \sum V_{it-1}$;

Age is organisational age; $RelAge_{it} = (Age_i$ □ Average Age)/Average Age

and ε is error term.

Table 7.7 presents the explanatory power of model as the R^2 and adjusted R^2, and standard errors of regression model and the number of observations are also reported. The explanatory power of models is decreased in comparison to that of the family of Model 1 in most of the industry group, except for the Environment group. The lowest is All at 0.093 (0.082).

These results are significantly worse than for the equivalent Australia equation and this continues throughout the Japanese results.

In Table 7.7, the coefficients of ShrF are significantly positive in most of the industry, except Environment with ositive but insignificant result, as the range between 0.128 and 0.414. Hypothesis 1 is tested: H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Global Disability, Culture, Education and Environment groups.

The coefficients of ShrA are also positive in most of the industry groups, except for the Global group, and have significant negative relationship, as the range is between -0.112 and 1.439. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Disability, Culture, Education and Environment groups, and not rejected in the Global group.

The coefficients on ShrV are positive in the All, Welfare, Culture and Education groups, and significantly negative in the Humanitarian, Global and Environment groups, and negative in the Disability group. 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, Culture and Education groups and not rejected in the Humanitarian, Global, Disability and Environment groups.

The coefficients on RelAge are positive in the Humanitarian, Culture and Education groups, and negative in the All, Welfare, Global, Disability and Environment 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 Humanitarian, Culture and Education groups, and not rejected in the All, Welfare, Global, Disability and Environment groups.

7.2.7 Shares of fundraising expenditure models in Japanese charities

The ShrF model is:

$$\mathrm{ShrF}_t = \beta_0 + \beta_1\,\mathrm{ShrD}_{it-1} + \beta_2\,\mathrm{ShrA}_{it-1} + \beta_3\,\mathrm{ShrV}_{it-1} + \beta_4\,\mathrm{RelAge}_{it} + \varepsilon \qquad (7.2)$$

Where i indicates the charitable organisation and t indicates the year;
F is fundraising expenditures; Shr $F_{it} = F_{it} / \sum F_{it}$;
D is total donations; $\mathrm{ShrD}_i = D_{it-1} / \sum D_{it-1}$;
A is fixed assets; Shr $A_{it-1} = A_{it-1} / \sum A_{it-1}$;
V is the number of volunteers; Shr $V_{it-1} = V_{it-1} / \sum V_{it-1}$;
Age is organisational age; RelAge_{it} = (Age_i □ Average Age)/Average Age
and ε is error term.

Table 7.8 presents the explanatory power of models and the results indicate a further drop in value compared to the ShrD models in most of industry groups, except for the Disability group.

In Table 7.8, the coefficients of ShrD in ShrF models show a positive relationship in most of the groups, consistent with those in ShrD model. The coefficients of ShrD are significantly positive in the All, Welfare, Humanitarian, Culture and Environment groups, and positive in the Global, Disability and Education groups. Hypothesis 9 is tested as: H_0: $D_i \leq 0$; and H_1: $D_i > 0$. The Null Hypothesis is rejected in the All, Welfare, Humanitarian, Global, Disability, Eduction and Environment groups. The results are consistent with the results of the coefficients in ShrD for Australian groups of charitable organisations.

The coefficients of ShrA are a negative in all groups except in the Humanitarian and Culture groups. Hypothesis 4 is tested as: H_0: $A_i \leq 0$ and H_1: $A_i > 0$. The Null

Hypothesis is rejected in the Humanitarian and Culture groups, and not rejected in the All, Welfare, Global, Disability, Education and Environment groups. The results indicate completely different and contradictory results from those in ShrA of ShrF models in the Australian groups.

The coefficients on ShrV are negative in all groups in Japan, except for the Disability and Education groups with a positive relationship. 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 Disability and Education groups, and not rejected in the All, Welfare, Humanitarian, Global, Culture and Environment groups.

The coefficients on RelAge are positive in the Welfare, Humanitarian, Education and Environment groups, and negative in the All, Global, Disability and Culture 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 Welfare, Humanitarian, Education and Environment groups, and not rejected in the All, Global, Disability and Culture groups.

Overall, the results indicate that ShrF models obtained mostly negative relationship with independent variables in all industry groups except the relationship with ShrD. They clearly show very weak results compared to those of the ShrF model in Australian industry groups.

7.2.8 Shares of volunteer models in Japanese charities

The ShrV model is:

$$ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon \qquad (7.3)$$

Where i indicates the charitable organisation and t indicates the year;
V is the number of volunteers as a dependent variable; $ShrV_{it} = V_{it} / \sum V_{it}$; and
as an independent variable: $ShrV_{it-1} = V_{it-1} / \sum V_{it-1}$;
D is total donations; $Shr\ D_{it-1} = D_{it-1} / \sum D_{it-1}$;
A is fixed assets; $Shr\ A_{it-1} = A_{it-1} / \sum A_{it-1}$;
Age is organisational age; $RelAge_{it} = (Age_i$ □ Average Age)/Average Age
and ε is error term.

As shown in Table 7.9, the explanatory power of ShrV model, the R^2 (adjusted R^2) are higher in the industry groups than those in ShrF models except in the Welfare group. The results of the coefficients in ShrD are negative in most of the industry groups, not pointing as hypothesised the coefficients of ShrD present only two groups, Culture and Education, with a positive relationship. Hypothesis 9 is tested as: H_0: $D_i \leq 0$; and H_1: $D_i > 0$. The Null Hypothesis is rejected in the Culture and Education groups but not rejected in the All, Welfare, Humanitarian, Global, Disability and Environment groups.

The coefficients of ShrF presents positive relationships in the Welfare, Global, Disability and Education groups, and negative in other industry groups such as the All, Humanitarian, Culture and Environment groups. Hypothesis 1 is tested as H_0: $F_i \leq 0$; and H_1: $F_i > 0$. The Null Hypothesis is rejected in the Welfare, Global, Disability and Education groups, and not rejected in the All, Humanitarian, Culture and Environment groups.

The coefficients of ShrA are negative in the industry groups in Japan, except for the Welfare and Environment groups with positive relationship. 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 and Environment groups, and not rejected in the All, Humanitarian, Global, Disability, Culture and Education groups.

The coefficients on lagged ShrV are significantly positive in all industry groups, as expected. Hypothesis 6 is tested as: H_0: $V_i \leq 0$ and H_1: $V_i > 0$. The Null Hypothesis is rejected in all of the groups.

In Table 7.9, the coefficients of RelAge are negative except in the Welfare, Global and Environment groups. Hypothesis 7 is, H_0: $Age_i \leq 0$ and H_1: $Age_i > 0$. The Null Hypothesis is rejected in the Welfare, Global and Environment groups, and not rejected in the All, Welfare, Humanitarian, Disability and Education groups.

Overall, the coefficients of each independent variable in each industry group are mostly opposite in sign to those groups in Australia.

7.2.9 Shares of models in geographical groups in Japanese charities

This section discusses the results of Shares of Donations (ShrD) model, Shares of Fundraising expenditure (ShrF) and Shares of Volunteers (ShrV) models in the geographic groups of Japanese sample organisations, discussion of grouping in Chapter 2. The ShrD, ShrF and ShrV models are presented:

$$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon \qquad (7\text{-}1)$$

Where *i* indicates the charitable organisation and *t* indicates the year;
D is total donations; $ShrD_i = D_{it} / \sum D_{it}$;
F is fundraising expenditures; $Shr\ F_{it-1} = F_{it-1} / \sum F_{it-1}$;
A is fixed assets; $Shr\ A_{it-1} = A_{it-1} / \sum A_{it-1}$;
V is the number of volunteers; $Shr\ V_{it-1} = V_{it-1} / \sum V_{it-1}$;
Age is organisational age; $RelAge_{it} = (Age_i \square\ Average\ Age)/Average\ Age$
and ε is error term.

The ShrF model is:

$$ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon \qquad (7.2)$$

Where *i* indicates the charitable organisation and *t* indicates the year;
F is fundraising expenditures; $Shr\ F_{it} = F_{it} / \sum F_{it}$;
D is total donations; $ShrD_i = D_{it-1} / \sum D_{it-1}$;
A is Fixed Assets; $Shr\ A_{it-1} = A_{it-1} / \sum A_{it-1}$;
V is the number of volunteers; $Shr\ V_{it-1} = V_{it-1} / \sum V_{it-1}$;
Age is organisational age; $RelAge_{it} = (Age_i \square\ Average\ Age)/Average\ Age$
and ε is error term.

The ShrV model is:

$$ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon \qquad (7.3)$$

Where *i* indicates the charitable organisation and *t* indicates the year;
V is the number of volunteers as a dependent variable; $ShrV_{it} = V_{it} / \sum V_{it}$; and as an independent variable: $ShrV_{it-1} = V_{it-1} / \sum V_{it-1}$;
D is total donations; $ShrD_i = D_{it-1} / \sum D_{it-1}$;

F is fundraising expenditures; Shr $F_{it-1} = F_{it-1} / \sum F_{it-1}$;

A is Fixed Assets; Shr $A_{it-1} = A_{it-1} / \sum A_{it-1}$;

Age is organisational age; $RelAge_{it} = (Age_i$ □ Average Age)/Average Age

and ε is error term.

The Japanese sample of charitable organisations is spread over 9 locations, with their main office. There was one organisation located in each of 6 different prefectures including Saitama, Chiba, Shizuoka, Osaka, Hyogo and Fukuoka. This study focused on those locations with more than 1 organisation located in the prefectures: Tokyo, Kanagawa and Kyoto.

In Table 7.10 the results of ShrD, ShrF and ShrV models with geographical groups of Japanese charitable organisations are presented. The results of the explanatory power indicate a similar pattern for the industry groups of Japan. The ShrV models are higher in the R^2 and adjusted R^2 than those in ShrD and ShrF. However, only ShrV shows a positive relationship in the 3 prefectures.

Table 7.1: OLS Estimation for Australian charities (ShrD Model)

$$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon;$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	0.011	0.024	0.009	-0.044	0.049	0.885	0.072	0.081
(t-stat)	(0.004)	(3.258)	(0.518)	(-3.374)	(3.167)	(7.011)	(0.998)	(3.115)
Shr F_{it-1}	0.347	0.319	0.012	1.264	0.571	0.148	-0.210	-0.154
(t-stat)	(1.903)	(6.615)	(0.167)	(21.829)	(7.189)	(1.160)	(-0.502)	(-2.097)
$ShrA_{it-1}$	0.028	0.558	0.473	-0.373	0.080	-1.168	0.219	0.000
(t-stat)	(0.226)	(8.362)	(3.177)	(-1.238)	(1.469)	(-4.470)	(1.111)	(-0.002)
$ShrV_{it-1}$	0.242	-0.032	0.464	0.330	-0.081	-0.641	0.704	0.590
(t-stat)	(2.241)	(-5.222)	(4.407)	(0.919)	(-0.807)	(-6.683)	(3.819)	(4.482)
$RelAge_{it}$	-0.017	-0.137	-0.076	-0.189	0.032	0.137	0.602	-0.128
(t-stat)	(-4.073)	(-2.789)	(-2.721)	(-5.529)	(1.755)	(1.486)	(2.989)	(-1.859)
R^2	0.243	0.581	0.840	0.931	0.625	0.877	0.468	0.362
Adjusted R^2	0.231	0.558	0.822	0.921	0.599	0.846	0.376	0.304
SE regression	0.048	0.036	0.060	0.065	0.062	0.056	0.195	0.144
Observations	245	77	42	35	63	21	28	49

NOTE: Dependent variable is Shares of Donations of each organisation in each group (ShrD).
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.2: OLS Estimation for Australian charities (ShrF Model)

$$ShrF_t = \beta_0 + \beta_1\, ShrD_{it-1} + \beta_2\, ShrA_{it-1} + \beta_3\, ShrV_{it-1} + \beta_4\, RelAge_{it} + \varepsilon:$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	0.009	0.056	0.213	0.035	-0.059	0.903	0.070	0.067
(t-stat)	(2.127)	(4.883)	(12.168)	(2.886)	(-2.860)	(0.802)	(2.286)	(2.460)
$ShrD_{it-1}$	0.350	0.518	0.055	0.789	0.784	1.157	-0.057	-0.108
(t-stat)	(7.268)	(4.951)	(0.144)	(21.272)	(4.296)	(1.465)	(-0.776)	(-1.094)
$ShrA_{it-1}$	0.055	-0.586	-0.644	-0.302	0.150	-2.668	0.239	0.259
(t-stat)	(0.372)	(-4.599)	(-3.458)	(-1.435)	(1.047)	(-0.876)	(2.903)	(1.003)
$ShrV_{it-1}$	0.278	0.027	0.313	0.338	0.660	-0.198	0.536	0.381
(t-stat)	(3.859)	(4.611)	(0.947)	(1.398)	(3.814)	(-0.198)	(3.643)	(2.106)
$RelAge_{it}$	0.004	0.447	0.190	0.168	-0.096	1.178	0.129	0.073
(t-stat)	(2.144)	(8.775)	(4.889)	(4.717)	(-2.741)	(1.177)	(0.802)	(2.182)
R^2	0.334	0.529	0.243	0.968	0.731	0.726	0.631	0.380
Adjusted R^2	0.323	0.503	0.161	0.963	0.693	0.658	0.566	0.324
SE of regression	0.041	0.062	0.123	0.036	0.069	0.125	0.099	0.136
Observations	245	77	42	35	63	21	28	49

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.3: OLS Estimation for Australian charities (ShrV Model)

$$ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon:$$

	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
β_0	0.000	-0.001	-0.026	0.030	0.050	0.104	-0.010	-0.007
(t-stat)	(0.222	(-0.020)	(-2.086)	(2.340)	(2.656)	(2.291)	(0.007)	(-1.138)
$ShrD_{it-1}$	0.019	-0.174	0.487	0.048	-0.111	0.028	-0.023	0.150
(t-stat)	(0.475)	(-0.580)	(4.222)	(0.388)	(-1.157)	(0.782)	(-1.219)	(1.563)
$Shr\ F_{it-1}$	0.045	0.157	0.166	-0.081	0.130	-0.035	0.184	-0.007
(t-stat)	(0.620)	(0.987)	(1.433)	(-0.487)	(1.892)	(-1.321)	(3.641)	(-0.207)
$ShrA_{it-1}$	0.038	0.134	0.011	0.791	-0.065	-0.240	-0.063	0.119
(t-stat)	(0.630)	(0.827)	(0.088)	(2.258)	(-0.644)	(-2.240)	(-1.437)	(1.426)
$ShrV_{it-1}$	0.891	0.964	0.490	0.091	0.522	0.934	0.942	0.784
(t-stat)	(22.855)	(30.816)	(4.707)	(0.203)	(3.572)	(28.728)	(23.445)	(6.534)
$RelAge_{it}$	0.001	-0.101	-0.041	0.029	0.021	0.086	-0.008	0.025
(t-stat)	(0.582)	(-1.134)	(-1.804)	(1.806)	(0.813)	(2.221)	(-0.233)	(1.160)
R^2	0.894	0.964	0.837	0.990	0.347	0.999	0.991	0.967
Adjusted R^2	0.891	0.961	0.814	0.988	0.290	0.999	0.989	0.953
SE regression	0.017	0.099	0.070	0.033	0.060	0.009	0.025	0.035
Observations	245	77	42	35	63	21	28	49

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.4: OLS Estimation for Australian charities with State (ShrD Model)

$$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon;$$

	Victoria	NSW	QLD	WA	SA
β_0	0.018	0.009	-0.015	0.031	2.504
(t-stat)	(2.283)	(1.799)	(-4.037)	(0.356)	(1.702)
Shr F_{it-1}	1.268	0.021	-0.059	1.600	-1.166
(t-stat)	(9.256)	(0.365)	(-0.238)	(2.443)	(-0.682)
$ShrA_{it-1}$	-0.423	0.428	-0.525	-0.488	-4.264
(t-stat)	(-2.091)	(3.585)	(-1.686)	(-0.426)	(-2.038)
$ShrV_{it-1}$	-0.075	0.430	1.387	0.279	1.421
(t-stat)	(-0.489)	(6.464)	(8.908)	(0.672)	(0.589)
$RelAge_{it}$	0.015	-0.037	-2.540	0.010	-0.361
(t-stat)	(1.787)	(-5.057)	(-2.803)	(0.123)	(-0.090)
R^2	0.748	0.834	0.848	0.172	0.581
Adj R^2	0.737	0.827	0.810	0.028	0.395
SE of regression	0.073	0.037	0.152	0.142	0.278
Obs	91	91	21	14	14

NOTE: Dependent variable is Shares of Donations of each organisation in each group.

ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group

ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group

ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group

RelAge: Relative Age of each organisation in each group

Table 7.5: OLS Estimation for Australian charities with State (ShrF Model)

$$ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon:$$

	Victoria	NSW	QLD	WA	SA
β_0	-0.001	0.055	0.244	-0.075	-0.328
(t-stat)	(-0.098)	(3.279)	(4.621)	(-2.564)	(-0.699)
$ShrD_{it-1}$	0.562	-0.083	0.370	0.105	-0.077
(t-stat)	(21.415)	(-0.251)	(1.263)	(2.231)	(-0.612)
$ShrA_{it-1}$	0.297	-0.303	0.450	1.598	1.352
(t-stat)	(2.874)	(-0.874)	(1.474)	(4.571)	(1.854)
$ShrV_{it-1}$	0.149	0.622	0.470	0.498	0.382
(t-stat)	(2.870)	(2.575)	(1.081)	(2.321)	(0.638)
$RelAge_{it}$	-0.024	0.066	5.679	0.016	-1.622
(t-stat)	(-3.662)	(3.582)	(4.248)	(0.789)	(-1.434)
R^2	0.876	0.242	0.840	0.685	0.464
Adj R^2	0.870	0.209	0.800	0.630	0.226
SE of regression	0.038	0.102	0.128	0.065	0.102
Obs	91	91	21	14	14

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.6: OLS Estimation for Australian charities with State (ShrV Model)

$$ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon:$$

	Victoria	NSW	QLD	WA	SA
β_0	0.001	-0.017	-0.016	-0.077	1.218
(t-stat)	(0.352)	(-2.700)	(-0.328)	(-2.924)	(5.139)
$ShrD_{it-1}$	0.009	0.596	0.247	0.013	-0.210
(t-stat)	(0.208)	(3.493)	(0.787)	(0.594)	(-4.819)
Shr F_1	-0.014	0.192	-0.137	0.173	-0.578
(t-stat)	(-0.245)	(1.553)	(-1.070)	(0.581)	(-2.157)
$ShrA_{it-1}$	0.021	-0.069	0.180	0.216	-0.594
(t-stat)	(0.338)	(-0.418)	(0.468)	(0.582)	(-1.705)
$ShrV_{it-1}$	0.972	0.516	0.711	2.206	-0.053
(t-stat)	(12.765)	(3.180)	(1.641)	(7.783)	(-0.173)
$RelAge_{it}$	-0.001	-0.005	-0.412	-0.039	1.989
(t-stat)	(-0.427)	(-0.645)	(-0.319)	(-1.542)	(4.625)
R^2	0.968	0.857	0.911	0.920	0.992
Adj R^2	0.966	0.850	0.881	0.893	0.987
SE of regression	0.037	0.048	0.084	0.033	0.031
Obs	91	91	21	14	14

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.7: OLS Estimation for Japanese charities (ShrD Model)

$$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon;$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	0.013	0.006	0.070	0.119	-0.291	0.014	0.073	0.104
(t-stat)	(5.891)	(0.437)	(2.611)	(3.474)	(-2.183)	(0.542)	(1.783)	(6.463)
Shr F_{it-1}	0.196	0.160	0.414	0.337	1.048	0.323	0.128	0.215
(t-stat)	(2.714)	(2.694)	(2.641)	(2.492)	(2.138)	(2.090)	(0.757)	(3.619)
$ShrA_{it-1}$	0.161	0.700	0.424	-0.112	1.439	0.510	0.148	0.373
(t-stat)	(3.169)	(8.807)	(1.898)	(-2.702)	(5.991)	(3.342)	(1.240)	(7.770)
$ShrV_{it-1}$	0.015	0.087	-0.135	-0.296	-0.323	0.038	0.227	-0.163
(t-stat)	(0.462)	(0.940)	(-2.853)	(-2.454)	(-0.845)	(0.591)	(1.151)	(-5.409)
$RelAge_{it}$	-0.001	-0.152	0.524	-0.029	-0.506	0.423	0.517	-0.097
(t-stat)	(-3.121)	(-2.578)	(0.743)	(-3.114)	(-1.477)	(3.012)	(2.334)	(-2.586)
R^2	0.093	0.715	0.472	0.293	0.319	0.337	0.139	0.820
Adj R^2	0.082	0.695	0.401	0.244	0.201	0.291	0.061	0.801
SE of regression	0.030	0.076	0.107	0.128	0.343	0.164	0.199	0.063
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.8: OLS Estimation for Japanese charities (ShrF Model)

$$ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon:$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	0.016	0.066	0.072	0.116	0.251	0.072	0.011	0.156
(t-stat)	(6.430)	(3.494)	(1.123)	(6.420)	(8.798)	(2.946)	(0.351)	(5.579)
$ShrD_{it-1}$	0.294	1.048	0.530	0.240	0.028	0.434	0.163	0.461
(t-stat)	(4.807)	(3.811)	(2.215)	(1.344)	(0.480)	(5.909)	(0.970)	(3.150)
$ShrA_{it-1}$	-0.056	-0.587	0.368	-0.073	-0.340	0.001	-0.074	-0.166
(t-stat)	(-1.619)	(-2.473)	(1.992)	(-1.330)	(-5.014)	(0.01+)	(-1.040)	(-1.993)
$ShrV_{it-1}$	-0.019	-0.054	-0.012	-0.207	0.308	-0.081	0.896	-0.252
(t-stat)	(-0.644)	(-0.822)	(-0.177)	(-1.912)	(2.769)	(-1.635)	(2.537)	(-2.818)
$RelAge_{it}$	-0.002	0.167	1.508	-0.035	-0.289	-0.263	1.387	0.714
(t-stat)	(-4.309)	(1.172)	(2.090)	(-5.289)	(-2.253)	(-2.967)	(2.892)	(2.816)
R^2	0.066	0.242	0.354	0.252	0.512	0.266	0.474	0.329
Adj R^2	0.055	0.190	0.267	0.201	0.427	0.215	0.426	0.256
SE of regression	0.035	0.151	0.123	0.110	0.095	0.136	0.154	0.144
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.9: OLS Estimation for Japanese charities (ShrV Model)

$$ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon:$$

	All	Welfare	Humanitarian	Global	Disability	Culture	Education	Environment
β_0	0.006	0.028	0.105	0.016	0.068	0.010	-0.004	0.108
(t-stat)	(2.425)	(1.719)	(2.095)	(2.202)	(1.182)	(1.001)	(-0.929)	(2.811)
$ShrD_{it-1}$	-0.066	-0.350	-0.232	-0.029	-0.021	0.007	0.114	-0.204
(t-stat)	(-1.740)	(-1.675)	(-0.993)	(-1.510)	(-0.181)	(0.102)	(2.041)	(-0.883)
$ShrF_{it-1}$	-0.011	0.183	-0.099	0.043	0.020	-0.012	0.045	-0.206
(t-stat)	(-0.490)	(1.562)	(-0.677)	(1.150)	(0.085)	(-0.320)	(0.670)	(-1.300)
$ShrA_{it-1}$	-0.014	0.290	-0.231	-0.007	-0.002	-0.062	-0.002	0.187
(t-stat)	(-0.791)	(1.825)	(-1.627)	(-0.321)	(-0.016)	(-1.936)	(-0.085)	(2.643)
$ShrV_{it-1}$	0.779	0.629	0.869	0.847	0.730	0.973	0.866	0.612
(t-stat)	(7.557)	(2.894)	(4.761)	(9.298)	(4.926)	(13.760)	(13.886)	(4.306)
$RelAge_{it}$	-0.001	0.077	-0.037	0.004	-0.286	-0.041	-0.138	0.419
(t-stat)	(-2.077)	(0.728)	(-0.057)	(1.031)	(-1.299)	(-0.450)	(-1.217)	(1.211)
R^2	0.628	0.464	0.743	0.830	0.752	0.813	0.927	0.664
Adj R^2	0.622	0.417	0.699	0.815	0.696	0.796	0.918	0.617
SE of regression	24	0.116	0.145	0.041	0.108	0.081	0.040	0.117
Obs.	336	63	35	63	28	63	49	42

NOTE: Dependent variable is Shares of Donations of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

Table 7.10: OLS Estimation for Japanese charities (ShrD, ShrF & ShrV Models)

$ShrD_t = \beta_0 + \beta_1 ShrF_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon$; $ShrF_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrA_{it-1} + \beta_3 ShrV_{it-1} + \beta_4 RelAge_{it} + \varepsilon$:

$ShrV_t = \beta_0 + \beta_1 ShrD_{it-1} + \beta_2 ShrF_{it-1} + \beta_3 ShrA_{it-1} + \beta_4 ShrV_{it-1} + \beta_5 RelAge_{it} + \varepsilon$:

	ShrD Model			ShrF Model			ShrV Model		
	Tokyo	Kanagawa	Kyoto	Tokyo	Kanagawa	Kyoto	Tokyo	Kanagawa	Kyoto
β_0	0.017	0.330	0.254	0.023	0.400	0.453	0.013	0.169	-0.322
(t-stat)	(6.233)	(14.166)	(0.639)	(6.986)	(4.565)	(1.078)	(4.074)	(1.660)	(-2.586)
$ShrD_{it-1}$				0.220	-0.364	-0.571	-0.068	-0.519	0.268
(t-stat)				(3.697)	(-1.484)	(-2.545)	(-1.539)	(-2.263)	(6.463)
$ShrF_{it-1}$	0.152	-0.227	-0.634				0.021	0.192	-0.149
(t-stat)	(2.493)	(-4.074)	(-2.415)				(0.551)	(3.575)	(3.619)
$ShrA_{it-1}$	0.153	-0.120	0.810	-0.058	0.108	0.244	0.014	-0.208	0.375
(t-stat)	(3.098)	(-2.593)	(1.725)	(-1.632)	(0.809)	(0.563)	(0.644)	(-2.850)	(7.770)
$ShrV_{it-1}$	0.069	-0.015	0.316	0.020	-0.348	0.422	0.563	0.854	1.150
(t-stat)	(1.029)	(-0.386)	(1.514)	(0.327)	(-5.273)	(1.554)	(4.407)	(7.380)	(-5.409)
$RelAge_{it}$	-0.001	0.034		-0.002	0.609		-0.001	0.337	
(t-stat)	(-3.318)	(0.473)		(-4.391)	(2.222)		(-2.719)	(1.586)	
R^2	0.085	0.477	0.773	0.044	0.457	0.505	0.431	0.938	0.934
Adj R^2	0.070	0.386	0.705	0.029	0.362	0.357	0.420	0.924	0.904
SE of reg.	0.039	0.066	0.136	0.045	0.130	0.213	0.029	0.068	0.083
Obs.	252	28	14	63	28	14	252	28	14

NOTE: Dependent variable is Shares of Donations, Shares of Fundraising Expenditures, and Shares of Volunteers of each organisation in each group.
ShrF_1: Lag of shares of Fundraising Expenditures (F) of each organisation in each group
ShrA_1: Lag of shares of Fixed Assets (A) of each organisation in each group
ShrV_1: Lag of shares of Volunteers (V) of each organisation in each group
RelAge: Relative Age of each organisation in each group

7.3 Conclusions

This Chapter aims to achieve an enhancement of the results in the family models concerned with the mulicollinarity problems in Chapter6.

To avoid the multicollinearity problem, this section employed Share of Donations, Share of Fundraising Expenditure and Shares of Volunteers models and this section presents the discussion and analysis of Shares of Donations, Shares of Fundraising Expenditure and Shares of Volunteers models using both Australian and Japanese charitable organisations. The cost of this "whole of model" approach is that the ratio of own fundraising expenditure to competitors' expenditures cannot be used as a variable on the oligopolistic model this is an important loss.

There were some concerns in the results from the family models in Chapter 6 due to multicollinearity problems. If they exist, the estimated results of the individual p-values and the confidence intervals on the regression coefficients in the independent variables might be misleading and the tested hypotheses might not show the whole picture due to high relationships between the natural log of fundraising expenditure of charity *i* (Fi) and the natural log of ratio of Fi to competitors' fundraising expenditure (Fi/F or Fi/Fj) and the natural log of fixed assets of charity i (Ai) and the natural log of ratio of Ai to competitors' fixed assets (Ai/A or Ai/Aj). To avoid multicollinearity problems in these variables, these variables are combined into one variable, Shares of Fundraising Expenditures (ShrF) and Share of Fixed Assets (ShrA). Employing these two variables, the results of regression models are increased in the explanatory power and significance of the coefficients in Australian industry groups, but give mixed results in Japanese industry groups.

Employing a Shares of Donations model increased significance in the results of the coefficients, and also gave higher explanatory power than those in the family model in most industry groups in Australia. The results of Shares of Fundraising Expenditures models were consistent with these of Shares of Donations models, which might provide reliability of the results in both models. The results of Shares of Donations in grouping with states were also increased in geographical groups of 4 states; however, the results of Shares of Fundraising Expenditure models in state grouping obtained mixed results.

Shares of Volunteers models were higher in explanatory power and the coefficients of variables were more significant than those in Shares of donations and Shares of Fundraising models in both the industry groups and geographic groups in Australia and Japan. Those in the Japanese samples obtained mixed results in both Shares of donations models and shares of fundraising expenditure, the coefficients of Shares of Volunteers models gave confusing results. Shares of Donations, Shares of Fundraising Expenditures and Shares of Volunteers in the geographical groups also gave mixed results. Compared to the results of Australian industry groups and geographical groups, Japanese groups were not improved by employing those 3 shares models. Employing shares models shows consistecy with the family models in most of the industry groups but did enhance the results.

Chapter 8
The Empirical Results for Oligopolistic Modelling

8.1. Introduction

This chapter presents the empirical results of oligopolistic modelling using two stage least squares (2 SLS) on Australian samples. Chapter 6 presented and discussed the preliminary empirical results of the family of equations, which were based on the discussion and analysis in Chapters 1 to 5. To avoid multicollinearity problems for the family equations, Chapter 7 analysed shares equations, based on oligopolistic theory to establish share of donations (ShrD), reaction curves for share of fundraising expenditure (ShrF) and share of volunteers (ShrV) equations. This chapter analyses the simultaneousness (similarity?) of those three variables using 2 SLS equations.

As discussed in previous chapters, before constructing shares equations, for each charitable organisation we calculated the ratios of fundraising-to-donations. From these calculations charitable organisations were eliminated from the regression modelling, if the ratios of fundraising-to-donations were greater than unity. Thus, nine charitable organisations were excluded from the samples of Australian data. Note that for reasons discussed in Chapter 6 the Japanese data are not analysed.

This chapter reports only the results for the 2SLS estimates of the linear three equations. An identical model structure was estimated for all of the groups but in a log-linear form. The results obtained were virtually identical to the linear model in terms of overall goodness-of-fit, the same signs for almost all coefficients and the same level so statistical significance. These results, therefore, added little to the testing of the model and, as a consequence, are not reported here.

8.2. Empirical results of Two Stage Least Squares

8.2.1 Empirical results of two-stage least squares by industry grouping

This section presents the results of the two-stage-least squares (2SLS) estimation of the potentially jointly dependent variables, ShrD, ShrF and ShrV, using the 8 industrial groups and 6 geographical groups of Australian sample organisational data. The three equations are constructed with the equations for ShrD presented in equation (8-1); ShrF in equation (8-2) and ShrV in equation (8-3). These two-stage square (2SLS) models contain the same instrumental variables with each other and these are ShrA, RelAge, and lagged ShrD, lagged ShrF, lagged ShrA and lagged ShrV. Tables 8.1 to 8.8 present the result of each of the ShrD, ShrF and ShrV equations from testing for the All Groups group, Welfare, Humanitarian, Global, Disability, Animal, Science and Rural industry groups in the Australian samples. They are followed by the results of geographical groups of state, ACT, Victoria, New South Wales (NSW), Queensland (QLD), South Australia (SA) and Western Australia (WA) state groups on Tables 8-9 to 8-8-13 in the following section 8.2.2. The modelling relies upon the Cournot oligopoly model, for its framework and is modified and reinforced by the impact of volunteers. Not only do the charitable organisations give away their output but they receive some free inputs, especially volunteer labour. A feature of volunteer labour is the high degree of continued support of existing volunteers - thus $V_{it} = f\,(V_{it-1})$ loading to almost certain autocorrelation problems.

Three 2SLS estimation equations are as follows:

ShrD Equation:

$$ShrD_t = \beta_0 + \beta_1\, ShrA_{it} + \beta_2\, RelAge_{it} + \beta_3\, ShrF_{it} + \beta_4\, ShrV_{it} + \beta_5\, ShrV_{it-1} + IV + \varepsilon; \quad (8\text{-}1)$$

ShrF Equation:

$$ShrF_t = \beta_0 + \beta_1\, ShrA_{it} + \beta_2\, RelAge_{it} + \beta_3\, ShrD_{it} + \beta_4\, ShrV_{it} + \beta_5\, ShrV_{it-1} + IV + \varepsilon; \quad (8\text{-}2)$$

ShrV Equation:

$$ShrV_t = \beta_0 + \beta_1\, ShrA_{it} + \beta_2\, RelAge_{it} + \beta_3\, ShrD_{it} + \beta_4\, ShrF_{it} + \beta_5\, ShrV_{it} + \beta_6\, ShrV_{it-1} + IV + \varepsilon \quad (8\text{-}3)$$

where IV represents all other Instrumental Variables to enter the equations.

share of donations (ShrD) = the proportion of total donations of charity *i* (D_{it}) to total donations of all charities in the same industry at year *t* ($\sum D_{it}$);

share of fundraising expenditure (ShrF) = the proportion of fundraising expenditure of charity *i* (F_{it}) to total of fundraising expenditure of all charities in the same industry at year *t* ($\sum F_{it}$);

share of fixed assets (ShrA) = the proportion of fixed assets of charity *i* (A_{it}) to the total fixed assets of all charities in the same industry at year *t* ($\sum A_{it}$);

share of the number of volunteers (ShrV) = the proportion of the number of volunteers of charity *i* (V_{it}) to total the number of volunteers of all charities in the same industry at year *t* ($\sum V_{it}$); and relative organisatonal age (RelAgeit) = the proportion of the difference between organisational age of charity *i* (AGE_{it}) and average of organisational age of all charities in the same industry ($AvAGE_t$) to average of organisational age of all charities in the same industry at year t ($AvAGE_t$).

The All group

Table 8.1 shows the results of the All Groups group. The regression coefficient estimates from testing the ShrA variable in both the ShrD and ShrF equations are significantly negative, whereas in the ShrV equation it is insignificant but positive. The regression coefficient estimates from testing the RelAge variable in both the ShrD and ShrV equations are negative, but positive in the ShrF equation. The coefficient on lagged ShrV in both the ShrD and ShrF equations is negative and insignificant but positive and significant in the ShrV equation. The regression coefficient on the ShrD variable in both the ShrF and ShrV equations is positive but insignificant. The coefficient on ShrF in both the ShrD and ShrV equations is also positive but insignificant. Similarly the coefficient on ShrV in both the ShrD and ShrF equations is insignificant and positive. Overall the main characteristics of the ShrD, ShrF and ShrV variables in each of the shares equations, ShrD, ShrF and ShrV, are positive but insignificant in the All group.

In other words, the results indicate that for the charitable organisations in the All Groups group, the donations of each organisation are affected by the number of volunteers at the current year and the level of fundraising expenditure. The level of fundraising expenditure of each organisation is affected by organisational age, the level of donations and the number of volunteers in the current year. The number of volunteers in the current year of each organisation is affected by organisational size and age, level of donations, level of fundraising expenditure and the number of volunteers during the previous year.

Table 8.1 indicates that what determines the share of donations and the share of fundraising expenditures are unclear in this group. These results cannot be explained readily in terms of fitting with oligopoly theory. Nevertheless independent variables of share of fundraising expenditure (ShrD) and share of volunteer (ShrV) are the correct sign in the ShrD equation, and the relation of age (RelAge), ShrD and ShrV are also the correct sign in the ShrF equation, they are not statistically significant. Finally the share of the volunteer equation shows an extremely strong follow-on from the previous year's volunteers. Not only is the level of carry-over of volunteers extremely high (estimated coefficient equal 0.870 but the level of significance (t = 19.777) is very high. This model indicates limited support for the Cournot model but the result sare not for a coherent groups of like charities but is a mere aggregation.

The Welfare group

Table 8.2 shows the results of the Welfare group. The regression coefficients estimates from testing the ShrA variable and lagged ShrV variable in both the ShrD and ShrV equations have a positive relationship but in the ShrF equation they are significant and negative with respect to the dependent variable. The regression coefficients estimate from testing the RelAge variable in both the ShrD and ShrV equations are negative in relation to each dependent variable but in the ShrF equation it is significant and positive. The coefficient on ShrD in the ShrF equation is positive but in the ShrV equation it is negative. Similarly the coefficient on ShrV in the ShrF equation is significantly positive but in the ShrD equation it is negative. The coefficient on ShrD in the ShrF and ShrV equations also shows the opposite, being positive in the ShrF equation and negative in the ShrV equation.

Overall in the Welfare industry group, the coefficients on each of 6 independent variables in each of three share equations present mixed results in all independent variables. The results indicate that, for the charitable organisations in the Welfare industry group, the level of donations is affected by organisational size, the level of fundraising expenditure and the number of volunteers from the previous year. The level of fundraising expenditure is affected by organisational age, level of donations and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational size, level of fundraising expenditure and the number of volunteers from the previous year.

The results in Table 8.2 suggest that share of donations received is very heavily determined by the share of fixed assets an organisation has. The variable of greatest interest from the oligopoly point of view is ShrF. While this is of the correct sign it is not statistically significant. Nor are any of the other variables of interest. Unexpectedly the share of volunteers at time *t* is negative (the incorrect sign). What determines the share of fundraising expenditure is essentially the age of the organisation. Again, this cannot be explained readily in terms of oligopoly theory. Nevertheless it does have the correct sign in the ShrD equation and this relationship with organisational age may be an indication of organisational experience – a willingness to spend in order to raise donations.

Finally the volunteers equation shows an enormously strong follow-on from the previous year's volunteers. Not only is the level of carry-over of volunteers extremely high (estimated coefficient equal 0.949 but the level of significance (t = 27.530) is very high. Overall this model in the <u>Welfare</u> group indicates only moderate support for the Cournot model at best. This may be because all other effects are swamped by the strength of the volunteers relationship.

The Humanitarian group

Table 8.3 shows the results of the <u>Humanitarian</u> industry group. The regression coefficient estimates on the ShrA and lagged ShrV variables in both the ShrD and ShrF equations are negative. In other words, organisational size is not an influence on increasing donations nor on fundraising expenditures. However, in the ShrV equation, they are both positive. This means that organisational size and fundraising expenditures help to increase the number of volunteers. The coefficient on the RelAge variable in both the ShrD and ShrF equations is significantly positive but in the ShrV equation it is significantly negative. The regression coefficient estimate on the ShrD variable in the

ShrV equation is positive and significant, but in the ShrF equation it is significant and negative. A similar pattern can be found in the coefficient on the ShrF variable. In the the ShrV equation it is significantly positive but in the ShrD equation it is significantly negative. The coefficient estimates from testing the ShrV variable in both the ShrD and ShrF equations are both positive and significant. Overall in the Humanitarian industry group, the coefficients on each variable in each of the ShrD, ShrF and ShrV equations present inconsistent signs with each variable, with the exception of a positive sign of the ShrV variable in both the ShrD and ShrF equations.

The results indicate that, for the charitable organisations in the Humanitarian group, the level of donations and the level of fundraising expenditure are both affected by the organisational age and the current number of volunteers. The number of volunteers in the current year is affected by organisational size, level of donations, level of spending of fundraising expenditure and the number of volunteers from the previous year for the charitable organisation in the Humanitarian group.

Table 8.3 shows that the share of donations received is largely determined by the share of volunteers an organisation has – the greater ShrV the greater is ShrD. This differs from the Welfare group, as previously discussed. None of the other variables are statistically significant. In Cournot terms this might be explained in terms of volunteers putting their labour into fundraising, obviating the need for high fundraising expenditure. Moreover this argument does not appear valid across all organisations. The age of the organisation also shows as major determinant of the share of fundraising expenditure. This is similar to the results in the Welfare group but is also not integrally related to a test of oligopoly theory. With the correct sign in the ShrD equation, this relationship with organisational age may indicate organisational willingness to spend in order to raise donations. The ShrF model indicates some level of support for the Cournot model and this may be because almost all variables are close to being statistically significance in supporting the share of fundraising. The share of volunteers equation shows close relationships between the volunteers and raising donations, and the current year's volunteers and the previous year's volunteers.

The Global group

Table 8.4 shows the results of the Global group. The regression coefficient estimates from testing the ShrA variable in both the ShrF and ShrV equations are positively related to the jointly dependent variables, but in the ShrD equation it is insignificantly negative. The coefficients on the RelAge variable in both the ShrD and ShrF equations are significantly positive but in the ShrV equation are significantly negative. The coefficient on lagged ShrV in both the ShrD and ShrV equations is significantly positive but in the ShrF equation it is significantly negative. The regression coefficient on the ShrD variable in the ShrF equation is significantly positive but in the ShrV equation it is insignificantly negative. Similarly the coefficient on ShrV in the ShrF equation is insignificantly positive but in the ShrD equation it is insignificantly negative. The coefficient on ShrF in both the ShrD and ShrV equations is positive (i.e. significantly positive in the ShrD equation and insignificantly positive in the ShrV equation). Overall in the Global group, the main variables of the ShrD, ShrF and ShrV in each of the share equations, ShrD, ShrF and ShrV, show mixed results, with the exception of the coefficient on ShrF, which is consistently positive with the results in ShrD and ShrV.

In other words, these results indicate that, for the charitable organisations in the Global group, the level of donations is positively affected by the level of fundraising expenditure and the number of volunteers from the previous year. The level of fundraising expenditure is affected by the organisational age and size, the level of donations, and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational size, level of fundraising expenditure and the number of volunteers from the previous year.

Table 8.4 shows that share of donations received finds greatest support from fundraising. From the view of the oligopoly theory – the greater ShrF the greater is ShrD – this is a supportive result. This can be explained readily in terms of the Cournot oligopoly theory. However, as opposed to the Welfare and Humanitarian groups, unfortunately the share of organisational age at time *t* and share of volunteers are both negative (the incorrect sign). The share of fundraising is consistent with the ShrD model, as fundraising expenditure increases donations and, in a feed-forward loop, much of the fundraising effort is supported by donations. Also organisational age supports spending on fundraising. Finally, very different from the Welfare and

Humanitarian groups, this Global group shows that the current year's volunteers were for less made up from the previous year's volunteers. This is a result that deserves further exploration. Several explanations, none mutually contradictory, present themselves. One is simply this is a less loyal group. But this begs the question of why? One possibility is that a Global focus increases the likelihood that this group travels and so they do not stay long with the organisation.

The Disability group

Table 8.5 shows the results of the Disability group in three share equations using 2SLS regression. The coefficients on the ShrA variable and the RelAge variable in both the ShrD and ShrV equations are both positively related to each dependent variable. However, in the ShrF equation they are both negative with respect to each dependent variable. The coefficient on the RelAge variable in both the ShrD and ShrV equations shows a statistically insignificant and negative relationship to each dependent variable, except in the ShrF equation where it is statistically insignificant but positive.

The coefficient on ShrD in the ShrF equation is significantly positive but in the ShrV equation it is insignificantly negative. Similarly the coefficient on ShrV in ShrF equation is insignificantly positive but in the ShrD equation it is insignificantly negative. However, the coefficient on ShrF in the ShrD equation is both significant and positive and in the ShrV equation it is insignificant but positive. Overall in the Disability industry group, the coefficients on the main three jointly dependent variables, ShrD, ShrF and ShrV, in each of three share equations, ShrF, ShrV and ShrD, present mixed results. ShrF appears as positive in both the ShrD and ShrV equations. These results indicate that, for charitable organisations in the Disability group, the level of donations and the number of volunteers in the current year is affected by organisational size and age, as well as the level of fundraising expenditure. The level of fundraising expenditure is affected by the level of donations and the number of volunteers from the previous and current years.

Table 8.5 shows a similar result to the Global group in that the share of donations received is largely determined by the share of fundraising expenditures. However, none of the other variables in this equation are statistically significant. In the share of fundraising expenditure equation the share of donations is important but again no other variables are statistically significant. Lastly, in the share of volunteers none of the variables are statistically significant.

The Animal group

Table 8.6 shows the results of the Animal group. The regression coefficient on the ShrA variable in the ShrF equation is significant but negative and in the ShrV equation it is also negative, but statistically insignificant, whereas in the ShrD equation it is significantly positive. The coefficient on the RelAge variable in the ShrD equation is significantly positive and in ShrV equation it is also positive but insignificant, while in the ShrF equation it is insignificantly negative. The coefficient on lagged ShrV in both the ShrD and ShrF equations is insignificantly negative but in ShrV it is positive but insignificant.

The regression coefficient on the ShrD variable in the ShrF equation is significantly positive and in ShrV equations is also positive but insignificant. The coefficients on ShrF in both the ShrD and ShrV equations are also both positive. Similarly the coefficients on ShrV in both the ShrD and ShrF equations are also positive. Overall in the Animal group, the ShrD, ShrF and ShrV variables in each share equation, ShrD, ShrF and ShrV, are all positive. These results indicate that the level of donations for charitable organisations in the Animal group is affected by organisational size, level of fundraising expenditures and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational age, level of donations, level of fundraising expenditures and the number of volunteers from the previous year.

Table 8.6 shows that the share of donations received is significantly influenced by the share of fixed assets, representing organisational size, but the share of organisational age is negatively affected. In contradiction, the share of fundraising expenditure increases significantly with the share of organisational age, whilst with the share of fixed assets, it rather decreases significantly. In both equations, none of other variables show significance. In these two equations, we cannot find any relationship to oligopoly theory. Lastly the share of volunteers' equation shows an enormously strong follow on from the previous year's volunteers. Not only is the level of volunteers extremely high (estimated coefficient of 0.977 but the level of significance (t = 41.298) is also very high). Similar to the Welfare group, this equation indicates moderate support for the

Cournot model, but this may be because the previous year's share of volunteers overpowered other variables.

The Science group

Table 8.7 shows the results of the Science group. The regression coefficient on the ShrA variable in the ShrF equation is significantly negative, and in the ShrD equation it is also negative but insignificant. In the ShrF equation it is significantly positive. The coefficients on the RelAge variable in both the ShrD and ShrV equations are both positive, but in ShrF equation they are insignificantly negative. The coefficient on lagged ShrV in the ShrV equation is significantly positive and in the ShrD equation it is also positive but insignificant, and in the ShrF equation it is insignificantly negative.

The coefficient on ShrD in the ShrF equation is insignificantly positive but in the ShrV equation it is insignificantly negative. Similarly the coefficient on ShrV in the ShrF equation is negative and in ShrD equation it is negative. The coefficients on ShrF in both the ShrD and ShrV equations are both positive. In other words, these results indicate that, for a charitable organisation in the Science group, the level of donations is affected by organisational age, level of fundraising expenditures and the number of volunteers from the previous year. Conversely, the level of fundraising expenditure is affected by organisational size, level of donations and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational age, level of fundraising expenditure and the number of volunteers from the previous year.

Table 8.7 shows that in the share of donations equation, organisational age, fundraising expenditures and the number of volunteers in the current year are positively related to the share of donations, as expected. However, their coefficients are not significant. Other variables are also insignificant or have wrong sign. On the other hand, the share of fundraising equation is largely affected by the share of fixed assets, a proxy of organisational size, but neither the share of organisational age nor the share of volunteers is statistically significant. Nor are any of the other variables. What determines the share of fundraising expenditure in this group is the age of the organisation. However, this is not explained in terms of oligopoly theory. Finally the share of volunteers equation shows an extremely high coefficient (0.913) and the level of significance (t = 5.556) is also high. The share of fundraising expenditure shows high statistical support, but the other variables are neither significant nor high. This model indicates some level of support for the Cournot model.

The Rural group

Table 8.8 shows the results of the Rural group. The regression coefficients on the ShrA, RelAge and lagged ShrV variables in both the ShrF and ShrV equations are all positive but in the ShrD equation they are all significantly negative. The coefficients on the ShrD variable in both the ShrF and ShrV equations are positive. The coefficients on ShrF and ShrV variables in the ShrD equation are both positive, but in the ShrD and ShrF equations, respectively, they are both negative. Overall in the Rural group the results on ShrD are consistent with both the ShrF and ShrV equation, but the ShrF and ShrV variables are not consistent with the signs on ShrD and ShrV, and the ShrD and the ShrF equations. In other words, these results indicate that, for charities in the Rural group, the level of donations is affected by organisational age, level of fundraising expenditure and the number of volunteers from the previous year. The level of fundraising expenditure is affected by organisational size, level of donations and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational age, level of fundraising expenditure and the number of volunteers from the previous year.

Table 8.8 shows that share of donations received is determined partly by the share of volunteers. But the share of fixed assets and the age of the organisation have largely the opposite effect on raising donations. This cannot be explained in terms of oligopoly theory. What determines the share of fundraising expenditure is essentially the age of the organisation. Unexpectedly, only the share of volunteers at time *t* is negative (the incorrect sign) but is not significant.

Finally the volunteers equation shows an enormously strong follow on from the previous year's volunteers. Not only is the level of volunteers relatively high (estimated coefficient equal 0.788) but the level of significance (t = 6.198) is also high. This pattern has been seen in other groups (All, Welfare, Animal and Science). This model indicates no support for the Cournot model, because none of other variables are significant.

The summary of Tables 8.9a, 8.9b and 8.9c is produced to discuss the most important results in the industry group. They present the results in a form more appropriate for judging them as a whole in relation to oligopolistic structures. Table 8.9a presents the regression coefficient estimates from testing both the ShrF and ShrV variables in ShrD equation. Table 8.9b presents the regression coefficients estimates from testing both the ShrD and ShrV variables in ShrF equation (2SLS). Table 8.9c presents the regression coefficients estimates from testing both the ShrD and ShrF variables in ShrV equation (2SLS). Table 8.9a shows that the coefficient on ShrF is significantly positive in Global and Disability industry groups and positive in all other industry groups, except the Humanitarian group. A comparison of the results shown for ShrF in Table 8.9a with the results shown for ShrF in Table 8.9c, indicates that the results from testing ShrF and ShrD together are generally qualitatively similar to results from testing ShrF only. However, there is one notable exception. In the industry group of charitable organisations, ShrF is significantly positive in two industry groups, the Global and Disability groups, where ShrF is tested but is not significant in any industry group in the ShrV equation where both ShrF and ShrD are tested together.

A comparison of the results shown for ShrD in Table 8.9b and the results shown for ShrD in Table 8.9c indicates that the results from testing ShrD and ShrF together are different to results from testing ShrD only. There is one notable difference. Table 8.9b shows that the coefficient on ShrD is significantly positive in the Global and Disability industry groups, and positive in all other industry groups, except the Humanitarian group, where ShrD is tested with ShrF (in Table 8.9c)and shows negative in the Welfare, Global, Disability and Science groups.

Table 8.9a shows that the coefficient on ShrV is significantly positive in Humanitarian groups and positive in the All, Animal and Rural groups, but negative in all other groups. A comparison of the results shown for ShrV in Table 8.9b with the results shown for ShrV in Table 8.9a indicates that the results from testing ShrV and ShrD together are generally similar. However, there is one notable difference. Table 8.9c presentst the coefficient on ShrV as being positive in most of all the industry groups, except the Global and Rural groups, whereas in Table 8.9a, ShrV with ShrD shows negative in the Welfare, Global, Disability and Science groups.

Overall these results, taking the groups as a whole rather than individually, suggest some weak conformity to aspects of an amended Cournot oligopoly mode. However, the shares model is designed to cope with multicollinearity and forms a less complet picture than the industry groupings tests in Section 8.2.3.

8.2.2 Empirical results of two-stage least squares in state grouping

Tables 8.10 to 8.15 present the result from testing the ShrD, ShrF and ShrV equation in geographic groups of 6 states but otherwise following the procedure for industry groups. The 6 “states” include the ACT, Victoria, NSW, QLD, WA and SA, which are discussed in Chapter 2. The results are found in table 8.10 through to 8.15 inclusive.

With some signs of olibopolistic competition can be found in some of the industry groups, they are found not with State groups. This results is encouraging, indicating that the groups do represent competitive groups whereas location doest not.

Consequently, in the following section, further investigation is conducted adopting two-stage-least squares (2SLS) estimation model of the jointly dependent variables in a linear model with, total donations (D), fundraising expenditures (F) and the number of volunteers (V).

8.2.3 Empirical results of two-stage least squares in industry grouping

This section presents the results of the two-stage-least squares (2SLS) estimation of the potentially jointly dependent variables, total donations (D), fundraising expenditures (F) and the number of volunteers (V), using 8 industrial groups of Australian sample organisational data. These three 2SLS models are labelled after each dependent variable and each equation is presented below as D Equation in (8-4), F Equation in (8-5) and V Equation in (8-6). Tables, 8.16 to 8.23 present the result of these equations from testing for the <u>All</u> Groups group, <u>Welfare</u>, <u>Humanitarian</u>, <u>Global</u>, <u>Disability</u>, <u>Animal</u>, <u>Science</u> and <u>Rural</u> industry groups.

As shown in equations, (8-4), (8-5) and (8-6), their independent variables consist with the following variables: A: fixed assets of organisation, AGE: charitable organisation's operational age, and ShrF: the ratio of the number of volunteers divided by the total number of volunteers of each industry group of charitable organisations, and/or D: total donations, F: fundraising expenditures, V: the number of volunteers of each organisation and V_1: a lagged value of V. Additionally, each three equations carries the same instrumental variables (IV), A, AGE, lagged value of D, lagged value of F, lagged value of A, lagged value of V and lagged share of fundraising expenditure. IV represents other Instrumental Variables in all three equations.

D Equation:

$$D_t = \beta_0 + \beta_1 A_{it} + \beta_2 Age_{it} + \beta_3 F_{it} + \beta_4 ShrF_{it} + \beta_5 V_{it} + \beta_6 V_{it-1} + IV + \varepsilon; \qquad (8\text{-}4)$$

F Equation:

$$F_t = \beta_0 + \beta_1 A_{it} + \beta_2 Age_{it} + \beta_3 D_{it} + \beta_4 ShrF_{it} + \beta_5 V_{it} + \beta_6 V_{it-1} + IV + \varepsilon; \qquad (8\text{-}5)$$

V Equation:

$$V_t = \beta_0 + \beta_1 A_{it} + \beta_2 Age_{it} + \beta_3 D_{it} + \beta_4 F_{it} + \beta_5 ShrF_{it} + \beta_6 V_{it-1} + IV + \varepsilon; \qquad (8\text{-}6)$$

where IV represents all other Instrumental Variables to enter the equations.
Donations (D) = total donations of charity *i* at year *t*,
Fundraising expenditure (F) = total fundraising expenditure of charity *i* at year *t*,
Fixed assets (A) = total fixed assets of charity *i* at year *t*,
Operational length of organisation (AGE) = operational age of charity *i* at year *t*,
Volunteers (V) = total number of volunteers of charity *i* at year *t*,
Share of fundraising expenditure (ShrF) = the proportion of fundraising expenditure of charity *i* (F_{it}) to total of fundraising expenditure of all charities in the same industry at year *t* ($\sum F_{it}$) for charity *i* at year *t* .

The All group

Table 8.16 shows that the donation equation (D equation) cannot be used to draw clear conclusions. The fundraising spending does not explain donations. In other words, potential donors are not interested on the level of spending on fundraising of each charity but at the same time they are interested in fundraising expenditures related to other charities. In addition, the donations raised is related to the number of the previous year's volunteers. The fundraising equation (F equation) shows that the level of fundraising expenditure spending of each organisation is heavily influenced by the level of other charities' spending on fundraising. Charities are paying attention to each other in terms of the level of own spending on fundraising. Not surporisingly the volunteers equation shows the previous year's volunteers affect on the current year's volunteers but in the totally opposite direction.

Although the results are similar to the other models, the All Groups group is merely an aggregation. We cannot draw any. The reason for this estimation is to compare the samples with the same industry groups from conclusions from the results.

The Welfare group

Table 8.17 shows that in the D equation, donations increased with fundraising expenditure, but not from the share of fundraising. This is of interest from the view point of the oligopoly theory – the greater F, the greater D but this is "controlled" by others' spending on fundraising expenditure ShrF. This can be explained readily in terms of the Cournot oligopoly theory. Also Table shows, as expected, the volunteer increases donations received. Secondly in the fundraising equation, there is little explanatory power. Certainly there is no apparent oligopoly reaction curve.

Finally the V equation in Table 8.17 is consistent with the results in the ShrV equation. The current year's volunteers are apparently largely the previous year's volunteers.

The Humanitarian group

Table 8.18 shows very similar pattern of relationship between donation and fundraising with the Welfare group in the D equation. It shows that strong interest from the view of the oligopoly theory –the greater F, the greater is D. Furthermore, the results of D equation show that the organisational age and size, and volunteers are also significant determinants of donations. However, similar to the Welfare group, the F equation shows ShrF as the main determinant factor. In terms of volunteers, also similar to the results of the Welfare group, the current year's volunteers follow on from the previous year's volunteers.

The Global group

Table 8.19 shows a very similar pattern of relationships to the Welfare and Humanitarian groups in the D equation. This again is of interest from the view of the oligopoly theory – the greater F, the greater D. Similarly this is consistent with the Cournot oligopoly theory. The results of the D equation also show that volunteers in the current year and previous year are also important determinants of donations raised, but this is not so for organisational age and size. However, in the F equation organisational age and size, and donations affect the level of fundraising expenditure. It shows the greater AGE, the larger A and the greater D are the greater F. In relation to shrF, it shows significant effects on fundraising, the meaning of which is unclear. In the V equation, the results again show the influence of the previous year's volunteers, which is consistent with the results of the Welfare and Humanitarian groups but nowhere near as strong.

The Disability group

Table 8.20 shows a pattern similar to the All group. The determinants of donations indicate the share of fundraising expenditure is positive. This goes against the Cournot oligopoly approach. In relation to other independent variables, these are difficult to explain as organisational size is negatively related to fundraising. In the V equation, the results are consistent with the results of other groups and the previous year's volunteers is very large problem (coefficient 0.940 and t-stat 10.090).

The Animal group

Table 8.21 shows that in the F equation, the results are consistent with other groups in lacking explanatory power. In the D equation, donations increases with spending on fundraising, as expected, and from the share of fundraising. However these results are confused and their meanings are unclear. The relationship between F and D in the D equation shows some support of the Cournot oligopoly interpretation. Confused is the result that relates to the volunteers. The current year's volunteers increases donations but not the previous years' volunteers. However, the current year's volunteers follow on heavily from the previous year's volunteers. This result in the V equation shows a growing volunteer force and it leads difficult to trust the results (coefficient of V_1 at 1.030 and t-stat at 23.016).

The Science group

Table 8.22 shows that in the D equation, the hypothesised signs on fundraising and share of fundraising are not as expected. Furthermore, the sign on current year's volunteers is also as not expected. Similar issue, can be found in the F equation, the sign on the current year's volunteer is negative but that of the previous year's volunteers is positive. In other words, fundraising is not supported by the current year's volunteers but the number from the previous year. And donations increased with spending on fundraising but not from the share of fundraising.

Table 8.22 shows, as expected, that volunteers support increased donation. However in the fundraising equation in the Table, what determines fundraising is not seen. Finally V equation in Table 8.22 shows consistent with the results in the ShrV equation as the current year's volunteers is very closely related to the previous year's volunteers.

The Rural group

Table 8.23 shows that in the F equation, the results are consistent with other groups in that all explanatory variables are insignificant. Similar to the results of the Animal group, the D equation shows that donations are increased by spending on fundraising, as expected, but also by the share of fundraising. This tends to support a Cournot oligopoly interpretation.

Again, the current year's volunteers increase donations, but not the previous years' volunteers. However, in the V equation, the current year's volunteers largely follow on from the previous year's volunteers. This result in the V equation may indicate that volunteers, a free input, are mainly helping from the administrative point of view, but not helping to raise funds such as fundraising.

8.3. Summary

This chapter showed the results and analysis of the share equations (share of donations, share of fundraising expenditure and share of volunteers) in the oligopolistic competition using the two stage least squares approach.

Chapter 6 presented and discussed the preliminary empirical results of the family equations, which are based on the discussion in Chapters 1 to 5. To avoid multicollinearity problems for the family equations, Chapter 7 analysed share equations, which are based on oligopolistic theory to establish share of donations (ShrD) on reaction curves for share of fundraising expenditure (ShrF) and share of volunteers (ShrV) equations.

This chapter further analyses the simultaneous relations of those three including ShrD, ShrF and ShrV using 2 SLS equations.

The results indicate that, for the charitable organisations in the Welfare industry group, the level of donations is affected by organisational size, level of fundraising expenditure and the number of volunteers from the previous year. The level of fundraising expenditure is affected by organisational age, level of donations and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational size, level of fundraising expenditure and the number of volunteers from the previous year.

In the Humanitarian group the results indicate that the level of donations and the level of fundraising expenditure are both affected by organisational age and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational size, level of donations, level of spending of fundraising expenditure and the number of volunteers from the previous year for the charitable organisations in the Humanitarian group.

For the charitable organisations in the Global group, the level of donations is affected by the level of fundraising expenditure and the number of volunteers from the previous year. The level of fundraising expenditure is affected by organisational age and size, level of donations, the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational size, level of fundraising expenditure and the number of volunteers from the previous year for the charities in the Global group.

For charitable organisations in the Disability group, the level of donations and the number of volunteers in the current year is affected by organisational size and age, and the level of fundraising expenditure. The level of fundraising expenditure is affected by the level of donations and the number of volunteers from the previous and current years.

The level of donations for charitable organisations in the Animal group is affected by organisational size, level of fundraising expenditure and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational age, level of donations, level of fundraising expenditure and the number of volunteers from the previous year.

For the Science group, the level of donations is affected by organisational age, level of fundraising expenditure and the number of volunteers from the previous year. The level of fundraising expenditure is affected by organisational size, level of donations and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational age, level of fundraising expenditure and the number of volunteers from the previous year for the charities in the Science group.

For charities in the Rural group, the level of donations is affected by organisational age, level of fundraising expenditures and the number of volunteers from the previous year. The level of fundraising expenditure is affected by organisational size, level of donations and the number of volunteers in the current year. The number of volunteers in the current year is affected by organisational age, level of fundraising expenditure and the number of volunteers from previous years for charitable organisations in the Rural group.

The results from the geographic groups had mixed results but this was expected and welcomed compared to the industry groups. However, the results from the industry groups can support the Oligopolistic theory as in the Welfare, Humanitarian, Global, Disability, Animal and Rural groups. They show that the share of fundraising support share of donations. However, it is difficult to conclude that these industry groups are lully supportive of the Oligopolistic theory because they employ share of variables not the first level of variables. Therefore this study, further, employed the first level of variables to conduct oligopolistic explanatory 2SLS model with three equations.

The results of the Welfare, Humanitarian and Global groups in the D equation show some support for the Cournot oligopoly theory. They show that spending sufficient amounts to fundraising earns greater donations.

Table 8.1: Two-stage least squares estimation for All Groups group

Dependent Variables	ShrD	ShrF	ShrV
β_0	0.001	0.007	0.000
(t-stat)	(0.175)	(0.794)	-0.216
Shr A	-0.300	-0.674	0.069
(t-stat)	(-0.449)	(-0.521)	(1.385)
RelAGE	-0.018	0.006	0.000
(t-stat)	(-2.170)	(0.440)	(-0.140)
ShrD		0.115	0.009
(t-stat)		(0.169)	(0.155)
ShrF	0.559		0.060
(t-stat)	(1.231)		(0.581)
ShrV	6.418	8.953	
(t-stat)	(0.859)	(0.566)	
ShrV_1	-5.709	-7.630	0.870
(t-stat)	(-0.870)	(-0.545)	(19.777)
S.E. of regression	0.118	0.156	0.017
Observations	245	245	245

NOTE: Dependent variables are Share of donations (ShrD), Share of Fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of Fixed Assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of Volunteers (V) of each organisation in each group

Table 8.2: Two-stage least squares estimation for Welfare group

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.019	0.030	-0.013
(t-stat)	(-0.279)	(0.441)	(-0.360)
Shr A	0.893	-1.094	0.508
(t-stat)	(2.563)	(-1.654)	(1.319)
RelAGE	-0.436	0.566	-0.259
(t-stat)	(-1.195)	(4.611)	(-1.627)
ShrD		1.172	-0.534
(t-stat)		(1.082)	(-0.902)
ShrF	0.770		0.446
(t-stat)	(1.130)		(1.386)
ShrV	-1.521	1.932	
(t-stat)	(-1.069)	(1.506)	
ShrV_1	1.437	-1.828	0.949
(t-stat)	(1.052)	(-1.469)	(27.530)
S.E. of regression	0.156	0.199	0.102
Observations	77	77	77

NOTE: Dependent variables are Share of donations (ShrD), Share of Fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of Fixed Assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of Volunteers (V) of each organisation in each group

Table 8.3: **Two-stage least squares estimation for Humanitarian group**

Dependent Variables	ShrD	ShrF	ShrV
β_0	0.065	0.181	-0.035
(t-stat)	(2.710)	(2.328)	(-2.697)
Shr A	-0.118	-0.331	0.064
(t-stat)	(-0.590)	(-0.515)	(0.611)
RelAGE	0.086	0.240	-0.046
(t-stat)	(1.730)	(3.958)	(-1.925)
ShrD		-2.766	0.535
(t-stat)		(-1.520)	(4.022)
ShrF	-0.360		0.193
(t-stat)	(-1.536)		(1.589)
ShrV	1.868	5.173	
(t-stat)	(4.038)	(1.582)	
ShrV_1	-0.780	-2.162	0.418
(t-stat)	(-2.011)	(-1.339)	(3.501)
S.E. of regression	0.118	0.328	0.063
Observations	42	42	42

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.4: **Two-stage least squares estimation for Global group**

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.051	0.042	0.011
(t-stat)	(-4.839)	(5.291)	(0.649)
Shr A	-0.127	0.114	0.553
(t-stat)	(-0.556)	(0.631)	(2.974)
RelAGE	-0.189	0.147	-0.010
(t-stat)	(-5.588)	(5.348)	(-0.172)
ShrD		0.773	-0.107
(t-stat)		(30.102)	(-0.338)
ShrF	1.274		0.127
(t-stat)	(30.233)		(0.299)
ShrV	-0.375	0.270	
(t-stat)	(-0.965)	(0.863)	
ShrV_1	0.484	-0.369	0.370
(t-stat)	(2.429)	(-2.206)	(1.706)
S.E. of regression	0.043	0.034	0.034
Observations	35	35	35

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.5: **Two-stage least squares estimation for Disability group**

Dependent Variables	ShrD	ShrF	ShrV
β_0	0.065	-0.085	0.143
(t-stat)	(2.206)	(-2.423)	(0.583)
Shr A	0.155	-0.205	0.343
(t-stat)	(0.980)	(-1.045)	(0.539)
RelAGE	0.023	-0.031	0.052
(t-stat)	(0.754)	(-0.721)	(0.363)
ShrD		1.317	-2.207
(t-stat)		(5.190)	(-0.485)
ShrF	0.759		1.676
(t-stat)	(5.190)		(0.512)
ShrV	-0.453	0.597	
(t-stat)	(-0.485)	(0.511)	
ShrV_1	-0.103	0.136	-0.227
(t-stat)	(-0.205)	(0.202)	(-0.146)
S.E. of regression	0.072	0.094	0.158
Observations	63	63	63

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.6: **Two-stage least squares estimation for Animal group**

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.690	1.083	0.010
(t-stat)	(-1.376)	(2.986)	(0.227)
Shr A	2.176	-2.893	-0.054
(t-stat)	(2.150)	(-2.956)	(-0.507)
RelAGE	-0.960	1.237	0.022
(t-stat)	(-2.540)	(3.281)	(0.468)
ShrD		0.936	0.038
(t-stat)		(1.443)	(0.550)
ShrF	0.652		0.011
(t-stat)	(1.603)		(0.266)
ShrV	1.535	0.624	
(t-stat)	(0.370)	(0.127)	
ShrV_1	-1.293	-0.916	0.977
(t-stat)	(-0.325)	(-0.194)	(41.298)
S.E. of regression	0.078	0.110	0.011
Observations	21	21	21

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.7: **Two-stage least squares estimation for Science group**

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.008	0.035	-0.012
(t-stat)	(-0.070)	(0.613)	(-0.494)
Shr A	-0.561	0.331	-0.132
(t-stat)	(-0.814)	(3.104)	(-1.713)
RelAGE	0.586	-0.107	0.061
(t-stat)	(1.325)	(-0.305)	(0.368)
ShrD		0.261	-0.133
(t-stat)		(0.552)	(-0.547)
ShrF	1.626		0.399
(t-stat)	(0.821)		(1.615)
ShrV	-4.407	2.119	
(t-stat)	(-0.716)	(1.233)	
ShrV_1	4.375	-1.850	0.913
(t-stat)	(0.813)	(-1.030)	(5.556)
S.E. of regression	0.268	0.116	0.051
Observations	28	28	28

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.8: **Two-stage least squares estimation for Rural group**

Dependent Variables	ShrD	ShrF	ShrV
β_0	0.045	-0.146	-0.007
(t-stat)	(1.219)	(-0.501)	(-0.917)
Shr A	-0.946	3.115	0.150
(t-stat)	(-2.3984)	(0.697)	(1.483)
RelAGE	-0.205	0.676	0.033
(t-stat)	(-2.209)	(3.291)	(1.212)
ShrD		3.291	0.159
(t-stat)		(0.766)	(1.595)
ShrF	0.297		-0.047
(t-stat)	(0.749)		(-0.678)
ShrV	6.295	-20.736	
(t-stat)	(1.588)	(-0.680)	
ShrV_1	-4.961	16.353	0.788
(t-stat)	(-1.294)	(0.666)	(6.198)
S.E. of regression	0.241	0.795	0.038
Observations	49	49	49

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising Expenditures (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.9: Summary of Results of ShrD, ShrF and ShrV

Table 8.9a:	All	Welfare	Humanitarian	Global	Disability	Animal	Science	Rural
ShrDequation								
ShrF (t-stat)	0.559 (1.231)	0.770 (1.130)	-0.360 (-1.536)	1.247(30.233)***	0.759(5.190)***	0.652 (1.603)	1.626 (0.821)	0.297 (0.749)
ShrV (t-stat)	6.418 (0.859)	-1.521 (-1.069)	1.863(4.036)***	-0.375 (-0.965)	-0.453 (-0.485)	1.535 (0.370)	-4.407 (-0.716)	6.295 (1.588)
Table 8.9b								
ShrF equation								
ShrD (t-stat)	0.115 (0.169)	1.172 (1.082)	-2.766 (-1.520)	0.773(30.102)***	1.317(5.190)***	0.936 (1.443)	0.261 (0.552)	3.291 (0.766)
ShrV (t-stat)	8.953 (0.566)	1.932 (1.506)	5.173 (1.582)	0.270 (0.863)	0.597 (0.511)	0.624 (0.127)	2.119 (1.233)	-20.736 (-0.680)
Table 8.9c								
ShrV equation								
ShrD (t-stat)	0.009 (0.155)	-0.534 (-0.902)	0.535 (4.022)***	-0.107 (-0.338)	-2.207 (-0.485)	0.038 (0.550)	-0.133 (-0.547)	0.159 (1.595)
ShrF (t-stat)	0.060 (0.581)	0.446 (1.386)	0.193 (1.589)	0.127 (0.299)	1.676 (0.512)	0.011 (0.266)	0.399 (1.615)	-0.047 (-0.678)

(ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group
***, **,* significant at 1, 5, 10 %.

Table 8.10: **Two-stage least squares estimation for ACT (State)**

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.468	0.036	-0.051
(t-stat)	(-4.799)	(0.031)	(-1.206)
Shr A	-0.002	0.096	-0.005
(t-stat)	(-0.170)	(1.145)	(-1.878)
RelAGE	0.207	-0.211	0.055
(t-stat)	(1.881)	(-0.186)	(1.928)
ShrD		-0.829	-0.001
(t-stat)		(-0.527)	(-0.016)
ShrF	-0.040		0.028
(t-stat)	(-0.454)		(2.477)
ShrV	-0.022	11.380	
(t-stat)	(-0.017)	(1.128)	
ShrV_1	2.000	-9.719	1.080
(t-stat)	(1.357)	(-0.808)	(7.122)
S.E. of regression	0.007	0.034	0.001
Observations	14	14	14

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.11 : **Two-stage least squares estimation for Victoria**

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.038	0.024	0.001
(t-stat)	(-0.285)	(0.330)	(0.328)
Shr A	-1.507	0.946	0.028
(t-stat)	(-0.218)	(0.218)	(0.616)
RelAGE	0.046	-0.030	-0.001
(t-stat)	(0.276))	(-0.284)	(-0.388)
ShrD		0.621	0.015
(t-stat)		(0.839)	(0.187)
ShrF	1.566		-0.024
(t-stat)	(1.231)		(-0.195)
ShrV	47.621	-29.889	
(t-stat)	(0.252)	(-0.260)	
ShrV_1	-46.194	29.005	0.969
(t-stat)	(-0.256)	(0.265)	(12.419)
S.E. of regression	1.013	0.636	0.021
Observations	91	91	91

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.12 : **Two-stage least squares estimation for New South Wales (NSW)**

Dependent Variables	ShrD	ShrF	ShrV
β_0	0.026	0.085	-0.020
(t-stat)	(3.859)	(1.792)	(-2.937)
Shr A	0.047	-0.430	0.052
(t-stat)	(0.323)	(-0.907)	(0.433)
RelAGE	0.003	0.070	-0.010
(t-stat)	(0.288)	(1.811)	(-0.788)
ShrD		-1.638	0.607
(t-stat)		(-0.823)	(3.177)
ShrF	-0.219		0.193
(t-stat)	(-1.920)		(1.396)
ShrV	1.181	2.808	
(t-stat)	(2.755)	(0.992)	
ShrV_1	-0.377	-0.933	0.431
(t-stat)	(-0.834)	(-0.545)	(2.311)
S.E. of regression	0.061	0.168	0.052
Observations	98	98	98

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.13: **Two-stage least squares estimation for Queensland (QLD)**

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.167	0.226	-0.060
(t-stat)	(-1.250)	(2.867)	(-0.350)
Shr A	-0.768	0.373	-0.082
(t-stat)	(-2.965)	(0.879)	(-0.160)
RelAGE	-4.623	5.348	-1.532
(t-stat)	(-1.393)	(2.632)	(-0.370)
ShrD		0.209	-0.055
(t-stat)		(0.405)	(-0.109)
ShrF	0.497		0.027
(t-stat)	(0.649)		(0.038)
ShrV	-0.192	0.027	
(t-stat)	(-0.153)	(0.041)	
ShrV_1	0.979	0.674	1.002
(t-stat)	(0.783)	(0.594)	(1.391)
S.E. of regression	0.121	0.129	0.092
Observations	21	21	21

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.14 : Two-stage least squares estimation for South Australia (SA)

Dependent Variables	ShrD	ShrF	ShrV
β_0	-1.978	-0.571	2.253
(t-stat)	(-1.638)	(-1.515)	(1.152)
Shr A	3.727	1.077	-3.357
(t-stat)	(2.150)	(1.958)	(-1.003)
RelAGE	-10.662	-3.078	9.363
(t-stat)	(-5.177)	(-4.292)	(1.167)
ShrD		-0.289	0.680
(t-stat)		(-11.491)	(1.042)
ShrF	-3.459		2.371
(t-stat)	(-11.689)		(1.050)
ShrV	0.090	0.026	
(t-stat)	(0.065)	(0.065)	
ShrV_1	4.598	1.327	-3.199
(t-stat)	(4.402)	(4.102)	(-0.932)
S.E. of regression	0.133	0.039	0.120
Observations	14	14	14

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.15: Two-stage least squares estimation for Western Australia (WA)

Dependent Variables	ShrD	ShrF	ShrV
β_0	-0.732	0.447	-0.062
(t-stat)	(-0.454)	(0.259)	(-2.096)
Shr A	1.273	-0.676	0.114
(t-stat)	(0.175)	(-0.103)	(0.197)
RelAGE	-0.478	0.284	-0.039
(t-stat)	(-0.437)	(0.251)	(-1.488)
ShrD		0.495	-0.054
(t-stat)		(0.245)	(-0.341)
ShrF	1.628		0.109
(t-stat)	(0.247)		(0.229)
ShrV	-12.054	7.322	
(t-stat)	(-0.440)	(0.290)	
ShrV_1	26.014	-15.742	2.150
(t-stat)	(0.463)	(-0.282)	(6.177)
S.E. of regression	0.428	0.254	0.034
Observations	21	21	21

NOTE: Dependent variables are Share of donations (ShrD), Share of fundraising expenditure (ShrF) and Share of Volunteers (ShrV).
ShrF: Share of Fundraising expenditures, ShrA: Share of fixed assets of organisations
ShrV: Share of total numbers of Volunteers (V)
RelAge: Relative Age of each organisation in each group
ShrV_1: Lagged share of volunteer (V) of each organisation in each group

Table 8.16: Two-stage least squares estimation for All group

Dependent Variables	D	F	V
β_0	1748	-454.847	-8.697
(t-stat)	(1.146)	(-0.206)	(-0.029)
A	0.083	0.010	0.002
(t-stat)	(0.724)	(0.695)	(1.119)
AGE	-269.309	-7.759	-1.304
(t-stat)	(-1.601)	(-0.313)	(-0.406)
D		-0.003	-0.001
(t-stat)		(-0.102)	(-0.242)
F	-1.485		-0.071
(t-stat)	(-0.313)		(-1.121)
V	-46.866	-7.182	
(t-stat)	(-1.008)	(-1.522)	
V_1	44.147	6.780	-10.939
(t-stat)	(1.010)	(1.535)	(31.754)
ShrF	2149127	411262	37883
(t-stat)	(1.065)	(4.197)	(1.936)
S.E. of estimation	133139.700	18899.123	2558
Obs	245	245	245

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.17: **Two-stage least squares estimation for Welfare group**

Dependent Variables	D	F	V
β_0	-7061	-210	223
(t-stat)	(-0.328)	(-0.941)	(1.192)
A	-0.050	-0.001	0.001
(t-stat)	(-0.470)	(-0.580)	(2.073)
AGE	-50.746	0.509	0624
(t-stat)	(-5.37)	(0.359)	(0.506)
D		0.057	-0.007
(t-stat)		(0.861)	(-0.110)
F	25.699		0.499
(t-stat)	(0.473)		(1.446)
V	20.186	0.653	
(t-stat)	(0.405)	(1.461)	
V_1	-12.371	-0.680	0.852
(t-stat)	(-0.342)	(-1.863)	(6.428)
ShrF	-457233	21258	-11909
(t-stat)	(-0.455)	(11.210)	(-1.686)
S.E. of estimation	15830.497	496.940	438.725
Obs	77	77	77

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.18: Two-stage least squares estimation for Humanitarian group

Dependent Variables	D	F	V
β_0	-5935	2851	3703
(t-stat)	(-0.218)	(0.710)	1.174
A	0.030	0.007	0.011
(t-stat)	(0.360)	(0.537)	(1.030)
AGE	100.667	-41.686	-42.176
(t-stat)	(0.354)	(-1.044)	(-1.415)
D		0.041	0.028
(t-stat)		(0.663)	(0.429)
F	2.107		-0.176
(t-stat)	(0.733)		(-0.374)
V	4.434	-0.548	
(t-stat)	(0.894)	(-0.705)	
V_1	-1.397	-0.374	0.711
(t-stat)	(-0.360)	(0.643)	(3.880)
ShrF	-247253	102796	30374
(t-stat)	(-0.814)	(7.630)	(0.662)
S.E. of estimation	37298.391	5758.390	6155.968
Obs	42	42	42

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.19: **Two-stage least squares estimation for Global group**

Dependent Variables	D	F	V
β_0	41759	-2118	-479
(t-stat)	(2.374)	(-2.488)	-0.237
A	-1.038	0.072	0.075
(t-stat)	(-0.949)	(2.084)	(1.563)
AGE	-1294	68.359	24.042
(t-stat)	(-2.501)	(3.160)	(0.399)
D		0.049	0.004
(t-stat)		(3.735)	(0.096)
F	17.741		-0.405
(t-stat)	(3.055)		(-0.519)
V	1.197	-0.319	
(t-stat)	(0.084)	(-0.566)	
V_1	4.956	-0.124	0.497
(t-stat)	(0.619)	(-0.328)	(1.699)
ShrF	-446550	29010	19845
(t-stat)	(-1.409)	(4.208)	(0.946)
S.E. of estimation	28343.085	1217.604	1478.202
Obs	35	35	35

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.20: **Two-stage least squares estimation for Disability group**

Dependent Variables	D	F	V
β_0	4572	1897	256
(t-stat)	(0.785)	(0.133)	1.384
A	0.066	0.019	0.002
(t-stat)	(0.638)	(0.194)	(0.622)
AGE	-10.496	18.347	-0.118
(t-stat)	(-0.182)	(0.355)	(-0.050)
D		-0.708	-0.043
(t-stat)		(-0.224)	(-1.187)
F	-4.961		-0.593
(t-stat)	(-0.287)		(-0.058)
V	-6.481	-2.365	
(t-stat)	(-0.115)	(-0.048)	
V_1	5.350	2.665	0.940
(t-stat)	(0.096)	(0.056)	(10.090)
ShrF	217291	57604	1887
(t-stat)	(0.362)	(0.469)	(0.923)
S.E. of estimation	7359.771	4725.252	355.558
Obs	63	63	63

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.21: Two-stage least squares estimation for Animal group

Dependent Variables	D	F	V
β_0	15178	-2928	-217.819
(t-stat)	(4.339)	(-1.398)	(-0.748)
A	0.069	-0.009	-0.001
(t-stat)	(1.081)	(-0.511)	(-0.611)
AGE	-249.966	39.768	3.824
(t-stat)	(-1.816)	(0.875)	(0.746)
D		0.189	0.014
(t-stat)		(1.386)	(0.7546)
F	2.413		-0.024
(t-stat)	(0.908)		(-0.332)
V	30.060	0.376	
(t-stat)	(0.660)	(0.992)	
V_1	-32.096		1.030
(t-stat)	(-0.702)		(23.016)
ShrF	10932	3222	-272.382
(t-stat)	(0.326)	(0.506)	(-0.440)
S.E. of estimation	5695.156	1211.928	2353.071
Obs	21	21	21

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.22: **Two-stage least squares estimation for Science group**

Dependent Variables	D	F	V
β_0	707.512	1250.451	129.709-479
(t-stat)	(0.050)	(0.039)	(0.069)
A	0.030	0.059	0.005
(t-stat)	(0.171)	(0.132)	(0.085)
AGE	41.589	81.506	6.509
(t-stat)	(0.160)	(0.154)	(0.080)
D		-1.911	-0.164
(t-stat)		(-10.133)	(-0.160)
F	-0.495		-0.080
(t-stat)	(-0.150)		(-0.097)
V	-5.798	-10.935	
(t-stat)	(-0.156)	(-5.818)	
V_1	7.130	13.614	1.198
(t-stat)	(0.300)	(6.846)	(0.307)
ShrF	7280	13686	1302
(t-stat)	(0.080)	(0.066)	(0.150)
S.E. of estimation	9149.627	17490.324	1500.095
Obs	28	28	28

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Table 8.23: Two-stage least squares estimation for Rural group

Dependent Variables	D	F	V
β_0	102096	-23680	-1489
(t-stat)	(1.583)	(-0.613)	(-1.177)
A	-0.255	0.028	0.004
(t-stat)	(-1.541)	(0.282)	(1.837)
AGE	-917	232	13.911
(t-stat)	(-1.531)	(0.668)	(1.303)
D		0.277	0.014
(t-stat)		(0.859)	(2.081)
F	0.425		-0.005
(t-stat)	(0.315)		(-0.212)
V	59.924	-13.143	
(t-stat)	(2.214)	(-0.615)	
V_1	-54.526	12.885	0.916
(t-stat)	(-2.080)	(0.660)	(13.807)
ShrF	105789	-4146	-1876
(t-stat)	(0.388)	(-0.047)	(-0.429)
S.E. of estimation	140413.184	41578.232	2324.329
Observations	49	49	49

NOTE: Dependent variables are total donations (D), fundraising expenditure (F) and the number of volunteers (V). All independent variables in each equation are: A: Fixed assets of organisations, AGE: Organisational operational age, F: Fundraising expenditures, V: Total numbers of Volunteers, V_1: Lagged volunteers (V), ShrF: Share of fundraising expenditure, and for instrumental variables, A, AGE, lagged D, lagged F, lagged A, lagged V.

Chapter 9

Summary and Conclusions

9.1 Introduction

The vast majority of studies in the charitable sector have analysed donor behaviour, with few focused on charitable organisations and their behaviour. Most of these donor oriented studies used data for the US or the UK. Their results are mixed.

Conversely, the central core of this thesis was to analyse the behaviour of charitable organisations, and for Australia and Japan rather than the US and UK. It argues that there is a Cournot-style oligopolistic competition between these organisations for both corporate and private donations. In the economics literature, the main alternative model is Bertrand price-competition oligopoly, but this is inappropriate in a charity setting when many goods are free on both the input and output sides. To analyse this Cournot-style competition, charitable organisations were organised into groups of organisations with like functions. This meant that in terms of their interests, expertise and objectives and especially their pool of donors, these organisations are relatively homogeneous. They can either cooperate, compete or even do both simultaneously. In terms of fundraising, for whatever reasons, the organisations in Australia and Japan have chosen competition. This compares with the USA where the United Way is a cooperative fundraising effort among many charities. One implied conclusion that can be drawn from the result that charities behave competitively with respect to each other is that they do not behave entirely altruistically. A potential and crucial irony is that if such competition creates efficiency then it is far better for the recipients of charity to have their support organisations as competitive rather than exhibiting completely altruistic organisational behaviour.

Overall, it is believed that a better understanding of the use and function of fundraising expenditure behaviours, based on an empirical modelling of oligopolistic competition in Australia, was achieved. The empirical results imply that while the model appears to work for Australian charitable organisations, it did not do so for Japan. This difference can be explained. The findings for Australia support hypotheses and ideas that modify the mainstream charitable organisational literature and the findings are consistent throughout the family of empirical equations in Australia. Nevertheless the empirical support for the oligopolistic model is not overwhelmingly strong. The models and tests need to be redefined and reapplied and data sets from outside Australia also could be used.

As a result, it is believed that the thesis has raised a number of issues which can be used to improve the importance of financial information in the charity sector and redirect research in the area of charitable organisations.

9.2 Summary

The thesis examined the effect of the fundraising expenditures of the charitable organisational competition on donations in a modified form of (Cournot) oligopolistic market in Australia and Japan. Thus, in oligopolistic markets, each charitable organisation generated donations through its own fundraising expenditures. Consistent with the Cournot theory, a charity's level of donations can be negatively affected by the fundraising efforts of other charitable organisations in the same charity sector. The investigation was concerned with what level of fundraising expenditures determines the level of private donations; how charitable organisation maximise private donations, and whether or not competition between charitable organisations affect donor behaviour and donations.

In addition this thesis attempted to investigate what organisational characteristics and other factors affect donations. This thesis provides evidence of the effect on total donations in Australia and Japan of financial reporting information; fundraising expenditures; competitors' fundraising expenditures; the ratio of fundraising expenditures to those of competitors; fixed assets; the ratio of fixed assets to those of competitors; the number of volunteers; organisational age; government grants and administrative costs. One of the most important issues considered was the role of volunteers in competition between organisations. Such volunteers appear to be faithful to organisations and not surprisingly, they generally have a positive impact on donations.

The research conducted theoretical modelling on the basis of modified oligopolistic competition of the donations market, and from this constructed a family of explanatory empirical equations. A major aspect of these was the prior recognition of the focussed nature of many charitable organisations. As discussed in Section 2.4, recognising national and cultural differences, the Australian charities had two Australia specific industry groups, the Animal and Rural that did not appear in Japan. Similarly the Japanese charities had two Japanese specific groups, Education and Environment that did not appear in Australia. There were six groups in common: Welfare, Humanitarian, Global, Science and Culture, Disability and All groups. In addition, geographic subgroups were used, e.g. in Australia, the subgroup consisted of five mainland States and the Australian Capital Territory (ACT) and in Japan, three prefectures of Tokyo, Kanagawa and Kyoto. This was based on the possibility that donors based their "giving" on locality rather than function. In general it was found that, consistent with the oligopolistic groups, the results of industry groups outperformed the geographic groups. Moreover, a "group" (All) was made up of the entire sample. Such an aggregation should not conform to an oligopolistic model and this was the case.

In addition, as discussed in the results for the family of empirical models for Japan, there are multicollinearity problems between the variables lnFi, lnFi/ΣlnF and lnFj, and considerations of simultaneity between donations, fundraising and volunteers, as well as the reaction curve of fundraising expenditure and volunteers in oligopolistic competition. Therefore, alternative specifications using share of donations, share of fundraising expenditure and share of volunteers for the family models were all tested. Employing the shares models the results showed consistency with the results of the family of models in most of the industry groups, but did not enhance the results. Employing a Shares of Donations model increased significance in the results of the coefficients, and also gave higher explanatory power than those in the family model for most industry groups in Australia. However, compared to the results of Australian industry groups and geographical groups, the results for Japanese organisations, neither group improved in the Shares of Donation, Shares of Fundraising Expenditure and Shares of Volunteers models. Therefore, this study focused empirically on Australian charitable organisations. The results from the industry groups support the Oligopolistic theory which indicated that an increased share of fundraising supported and increased share of donations. The comparisons of family of empirical models and share models are now summarised.

A sample of Australian charitable organisations suggested direct positive effects on total donations of fundraising expenditures and fundraising of competitors' fundraising expenditures on total donations in most of the groups except for Animal charities. Also the number of Volunteers significantly and positively affected total donations in most of groups except Animal. This result is of itself unsurprising but it does suggest the rational use of an (almost) free input, i.e. volunteers, albeit subject to diminishing returns. As discussed in Section 6.4, Volunteers contributed not only time but also they donated financially to charities. The organisational size showed as a positive determinant of total donations in Welfare, Disability, Animal and Science groups. Organisational age also showed a positive effect on total donations in All, Disability, Science and Rural groups. Government grants showed crowding in effect on total donations in All, Welfare, Humanitarian, Global, Animal and Rural groups in the following year, whereas in Global, Disability and Science, it showed crowding-out of donations. Administrative costs showed a positive impact on total donations in most groups except All, Global and Science. Although not considered important, the results of the geographic groups also showed varied effects on total donations.

A sample of Japanese charitable organisations showed that the estimates of the fundraising expenditure were consistent with Australian results. This was in the direct effectiveness of fundraising activities on donations in the Humanitarian, Global and Environment groups. But in the Welfare, Disability and Environment groups, organisational attributes including size, seemed to be major determinants for total donations. The number of Volunteers also contributed directly and positively on the level of donation in All, Disability and Culture groups. Organisational size had a positive effect on the level of total donations in All, Global, Humanitarian, Disability, Culture and Environment groups, while Organisational age had a mostly negative impact on the level total donations, except in the Culture group. The positive effect of an organisation's age in this group is understandable. Government grants had a positive effect on total donations in most of groups except Welfare and Environment. Given the very recent institutional history of Japanese charities, this is not too surprising. Despite previous studies which used the level of project costs as measurement of inefficiency of management, in this study the level of Administrative costs showed a positive impact on total donations in groups of All, Global, Disability, Culture, and Education groups. Additionally government grants had a significantly positive effect on total donations.

The results of the geographic groups also showed varied effect on variables, having positive effects on fundraising expenditure and the organisational size. A negative effect for competing charities' fundraising expenditures showed in Kanagawa and Kyoto, whereas organisational age showed a positive on total donations in Tokyo. Volunteers showed also a positive impact on total donations in Tokyo and Kyoto, while the administrative costs were a positive on total donations in Tokyo. It is re-emphasised that the spatial groupings' results were not as good as for the industry groups. This suggests that donors are interested in the type of charity they donate to, rather than its locality.

9.3 Conclusions

The results of the empirical analysis are summarised below. As both common sense and theory suggest, fundraising expenditures enhance the generation of donations partly by increasing awareness of charitable organisation's activities. The findings suggest that there is an oligopolistic competition market in Australian charitable organisations. The indications are that: (1) increases in fundraising expenditure increase donations; (2) an increase in fundraising expenditure competition is positively related to total fundraising spending and the total level of donation in the current year. However, (3) the effects of the fundraising spending of competitors also relate closely but negatively to the level of donations to individual organisations in the current year. It was also found that (4) the level of volunteers significantly increases the level of donations in the following year; and (5) organisational age and size, government grants and administrative costs and other characteristics vary in their impact across groups of charitable organisations but still indicate the value of using the Oligopoly model.

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Conclusions from the empirical results of the equations have to be tempered by the fact it worked well for Australia but not for Japan. As a consequence, there is an, "after the fact" need to attempt to explain why the model does not work well empirically for Japan. On the basis of the historical and institutional analysis in Chapter 2, it was concluded that the response for this poor empirical fit in Japan relates to the fact that the sample of Japanese charitable organisations employed in this thesis were of the legal form of charitable organisations (NPO Corporations) established in 1998. This made the Japanese sample much smaller in numbers, consisting of younger organisations with shorter organisational histories. Of the sample of Japanese charitable organisations, for example, only two were given deductible gift tax status by the relevant ministry. With such a limited tax exemption, the total donations are much smaller than in Australian organisations. This means that the status of charitable organisations in Japan is vastly different from those in Australia, especially the relationships to government and donors. Most importantly, it appears that Japanese charities provide welfare services on a more commercialised basis. This type of activity is very small in Australia, albeit growing.

In charitable organisation studies an equivalent to a price was found by using the efficiency of fundraising expenditure i.e. the ratio of fundraising expenditure per donated dollar. Cournot's theory of oligopoly was tested and gave significant results for Australia when charitable organisations were placed into homogeneous groups. As with Cournot theory, the empirical results suggested the possibility of the over-supply of fundraising expenditure to each charitable organisation market segment. This suggests cooperative fundraising, working together as a monopoly in fundraising in a segment of the fundraising market, could be a dynamically efficient form of supra-organisational cooperation. These results are consistent with the equilibrium state of the Cournot model.

Indeed, several results stand out as consistent with a homogeneous output or slightly differentiated output Cournot equation. These are that: (a) donations increase as fundraising expenditure increases but at a decreasing rate; (b) an organisation's fundraising expenditure's impact is diminished as it competitions increase their fundraising expenditure and (c) the use of a priori specified groups based on the charities identified areas of operation increased the efficacy of the Cournot modelling. Methodologically it is important to note that the groups were not constructed as best fit groups on the basis of ex post examination of empirical results.

9.4 Limitations of the study and future research

This study has a number of limitations. In part this is because this is the first research to deal with charitable organisation utilising oligopoly theory. As a consequence, first, if the proposed model proves viable in the longer term, a vast number of improvements are expected. The second is that, given the model works reasonably well with respect to the Australian data, with hindsight the Japanese data are currently too weak to provide a satisfactory test. Even more than this, one implication is that an alternative rational behavioural model is required for Japan. A related third point is that the equation assumes equilibrium. It does not provide a dynamic view. While this need not be a severe limitation in the Australian situation, in the more rapidly changing Japanese situation it is certainly a severe weakness. In particular it cannot cope with the dramatic and discontinuous historical changes that are occurring in charitable organisations in Japan. This is especially so in relation to their relatively recent arrival on the scene and the very large constraints placed on them by the Japanese authorities. As discussed before, the data of Japanese samples of NPO Corporations are also much smaller in scale of donations, organisational size, and number of volunteers, and younger in operational age than that of the Australian sample charitable organisation. It seems more likely that future research will entail comparing Australian with countries such as the USA, UK, Canada and New Zealand where the cultural commonalities and the history of the charitable organisations are much stronger and older. A separate research program is almost certainly required for Japan.

Several areas of research are suggested by the present modelling. One, already indicated, is to increase the sophistication of both the theoretical and empirical modelling. This can include investigating the role played by the assets of the organisation, an area mostly overlooked in the present competitive market model. This is particularly appropriate in charitable organisations, and this can be argued in two opposing ways. One is that greater assets suggest that the charitable organisation has a greater ability to be effective and therefore donors may move towards it. The other is that greater assets imply that the donations may go to building up the organisation rather than to those who should be the recipients of the charity. Finally, donors may see their donation as simply marginal to the larger organisations, whereas for smaller charitable organisations they can feel they have greater impact and significance. In this latter case the donor may feel more appreciated. Furthermore it may interest to see how recent Tsunami disaster has affected organisational behaviour and fundraising capacity of activities.

Appendix

Table of log-linear 1: Two-stage least squares estimation for All group

Dependent Variables	lnD	lnF	lnV
β_0	-114.407	12.467	29.974
(t-stat)	(-2.057)	(54.631)	(2.248)
lnA	-.160	-.001	.038
(t-stat)	(-1.487)	(-.118)	(1.373)
lnAGE	-0.29	.009	-.008
(t-stat)	(-.125)	(.434)	(-.141)
lnD		.010	.045
(t-stat)		(.762)	(1.207)
lnF	9.746		-2.431
(t-stat)	(2.200)		(-2.283)
lnV	1.775	-.098	
(t-stat)	(1.974)	(-1.295)	
lnV_1	-1.116	.092	.964
(t-stat)	(-1.236)	(1.228)	(22.746)
lnShrF	-9.452	1.017	2.461
(t-stat)	(-2.087)	(59.651)	(2.268)
S.E. of estimation	2.606	0.242	0.682
Observations	245	245	245

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 2: Two-stage least squares estimation for Welfare group

Dependent Variables	D	F	V
β_0	-87.956	9.854	8.599
(t-stat)	(-1.133)	(15.677)	(0.754)
lnA	0.369	-0.034	-0.037
(t-stat)	(0.892)	(-0.659)	(-0.719)
lnAGE	-0.104	0.011	0.008
(t-stat)	(-0.300)	(0.344)	(0.187)
lnD		0.093	0.100
(t-stat)		(1.177)	(1.371)
lnF	8.899		-0.869
(t-stat)	(1.116)		(-0.744)
lnV	8.812	-0.799	
(t-stat)	(1.401)	(-0.802)	
lnV_1	-8.468	0.772	0.968
(t-stat)	(-1.315)	(0.796)	(15.081)
lnShrF	-9.194	1.029	0.901
(t-stat)	(-1.138)	(15.517)	(0.764)
S.E. of estimation	2.374	0.230	0.259
Observations	77	77	77

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 3: Two-stage least squares estimation for Humanitarian group

Dependent Variables	D	F	V
β_0	-9.922	10.507	4.154
(t-stat)	(-0.870)	(2.386)	(.922)
lnA	-0.083	-.563	.034
(t-stat)	(-.243)	(-.048)	(.233)
lnAGE	.426	-.451	-.179
(t-stat)	(.493)	(-.599)	(-.511)
lnD		1.016	-.395
(t-stat)		(1.132)	(-1.007)
lnF	.951		.414
(t-stat)	(1.119)		(1.660)
lnV	2.378	-2.426	
(t-stat)	(1.672)	(-1.025)	
lnV_1	-1.579	1.613	.668
(t-stat)	(-1.158)	(.875)	(3.544)
lnShrF	-1.463	1.525	.609
(t-stat)	(-1.429)	(3.244)	(1.298)
S.E. of estimation	1.184	1.210	0.498
Observations	42	42	42

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 4: Two-stage least squares estimation for Global group

Dependent Variables	lnD	F	V
β_0	-20.040	-7.276	.682
(t-stat)	(-.256)	(4.902)	(.305)
lnA	-.489	.119	.022
(t-stat)	(-.452)	(2.862)	(.716)
lnAGE	-1.229	.189	.044
(t-stat)	(-1.001)	(1.583)	(.800)
lnD		.131	0.28
(t-stat)		(1.822)	(0.726)
lnF	3.933		-.132
(t-stat)	(.492)		(-.477)
lnV	42.465	-1.830	
(t-stat)	(.618)	(-.694)	
lnV_1	-41.141	1.330	.899
(t-stat)	(-.582)	(.527)	(6.817)
lnShrF	-2.461	.763	.083
(t-stat)	(-.338)	(8.339)	(.373)
S.E. of estimation	2.141	0.130	0.051
Observations	35	35	35

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 5: Two-stage least squares estimation for Disability group

Dependent Variables	D	F	V
β_0	148.856	10.274	-19.123
(t-stat)	(.669)	(8.524)	(-.348)
lnA	.248	.016	-.031
(t-stat)	(.369)	(.386)	(-.252)
lnAGE	-.326	-.021	.028
(t-stat)	(-.680)	(-.852)	(.210)
lnD		-0.52	.072
(t-stat)		(-.547)	(.198)
lnF	-14.250		1.847
(t-stat)	(-.628)		(.345)
lnV	1.882	.175	
(t-stat)	(-.149)	(.226)	
lnV_1	-.897	-.107	.920
(t-stat)	(-.071)	(-.130)	(2.075)
lnShrF	13.770	.957	-1.809
(t-stat)	(.652)	(9.759)	(-.357)
S.E. of estimation	2.822	0.195	0.416
Observations	63	63	63

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 6: Two-stage least squares estimation for Animal group

Dependent Variables	D	F	V
β_0	2.252	4.320	1.149
(t-stat)	(.319)	(.386)	(.823)
lnA	.232	-.126	-.011
(t-stat)	(1.034)	(-.479)	(-.221)
lnAGE	-1.225	.519	-.028
(t-stat)	(-2.936)	(.648)	(-.174)
lnD		.579	.006
(t-stat)		(1.499)	(.055)
lnF	1.078		-.041
(t-stat)	(2.425)		(-.276)
lnV	-.021	-3.077	
(t-stat)	(-.035)	(-.425)	
lnV_1		2.898	.927
(t-stat)		(.431)	(8.805)
lnShrF	-.648	.960	.087
(t-stat)	(-1.036)	(1.727)	(.639)
S.E. of estimation	0.432	0.450	0.080
Observations	21	21	21

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 7: Two-stage least squares estimation for Science group

Dependent Variables	lnD	F	V
β_0	-7.397	-5.981	-2.537
(t-stat)	(-.408)	(-.378)	(-.230)
lnA	.531	.430	.188
(t-stat)	(1.712)	(1.019)	(.523)
lnAGE	3.763	3.052	1.312
(t-stat)	(1.091)	(1.000)	(.338)
lnD		-.810	-.353
(t-stat)		(-1.274)	(-.454)
lnF	-1.229		-.434
(t-stat)	(-1.272)		(-.441)
lnV	-2.728	-2.211	
(t-stat)	(-.449)	(-.437)	
lnV_1	3.590	2.911	1.302
(t-stat)	(.620)	(.595)	(1.580)
lnShrF	1.107	.900	.390
(t-stat)	(.874)	(1.089)	(.401)
S.E. of estimation	1.246	1.009	0.442
Observations	28	28	28

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

Table log-linear 8: Two-stage least squares estimation for Rural group

Dependent Variables	lnD	F	V
β_0	10.314	10.018	-2.325
(t-stat)	(.463)	(1.635)	(-.581)
lnA	-.480	-.099	.095
(t-stat)	(-1.319)	(-.325)	(1.312)
lnAGE	-.889	.022	.165
(t-stat)	(-1.219)	(.037)	(.895)
lnD		-.050	.190
(t-stat)		(-.083)	(1.933)
lnF	-.075		.054
(t-stat)	(-.033)		(.122)
lnV	4.905	.940	
(t-stat)	(2.007)	(.314)	
lnV_1	-3.744	-.711	.771
(t-stat)	(-1.723)	(-.307)	(8.046)
lnShrF	-.129	.816	-.006
(t-stat)	(-.067)	(3.818)	(-.016)
S.E. of estimation	1.728	0.568	0.353
Observations	49	49	49

NOTE: Dependent and independent variables are all transformed in logarithm: lnD; total donations, lnF; fundraising expenditure, lnV; the number of volunteers (lnV). Independent variables are: lnA; fixed assets, lnAGE; organisational age, lnF, lnV, lnV_1; lagged volunteers, lnShrF: share of fundraising expenditure.

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