

Does Foundation Giving Stimulate or Suppress Private Giving? Evidence from Canadian Charities

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Abstract

Foundation giving, together with individual giving can achieve extraordinary results as seen by the near eradication of polio. Grant incentives from the Gates Foundation encouraged Rotary International to raise over \$170 million of individual donations to help achieve this goal. In Canada, over the past decade foundations have been taking a more active role in supporting charitable activities. This paper explores how foundation grants affect private donations to charities. Standard theory suggests that foundation funding will be a substitute for individual donations. I question this hypothesis by allowing foundation grants to convey information about charity quality to individuals. Individuals may face time and financial constraints to learn about charitable programs. Foundations, on the other hand, may learn information about charities from their reviews of charity grant applications. Economic modelling shows that foundation grants, which act as a signal of charity quality, can have both positive and negative effects on private donations. The positive impact prevails if the effect of signaling information about charity quality outweighs the standard substitution effect. I empirically explore the relationship between foundation and private giving using a unique dataset on 3,933 social welfare and community charities in Canada from 1997 to 2007. I perform a two-stage least squares estimation with a carefully selected set of instrumental variables to address potential endogeneity and omitted variable bias. Empirical findings suggest that, on average, an additional dollar of foundation grants leads to a \$2 increase in private donations to charitable organizations. The results are robust across various specifications and sensitivity checks.

Keywords: charitable foundations, private donations, signalling, complements

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1 Introduction

Foundation giving, together with individual giving can achieve extraordinary results as seen by the near eradication of polio. Grant incentives from the Gates Foundation encouraged Rotary International to raise over \$170 million of individual donations to help achieve this goal.¹ Results such as these provide an example of what combined efforts can achieve in the healthcare sector, but also what may be accomplished in other social service sectors. This raises an important question - how do foundation grants affect private giving? According to standard economic theory, foundation giving is a substitute for private giving. In this paper I question such theory by exploring whether an alternative giving dynamic arises whereby foundations act as complements rather than substitutes. Foundations have better access to information about charities than individuals. For instance, foundations may become more knowledgeable about charities from their reviews of charity grant applications or even by operating in the same program area as charities. Individuals, on the other hand, may face time and financial constraints in obtaining information about charitable programs. Consequently, grants by foundations may convey information to individuals about charity quality and thereby influence individuals' decisions to give (Rose-Ackerman, 1980).

Existing literature on charitable giving has focused on government grants acting as a signal of quality (Connolly, 1996; Payne, 2001; Huetel, 2010;). These studies have established that when private donors look to government funding for information, a positive relationship between government grants and private giving has been observed. At the individual level, several studies also show that giving by peers can positively influence individual giving because social interactions help to convey information about the quality of the charitable public good. This paper contributes to the current literature by exploring the impact of giving by charitable foundations on individual donations. Understanding this relationship is important, especially in the wake of recent policy debates on charitable giving. On October 28, 2011, the federal government of Canada announced it was considering to implement changes related to traditional government grants.² This may result in charities having to rely more heavily on raising money from individuals, foundations and

¹www.nola.com, "Bill Gates, Rotary Club Are Trying to Wipe Out Polio", May 23, 2011

²Ottawa looks at rewriting rules on charitable giving, Oct. 28, 2011, the Globe and Mail

corporations.

Formal economic modelling of foundation grants as a signal of charity quality shows that the impact of foundation grants on individual donations is ambiguous due to two countervailing effects. First, a positive information effect arises because information conveyed through foundation grants to individuals about charity programs is likely to be of better quality than that available to individuals. Second, standard economic theory suggests that foundation grants act as a substitute to individual donations, resulting in a negative effect on private giving. Therefore, an overall positive effect of foundation grants on private donations prevails only if the effect of signalling information about charity quality outweighs the standard substitution effect.

Using rich administrative data on social welfare and community charities in Canada from 1997 to 2007, I explore the relationship between foundation and private giving. I focus on social welfare and community organizations for several reasons. First, social welfare and community charities differ from other charity types because their services are multidimensional as they cover such a large spectrum of activities from help for natural disasters to child support. Second, these organizations receive individual support from different types of donors because these charities offer a variety of goods and services. Finally, their reliance on individual and foundation funding differs from other charity types.

I create a unique dataset that matches social welfare and community organizations with their specific grant-awarding foundations. Compared to similar administrative data (US form 990), Canadian data provide a much richer financial information about charities and span a longer time period. I can also match charity level gift revenues with the grants they receive from foundations derived at the foundation level. This type of disaggregation is not provided by the data on US charities.

The panel of 3,933 charities allows for the use of charity fixed effects to capture time-invariant quality differences. The two-stage least squares specification additionally controls for time-varying socio-economic characteristics for the neighbourhood in which the charity is located, and macro level year effects. To capture all possible channels of giving to charities by individuals, I use two measures of private donations. The first measure is private tax-receipted gifts that include all charitable

gifts for which charities issue tax receipts. The second measure is aggregate private donations created by combining revenues from fundraising with private tax-receipted gifts. Revenues from fundraising consist of proceeds from individuals when charitable organizations sell goods as part of their fundraising campaigns (e.g., charitable event).

I begin the empirical analysis by testing the relationship between private and foundation giving using OLS estimation method. I find that private tax-receipted gifts and aggregate private donations respond positively to higher foundation grants. On average, an additional dollar of foundation grants raises private giving in the range from \$3.40 to \$4.40. However, these estimates are likely to suffer from the endogeneity and omitted variable bias. To address potential joint determination of private donations and foundation grants or the exclusion of controls that can be correlated with both foundation and private gifts, I perform a two-stage least squares estimation. As instruments, I use measures that are derived from the data on foundations to predict charity-level foundation grants. The IV estimates confirm a positive impact of foundation grants on all measures of private donations. In particular, individual giving increases by \$2 in response to an additional dollar of grants by foundations. The robustness of this effect is ensured by testing it across various specifications and subjecting it to a number of sensitivity checks. These findings suggest that private donors may look to foundation grants for information about charities to make informed giving decisions.

The remainder of the paper is organized as follows. Section 2 reviews related literature and Section 3 presents a formal theoretical model of foundation and individual giving. Section 4 discusses the institutional details of registered charities in Canada. Section 5 discusses the data. Section 6 presents the empirical methodology and the main findings. Finally, Section 7 concludes with policy implications and future research.

2 Related Literature

The relationship between two sources of funding for charitable work can develop into two effects: the negative substitution effect and a positive information effect. A large body of theoretical and empirical literature on charitable giving is devoted to explaining the substitution effect between government grants and private donations. Traditional theories suggest that government funding to

charities decreases private donations dollar for dollar (complete crowd-out) (Warr, 1982; Roberts, 1984; Bergstrom, Blume and Varian, 1986). This is because government grants are treated by individuals as a pool of tax-financed donations, and individuals respond to them by reducing their voluntary contributions.

Most of the empirical analysis provides weak support for this theoretical prediction. Existing evidence has suggested that a dollar increase in government grants leads to a partial decline in individual donations, ranging from 19 to 73 cents (Kingma and McClelland, 1995; Payne, 1998; Andreoni and Payne, 2003; Simmons and Emanuele, 2004; Gruber and Hungerman, 2007; Andreoni and Payne, 2009). A possible explanation for incomplete crowd-out is that individuals experience a ‘warm-glow’ from giving (Andreoni, 1990). However, in a recent study by Andreoni and Payne (2011), government grants lead to a *complete* crowd-out of private giving. This is the first study which provides empirical findings that are consistent with existing theoretical formulations.

However, only a few studies have analyzed the positive information effect, which may develop when a grant from one group acts as signal of quality about a public good to another group. For example, Connolly (1996) investigates how giving by outside agencies such as government, private firms or foundations affects university’s internal distribution of funds. Connolly finds that when university’s internal funds serve as a signal of research quality it enhances the amount of outside funding provided to the university.

Payne (2001) explores the effect of government research funding on private donations for both research and non-research universities. She assumes government grants may be used as a signal of research quality at a university. Potentially, government agencies have more information about a university (e.g. through its grant applications), which may be quite costly (both in time and money) to obtain by individuals. Payne finds that government funding has a positive effect on private donations to research universities. This means that the effect of signalling quality outweighs the standard substitution effect. In a more recent study, Huetel (2010) finds evidence of a positive relationship between government grants and private donations to social service charities. He argues that government grants can signal information about the quality of the charity, thereby enhancing private giving.

Social networks represent an alternative way of how giving by one group can influence giving of another group. Social interactions are important for charitable giving because they can also help convey information about charity quality (Scharf, 2011). Using the data on groups in the workplace, Carman (2004) explores whether individual giving behaviour is influenced by social contact. Giving to United Way is popular in the workplace due to its ongoing campaigns. Carmen hypothesizes that if individuals are influenced through social interactions then they will depart from their habit of giving to United Way and donate to the same organization as others. Her empirical work confirms this hypothesis. More broadly she concludes that peer contributions are complements to individual contributions because interactions with peers can reveal more information about the charitable public good.

A particular question about how foundation giving affects private giving has been posited by Rose-Ackerman (1980). Individual decisions to give may depend on the knowledge about charitable programs. Since individuals face greater time and financial costs to gather information about charities, they may prefer to opt out from giving. Foundations, on the other hand, may be more able to undertake the expense of learning about charity-specific information. This information about charity quality may be conveyed to individuals through foundation grants. In response, individuals can channel their donations to more reputable organizations. However, theoretical formulation and empirical tests of how foundation giving affects individual donations have not been previously explored. My paper offers two distinct contributions. First, I formalize the relationship between foundation and individual giving in a theoretical setting. Second, I exploit a unique panel of Canadian social welfare and community charitable organizations to empirically examine the relationship between foundation and private giving.

3 Theoretical Model

I develop a formal theoretical model in which foundation grants signal charity quality to individuals to capture the information asymmetry between foundations and individuals regarding charity quality. The model makes five main assumptions: 1) public goods provided by charitable organizations are identical; 2) individuals donate only to charitable organizations and no donations are made to

the foundation; 3) only individuals care explicitly about the total amount of the public good being provided by the charity; 4) there is only one foundation; and 5) the foundation moves first.³

Consider the economy with n individuals and one foundation. Individuals consume a composite private good x_i and contribute g_i to the public good. The provision of the public good is done by the charity, which uses collected donations for this purpose. Each individual is endowed with income m_i such that $m_i \in \{m_1, \dots, m_n\}$ are all strictly positive.⁴ Individuals derive utility from consumption of the private good, the total public good and also from the quality of the public good. For a foundation, let y denote a foundation good and let a be the foundation income endowment. Foundation does not care about the total public good (Cushman, 1979). However, foundation's contribution depends on the quality of the public good provided. Suppose a foundation contributes f to a charitable organization. Then the total public good that is provided by a charitable organization is $G = \sum_{i=1}^n g_i + f$.

The quality of the charitable public good is denoted by α , which is known only to the foundation. This is because foundations have better access to information about charities. One way is from a thorough review of charity grant applications. Another way is possibly from favourite charities selected by individuals who choose to establish foundations. Foundations may also have more information about charities that operate in the same charitable area (Thornton, 2010). Individuals, however, do not know the true α and can only observe $s(f)$, which represents an information effect of f on the public good provided by a charitable organization. Individuals have information about the foundation grant f because charities often advertise the receipt of foundation gifts on their bulletin boards. Also, recipients of foundation funding are listed on the CRA website as part of information returns filed by foundations.

I begin with a set-up of a foundation's problem. The foundation's utility is given by $W = w(y) + q(f; \alpha)$, where both $w(\cdot)$ and $q(\cdot)$ are strictly concave functions. For computational simplicity, the total public good G enters the utility function only implicitly through its quality α . However,

³Allowing for simultaneous contributions in the case of imperfect information yields the same results. Mathematical derivations are available upon request.

⁴Individuals can choose to contribute a higher amount as their income rises, hence $\partial g_i / \partial m_i > 0$. This result is can be easily obtained from the individual's problem.

the results are unchanged when G appears in the utility function directly.⁵

Each foundation maximizes utility subject to the budget constraint

$$y + f = a$$

and to the distribution constraint

$$f \geq \lambda a$$

where λ is the proportion of income to be distributed in a given year.⁶ The foundation's problem is

$$\mathcal{L} = w(a - f) + q(f; \alpha) + \phi(-\lambda a + f)$$

where ϕ is the Lagrange multiplier. The two first-order conditions are

$$\frac{\partial \mathcal{L}}{\partial f} = w'(a - f)(-1) + q_f(f; \alpha) + \phi = 0$$

and

$$\frac{\partial \mathcal{L}}{\partial \phi} = (-\lambda a + f) = 0$$

In an interior solution the optimal grant is implicitly given by

$$\frac{q_f(f; \alpha) + q_s(f; \alpha)}{w'(a - f)} = 1$$

which is represented by point B in Figure 1.

⁵Mathematical derivations are available upon request.

⁶According to the conditions outlined in the *Income Tax Act*, foundations are required to distribute at least 50% of their income to charitable organizations.

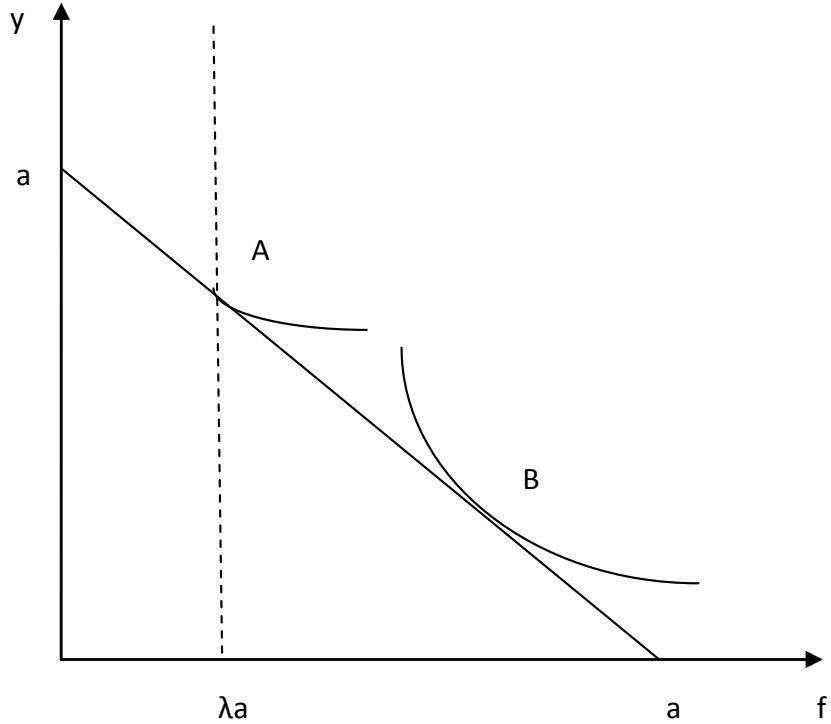


Figure 1: Representation of Corner and Interior Solutions.

The optimal contribution by the foundation becomes $f^* = a - w'^{-1}(q_f(f; \alpha))$, which is a function of quality.⁷

Next, I present the individual's problem which draws on the model by Andreoni (2006). The individual maximizes utility $u(x_i) + V[G; s(f)]$ subject to the budget constraint $x_i + g_i = m_i$, where $G = \sum_{i=1}^n g_i + f$ and $s(f)$ is a concave function. This produces the following first-order condition:

$$u'(m_i - g_i) = V_G[G; s(f)] \quad (1)$$

⁷When the distribution constraint binds ($\phi > 0$), the optimal contribution by the foundation becomes $f^* = \lambda a$, which is no longer a function of quality of the public good. It is denoted as point A on Figure 1. In practice, foundations are required to either disburse 3.5% of their investment assets averaged over the two years or more than 50% of their income which tends to come from invested securities. To have an approximate understanding of a binding or a non-binding constraint, I calculate the value of gifts following the two requirements. If the constraint is binding, reported gift amounts should always be larger or equal to the two new measures of required giving. However, I find that this is not the case for the foundations in my sample. Deep and Frumkin (2001) and Sansing and Yetman (2006) analyzed whether grant payout regulations bind for foundations using US data. They find that foundations tend to distribute more to charitable purposes than the required percentage.

Differentiating Equation (1), the change in the individual donation as a result of the change in the foundation grant becomes:

$$\frac{\partial g_i}{\partial f} = -\frac{V_{GG}[G; s(f)]}{u''(m_i - g_i) + V_{GG}(G; s(f))} - \frac{V_{Gs}[G; s(f)]s'(f)}{u''(m_i - g_i) + V_{GG}(G; s(f))} \quad (2)$$

Since the sign of the denominator for both terms is negative due to the concavity of $u(\cdot)$ and $V(\cdot)$, the sign of the expression will depend on the sign of the numerator. The numerator of the first term is negative as it is simply the substitution effect.⁸ It occurs because under complete information about the quality of the public good one group of givers free-rides on the other group. However, a different giving dynamic may arise between the two groups of givers if one group has limited information about the quality of the public good, but it can infer about the quality from gifts made by the other group. This is captured by the second term, which represents the information effect. Its numerator is the product of $V_{Gs}(G(f); s(f))$ and $s'(f)$, which are both positive.⁹ The positive information effect results from transmitting information about the quality of the public good. Therefore, the overall positive impact prevails if the effect of signalling information about charity quality outweighs the standard substitution effect. I determine the direction of the sign in an extensive empirical analysis.

4 Registered Charities in Canada

All charities in Canada must be registered by the federal tax authority, Canada Revenue Agency (CRA), to receive exemption from the income tax, issue tax receipts for individual donations and receive grants from other registered charities. Upon registration with CRA charities are designated into two broad types: charitable foundations and charitable organizations.¹⁰

A charitable foundation is a registered charity which devotes most of its activities to raising funds and allocating them in the form of grants to other registered charities. Charitable foundations can further be divided into public and private foundations, however I focus on all foundations in

⁸In the case of perfect information about charity quality, the relationship between foundation grants and individual donations is defined only by a substitution effect.

⁹The function $s'(f) = 0$ if the distribution constraint is binding such that $f^* = \lambda a$.

¹⁰As per Canadian Income Tax Act.

my analysis.¹¹ This is because the requirement for allocating grants to other charities is the same across the two types. They must give more than 50% of their income annually to other registered charities.

Charitable foundations are taking on a larger role in Canada. Their numbers have increased by 30% since 1997 as illustrated in Figure 1. Total assets, which reflect foundation size, have also expanded suggesting an inflow of new capital into these organizations since 1997. Since foundations must make grants from their assets, continuous growth in this measure suggests that future giving is also likely to expand. Furthermore, foundation funding is also growing at a strong pace.

Foundations can award grants to ‘qualified donees’, which include other registered charities, registered Canadian amateur athletic associations, registered national arts service organizations, Canadian housing corporations resident and municipalities.¹² Figure 1 shows that the amount of giving by foundations to other registered charities has tripled over the last decade. Payne (2007) also notes that both foundation assets and grants are trending upwards, indicating that foundations are taking a greater role in supporting charitable activities.

The other category of registered charities is charitable organizations, which are mainly engaged in providing goods and services to the public. Charitable organizations are typically classified according to their mission. In general, charities can be assigned into five broad categories: social welfare and community, religious, health, education, and other.¹³ While all types of charities face the same treatment by the CRA, they are different in many respects from the operational design to the types of donors that support these organizations. From a total pool of registered charitable organizations, I focus on social welfare and community organizations to understand the relationship between individual giving and foundation grants. The most important reason for

¹¹The biggest difference between the two groups is the source of funds to start a foundation. A public foundation becomes a private foundation if more than 50% of its capital is contributed by a single individual or a non-arm’s length group. The term *not at arm’s length*, refers to people that act together without separate interests. This includes individuals who are related to each other by blood, marriage, adoption, common-law relationships or close business ties. Charitable organizations, on the other hand, cannot obtain more than 50% of their funds from one person or a non-arm’s length group of individuals.

¹²The list also includes United Nations and its agencies, universities outside Canada listed in Schedule VIII of the Income Tax Regulations, charitable organizations outside Canada to which Her Majesty in right of Canada (the federal government or its agents) has made a gift during the charity’s fiscal period or in the 12 months immediately preceding the period; and Her Majesty in right of Canada or in right of a province (that is, the federal government, a provincial government, or their agents) (Registered Charities and the Income Tax Act, form RC 4108(E)).

¹³Canada Revenue Agency (CRA) groups registered charities into 50 internally generated categories.

choosing this charity type is that the expected information effect is likely to be small. Given that such charities operate locally, individuals should have good information about charitable activities that these organizations undertake. There are also several other reasons that explain this choice. First, I simply follow empirical literature on charitable giving, which mainly focuses on one charity type. Second, social welfare and community charities differ from other charity types in the nature of their services, which cover a large spectrum of activities from help for natural disasters to child support. Another reason is that these organizations receive individual donations from different types of donors because they span a variety of public goods and services. Finally, their reliance on private funding and foundation grants differs from other charity types. Figure 2 depicts average individual donations and foundation grants to social welfare and community charities. Both types of grants have steadily increased since 1997. In general, these trends are similar to the growth observed in foundation assets and total grants. This figure also illustrates combined individual and foundation contributions as a share of total revenues for social welfare and community charities (dash line) as well as for other charity types (bold line). The main difference is that social welfare and community charities rely much stronger on the two types of funding compared to other charities reaching a share of over 20% in 2007 compared to less than 3% for other charities. However, all charities experience an upward trend in combined gifts from private donors and foundations.

5 Data Creation and Summary Statistics

All registered charities, be it a charitable organization or a foundation, must file an annual information return (form T3010) with Canada Revenue Agency (CRA) within six months from the end date of their fiscal periods.¹⁴ A charity may lose its registered status if it fails to submit the information return.

The CRA collects the data from the information return for administrative purposes, which means they must undergo a thorough cleaning procedure to be suitable for a research study. How-

¹⁴CRA has updated the information return form twice during the sample period. Registered charities were required to complete form T3010 prior to 2002, then form T3010A between 2003 and 2004, and form T3010(05) from 2005 and onwards. The adopted changes did not apply to the key measures. The end of the fiscal period is determined by a registered charity and not by the CRA.

ever, a significant advantage of Canadian data compared to similar US administrative data (form 990 filed by all 501(c)(3) non-profit organizations in the US) is that they provide a richer financial information and span a longer period of time. For the purpose of this study, US data does not allow disaggregation of grants transferred to other charities by the type of charities which provide the grant. With Canadian data I can identify grants given by charitable organizations and foundations and then match them with a recipient charitable organization.

I begin with the data collected from information returns on charitable organizations between 1997 and 2007. I collect three revenue indicators to construct two measures (in real terms) of individual and foundation giving. I use tax-receipted gifts as the first measure of private giving. Tax-receipted gifts represent all charitable donations for which charities issue tax receipts to individuals.¹⁵ I combine this measure with revenues from fundraising to create the second measure called aggregate private donations. Revenues from fundraising also represent individual contributions because registered charities can only fundraise to individuals and fundraising does not include requests for funding from governments and foundations (Fundraising by Registered Charities, CPS-028). Finally, *Gifts from Other Charities*, a revenue measure that is reported by charitable organizations on their information return, is used to construct foundation giving. At this stage, it combines grants from foundations and other charitable organizations. However, a matching technique is used to separate this measure into grants from foundations and gifts from other charitable organizations.

I begin with a sample of 24,400 social welfare and community charities for the period from 1997 to 2007. Several restrictions are imposed on this sample to arrive at the working dataset. The data cleaning process also ensures that the impact of foundation grants on private donations is accurately evaluated. I begin by excluding 3,951 charitable organizations that always report zero tax-receipted gifts. Second, I exclude 9,565 charitable organizations that always report receiving zero gifts from other registered charities (foundations or other charitable organizations). Third, I eliminate 413 charitable organizations that always report operating outside of Canada because

¹⁵Tax-receipted gifts may include a small portion of gifts from corporations as they can request tax receipts to be issued for their tax purposes. However, anecdotal evidence suggests that corporations prefer to donate through sponsorships because charities can then publicly advertise these donations, while public recognition of a corporation's gift is not allowed if a tax receipt is issued.

I am focusing on local public good provision. For these charities, it is unclear whether private donations and grants from foundations are domestic, foreign or the mix of the two. Fourth, I exclude 10 charitable organizations that are always inactive during the fiscal period. While the charity still files an information return to maintain its registration status, it does not carry out any charitable activities and has small revenues and expenses. My final exclusion consists of 410 charitable organizations that have fewer than three years of observations in the dataset. To carry out an empirical analysis with charity fixed effects, a charitable organization is required to have a minimum of 2 observations. However, I exclude charitable organizations with two observations because their receipts of foundation grants appear to be sporadic. This restriction ensures a certain degree of continuity in the flow of both sources of funding. After the last restriction, I arrive at a sample of 10,047 charitable organizations. The list of restrictions is summarised in Table 1.

My goal is to link the revenue measure of gifts from other charities specifically to foundation grants. For this, I use data from annual information returns filed by foundations with the CRA between 1997 and 2007. When foundations make gifts to other registered charities they report specific gift amounts and their grant recipients by the charity names and unique business numbers on the ‘Qualified Donee’ worksheet (T1236) of their annual returns.¹⁶ With this information, I match 10,047 social welfare and community charitable organizations with foundation grant recipients by their business numbers. This means that total grants received from all registered charities can be disaggregated into grants from foundation and grants from other charitable organizations. As a result of the matching technique, the original measure of gifts from other charities is linked to specific grant amounts given by foundations. Therefore, gifts from other charities is refined to represent a more suitable measure of foundation grants. This data creation process is illustrated in Figure 3.

The matching technique separates the sample of 10,047 charitable organizations into two groups. The first group includes 3,933 charitable organizations that match with a set of foundations. The second group of 6,114 organizations do not match with the foundations data. In order to ensure that the main dataset is representative, I explore the differences of the identified groups, which are

¹⁶A business number of a registered charity, which is also known as a registration number, consists of 15 characters - 9 digits, two letters ‘RR’ and four digits. Letters ‘RR’ a program account of a registered charity.

presented in Table 2. A clear distinction between the two groups is their size. If total assets are used as a rough measure of the organization's size, social welfare and community charities that have a corresponding foundation-giver tend to be larger compared to their non-matching type. They also receive greater amounts of private donations and gifts from other charities. Social welfare and community organizations in the second group do not have a matching foundation-giver, but a majority of them receive gifts from other charitable organizations. Therefore, the two groups differ by their size and the type of grant provider (foundation vs. other charitable organization). Thus, for the empirical analysis, I focus on a panel of 3,933 charitable organizations that match to the set of foundations.

Administrative data from the CRA do not contain information about neighborhoods in which charitable organizations are located. However, charities may collect gifts and carry out their charitable activities differently across different neighborhoods. These differences can be captured by controlling for economic and political characteristics. In order to proxy for these neighborhood features, I bring two additional pieces of data. First, I link Canadian Census data for years 1996, 2001 and 2006 directly with the core dataset by forward sortation areas (FSAs), which is a rough approximation of an 8,000 household neighbourhood. Continuity between the census years is achieved with linear interpolation, which also captures time-varying characteristics of the FSAs.¹⁷ Second, I match this dataset with provincial elections data to proxy for differences in private giving that can arise due to differential political tastes. Means, standard deviations and quantile amounts of economic and political neighborhood characteristics are presented in Table 3. Therefore, the final dataset is a unique panel of social welfare and community charitable organizations that captures the set of gifts from both private givers and foundations as well as economic and political characteristics of the neighbourhoods in which these organizations operate.

¹⁷This procedure has been used in other papers. See Luttmer (1998), Dhuey and Smith (2010) and Card, Dooley and Payne (2007).

6 Empirical Analysis

6.1 Empirical Strategy

With the dataset that matches gift revenues at the charity level with grants from foundations, I can estimate the impact of foundation giving on private gifts to social welfare and community charitable organizations in Canada. I use the following empirical equation to test this relationship:

$$Private\ Donations_{ct} = \alpha_c + \gamma_t + \beta * Gifts\ from\ Other\ Charities_{ct} + \lambda * Charity\ Characteristics_{ct} + \epsilon_{ct} \quad (3)$$

The variable $Private\ Donations_{ct}$ refers to all private donations to a charitable organization c at time t . I focus on two measures of private giving: private tax-receipted gifts and aggregate private donations, which represent the two dependent variables used in the empirical estimation. $Gifts\ from\ Other\ Charities_{ct}$ is a measure of foundation grants reported by charitable organizations, where β denotes the coefficient of interest.

$Charity\ Characteristics_{ct}$ represents socio-demographic and political characteristics of neighborhoods in which charitable organizations operate. Typically, charitable organizations carry out their charitable programs locally. In my sample, about 80% of charitable organizations indicate that their programs are carried on in a single rural city or a metropolitan area. Therefore, controlling for age, education, income, religion, immigration status, family composition and share of provincial party seats allows to capture an approximate environment in which these charities operate. At the individual level, one would expect for these controls to be positively associated with private giving. However, caution has to be exercised about the expected effects of these census measures on the chosen dependent variables because they are provided at the charity and *not* at the individual level.

The empirical specification also includes charitable organization fixed effects, denoted by α_c , to capture time-invariant charity characteristics, while time fixed effects γ_t control for time-varying local macro-level trends. I also incorporate the charity specific time trend and its square to capture changes that can be occurring at the charity and may be correlated with individual and foundation gifts.

The difficulty with estimating Equation (3) by ordinary least squares (OLS) is that estimates

can suffer from the endogeneity bias and the omitted variable bias. Both foundation and private donations can increase in response to an unexpected event, such as a natural disaster. This can lead to an upward bias of the estimates. On the other hand, foundation grants and individual donations can be negatively correlated when they are jointly determined. For example, charitable organizations can seek foundation grants based on their existing individual contributions. In a year when a sum of private donations is lower than expected, charities may actively apply for foundation grants to make up for the difference. However, other years may be much more successful in raising private donations that charities decide not to engage in a potentially lengthy application process for funding from foundations. Another possible case is that foundations may consider the level of private donations when awarding grants to charitable organizations. Then, the estimates are likely to be biased downward. To address the endogeneity and omitted variable biases, I perform two-stage least squares (2SLS) estimation using a carefully selected set of instrumental variables.

6.2 Estimation Results

6.2.1 OLS Regressions

I determine the effect of foundation grants on two categories of private donations: private tax-receipted gifts and aggregate private donations. The results from the OLS estimation are presented in Table 4. The first three columns show the findings on the impact of foundation funding on private tax-receipted gifts, while columns (4) through (6) demonstrate this impact for aggregate private donations.

Estimates from simple OLS regressions without controls or charity fixed effects are presented in columns (1) and (4). In columns (2) and (5), I add control measures for age, education, religion, family composition, immigration status, family income, and the share of provincial party seats to capture differences in tastes for private giving by supporters of existing parties. I also incorporate year effects to account for time-varying local macroeconomic cycles. The charity time trend with its square term are included to control for changes that can occur at the charity and may be correlated with measures of private and foundation giving. Finally, charity fixed effects are added to the specifications presented in columns (3) and (6) to capture time-invariant heterogeneity.

Across the first three specifications, I find that on average an additional dollar of foundation grants increases private tax-receipted gifts in the range from \$3.6 to \$4.3. These results are significant at less than 5% level. The remaining three columns of Table 4 also illustrate that grants from foundations have a positive and a significant effect on aggregate private donations. While these findings provide evidence of a positive relationship between foundation grants and private donations, one has to be cautious about concluding that the two sources of funding are complements. Foundation grants and private donations are likely to be jointly determined or correlated with outside factors. As a result, OLS estimates may suffer from the endogeneity and omitted variable bias. For example, charities can seek foundation grants based on their existing private donations. Or some unexpected event such as a natural disaster can cause both private and foundation gifts to jointly change. To address these biases, I estimate preferred specifications from columns (3) and (6) using a two-stage least-squares (2SLS) estimation method with a carefully selected set of instrumental variables.

6.2.2 2SLS Estimation

A set of preferred specifications is estimated using limited information maximum likelihood (LIML) method as an alternative to the 2SLS method. While both methods produce asymptotically similar estimators, LIML is superior in the presence of weak instruments.

The main difficulty with 2SLS estimation is obtaining the set of instruments that predict gifts from other charities, but are uncorrelated with the error term of the structural equation. Given the richness of the dataset, I use several measures from foundation data to explore three types of instruments. Average assets and total investment income averaged across category codes is the first instrument. It is calculated as the sum of two components: a two-year average of total foundation assets multiplied by the current disbursement quota of 3.5% and total foundation investment, which is the sum of interest income, investment income and proceeds from disposition of assets.¹⁸ This measure of foundation assets and investment income is then averaged across category codes of all

¹⁸ Disbursement quota is a minimum calculated amount a registered charity is required to spend each year on gifts to qualified donees. Category code is a classification of a registered charity according to the mission it aims to fulfill as outlined in its mission statement.

foundations that make gifts to charities. The second instrument is total interest and investment income averaged across category codes of all foundations. Conceptually, the size of foundation assets and investment income can be used to proxy for the level of grants that foundations can potentially disburse in a given year. Finally, I obtain a measure of total foundation revenues (excluding private donations to foundations) within a province in which foundations operate. The level of gifts that charities receive can depend on the total pool of foundation funding available in a given province. These three instruments are summarized in Table 5.

In the first-stage regressions, I use different pairings of the three instruments. Their coefficients and F-statistics for joint significance are presented in Table 6. The first column includes only average foundation assets and total investment income averaged across category codes in a given year. Its coefficient is significant at less than 5% level with an F-statistic of 24.23 suggesting that this is a strong instrument. Column (2) reports the first stage results if average foundation assets and total investment income measure is paired with total foundation revenues. Both coefficients are individually strongly significant and the F-statistic for their joint significance is 12.32. In the third column, I include total interest and investment income averaged across category codes. This instrument is statistically significant at less than 5% level with an F-test of 24.48. Finally in column (4), I pair total foundation revenues within a province in which foundations operate with total foundation interest and investment income. The combination of these two instruments yields an F-statistic of 12.55. According to Stock, Wright and Yogo (2002), these instruments pass the F-statistic threshold test of being above a value of 10. Consistency with this standard is necessary for ensuring that selected instruments are strong predictors of the endogenous regressor (gifts from other charities) and the 2SLS inference is reliable.

The results of the LIML estimation shown in Table 7 suggest that foundation grants have a strong positive impact on private donations to social welfare and community organizations. I find that an additional dollar of foundation grants increases private tax-receipted gifts in the range from \$1.9 to \$2.1, while aggregate private donations increase in the range from \$2.6 to \$3. These findings are significant for both measures of private giving at p-value of less than 5%. Their reliability is further strengthened with results from the test of overidentifying restrictions. For

the first instrument set (columns (1) and (4) in Table 7), which includes only average foundation assets and total investment income, overidentification test cannot be performed. However, when it is combined with total foundation revenues (columns (2) and (5)), the test of overidentifying restrictions is 0.67 with a p-value of 0.4 for private tax-receipted gifts and 1.2 with a p-value of 0.3 for aggregate private donations. A combination of a low value of the test and its high p-value indicate that chosen instruments do not explain private tax-receipted gifts or aggregate private contributions. Columns (3) and (6) that present the results of the overidentification test for instrument set IV, which includes total foundation interest and investment income as well as total foundation revenues are also in favour of chosen instruments. Therefore, a \$2 increase in private donations in response to a one dollar in foundation grants suggests that the spillover effect of information about charities on individuals through foundation grants is quite strong.

6.2.3 Robustness Checks

I explore the robustness of a strong positive effect of foundation grants on private donations by performing several sensitivity checks (Table 8). The results are presented only for private tax-receipted gifts because they are similar for aggregate private donations. In the initial LIML specifications I estimate the impact of foundation giving in the current period on private giving in the same period. However, it is reasonable to assume that individuals may respond with a lag to information conveyed by foundation grants about charitable organizations. Therefore, I re-estimate the preferred specifications by lagging gifts from other charities by one period. I also use a first lag of the instrument set that includes total foundation interest and investment income averaged across category codes and total foundation revenues within a province in which foundations operate. I find that foundation grants as measured by gifts from other charities continue to have a strong positive impact on private tax-receipted gifts. The new point estimate is 3.66, which is significant at a p-value of less than 10%. This implies that even if foundations transfer gifts to charities one period earlier, they are able to positively influence individual decisions to donate in the current period. This further suggests that individuals may look to foundations for a signal about charity quality in the previous period in order to make informed charitable decisions in the current period.

The next two sensitivity checks relate to provincial and territorial differences in charitable giving. In particular, I estimate the effect of foundation grants on private giving by excluding charitable organizations located in Quebec (1,121 charities). Quebecers prefer to donate less and tax credits for donations do not serve as a motivational factor compared to individuals in other provinces.¹⁹ This may indicate that charities in Quebec are operating under a different scheme than other Canadian charities. I find that the effect of foundation grants on individual donations does not change.

Finally, I exclude 3 charitable organizations that operate in Yukon and Northwest Territories. Remote locations of these charities may suggest limited access to a pool of foundation funding. Also, charities in the territories may engage in different operational tactics than the rest of Canada. I continue to find a positive effect of foundation giving on private donations with a point estimate of 2.1 and a p-value of less than 5%.

7 Conclusion

Does foundation giving stimulate or suppress private donations to charitable organizations? I provide insight into how giving by foundations and individuals can be more than substitutes as the standard economic theory suggests. I show that when foundation grants act a signal of quality about a charitable public good, this enhances private giving to charities.

Theoretical modelling results in an ambiguous direction of the relationship between gifts from foundations and individual contributions because it depends on two countervailing effects. A positive information effect of foundation giving on private donations can offset the negative substitution effect. I perform an extensive empirical analysis to clarify the direction of the overall effect. For this, I use the data on 3,933 social welfare and community charitable organizations in Canada from 1997 to 2007.

The main contribution of this paper is in the unique creation of the dataset where gift revenues at the charity level are matched specifically with foundation grants obtained from the foundation level data. Access to the foundation level data also helps to obtain exogenous instruments that predict

¹⁹<http://www.charityvillage.com/cv/news/pdfs/QuebecVolunteering.pdf>

a measure of foundation grants at the charity level. The IV estimates suggest that, on average, an additional dollar of foundation grants increases private donations by \$2. The magnitude and the significance of this result still hold when it is subjected to several sensitivity checks to ensure the robustness of this finding. Thereby, the results of the empirical exercise lead to conclude that private givers may look to foundation grants as a signal of charity quality.

What public policies can be proposed to help support the positive relationship between foundation and private giving? It may be worthwhile to consider tax incentives for encouraging foundation giving. For example, in the UK, charities can reclaim the basic rate tax paid on the donation.²⁰ A similar approach can be adopted in Canada, where foundations can be allowed to reclaim tax credits. These can then be transferred to charities in the form of the gift.

Greater giving by foundations towards the charitable public good can be encouraged by creating favourable grounds for mission-related investing (MRI). Most Canadian foundations continue to finance grants through their investment income to promote their philanthropic goals. Their capital remains to be invested in the traditional markets. A recent report of the Task Force on Social Finance (2010) suggests that by investing 10% of total capital into MRI, foundations can maximize their impact in fulfilling their charitable missions.²¹ In the United States, many more foundations have already adopted this method of supporting charitable goals.

Since private givers may used foundation grants as a signal of charity quality, individuals may greatly benefit from having better access to information about these gifts. Governments can help to create a transparent and easily accessible donation registry so that private givers can make informed charitable decisions. Moreover, active charities can use the receipt of foundation grants as a fundraising tool to attract even more individual donations. The role of charitable foundations as active contributors to a charitable public good has been largely unexplored and many interesting questions remain unanswered. One possible extension of the current work is to establish whether private giving by other charity types will be impacted similarly by foundation grants as observed for social welfare and community charities.

Another avenue for future research involves relaxing the assumption about charity's passive

²⁰For example, with a 20% basic tax rate and a 10 pound donation, a charity can reclaim 12.5 pounds.

²¹<http://socialfinance.ca/taskforce/report>

role in attracting donations as assumed in this paper. Individuals learned about the quality of a charitable organization through foundation giving. When the charity is active, it engages in fundraising through which individuals can additionally learn about a particular charity and its mission. An interesting question is how foundation giving affects fundraising activity of charities in Canada. Preliminary theoretical derivations suggest that fundraising efforts increase in response to greater foundation giving. However, an extensive empirical investigation is required to obtain further insight into this question.

In summary, the question about foundation giving and its impacts on giving by other participants of the charitable sector should receive more attention. The main message of recent policy debates is that more social responsibility will be placed on charities, which may require them to review their sources of financial support from donors other than the government.

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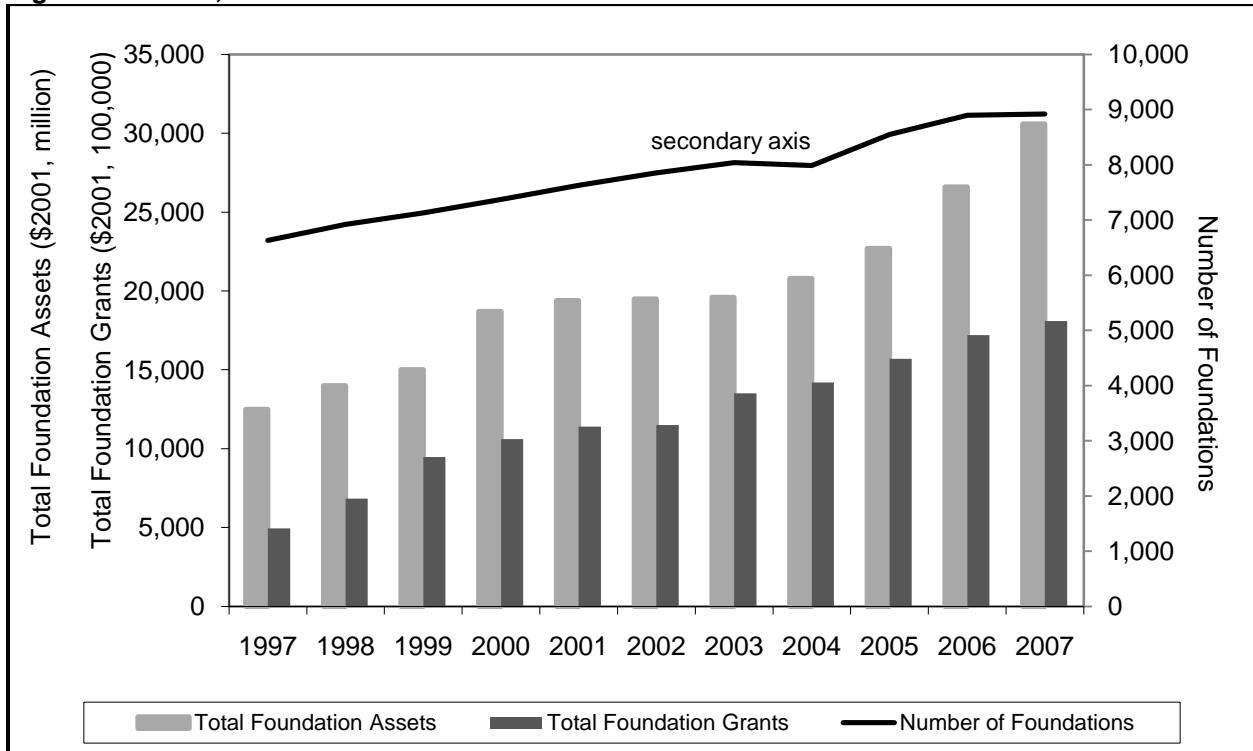
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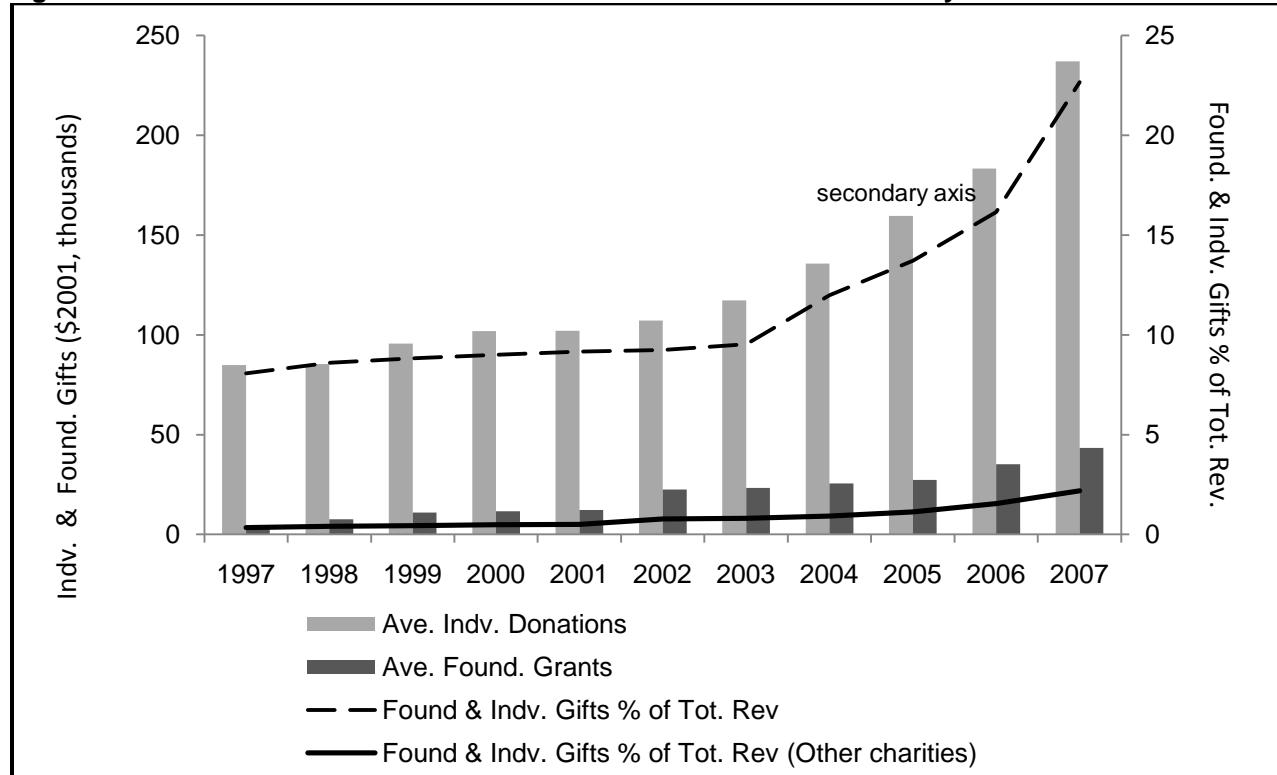
Foundation and Private Giving

Figure 1: Assets, Grants and the Number of Canadian Foundations



Notes: Total foundation assets and total foundation grants are obtained from a sample of 11,012 foundations. Total foundation grants are made to all types of registered charities.

Figure 2: Individual and Foundation Gifts of Social Welfare and Community Charities



Notes: Individual and foundation grants are obtained from a sample of 3,933 social welfare and community charities. Foundation and individual gifts as a share of total revenues for other charity types is obtained from a sample of 15,205 charities.

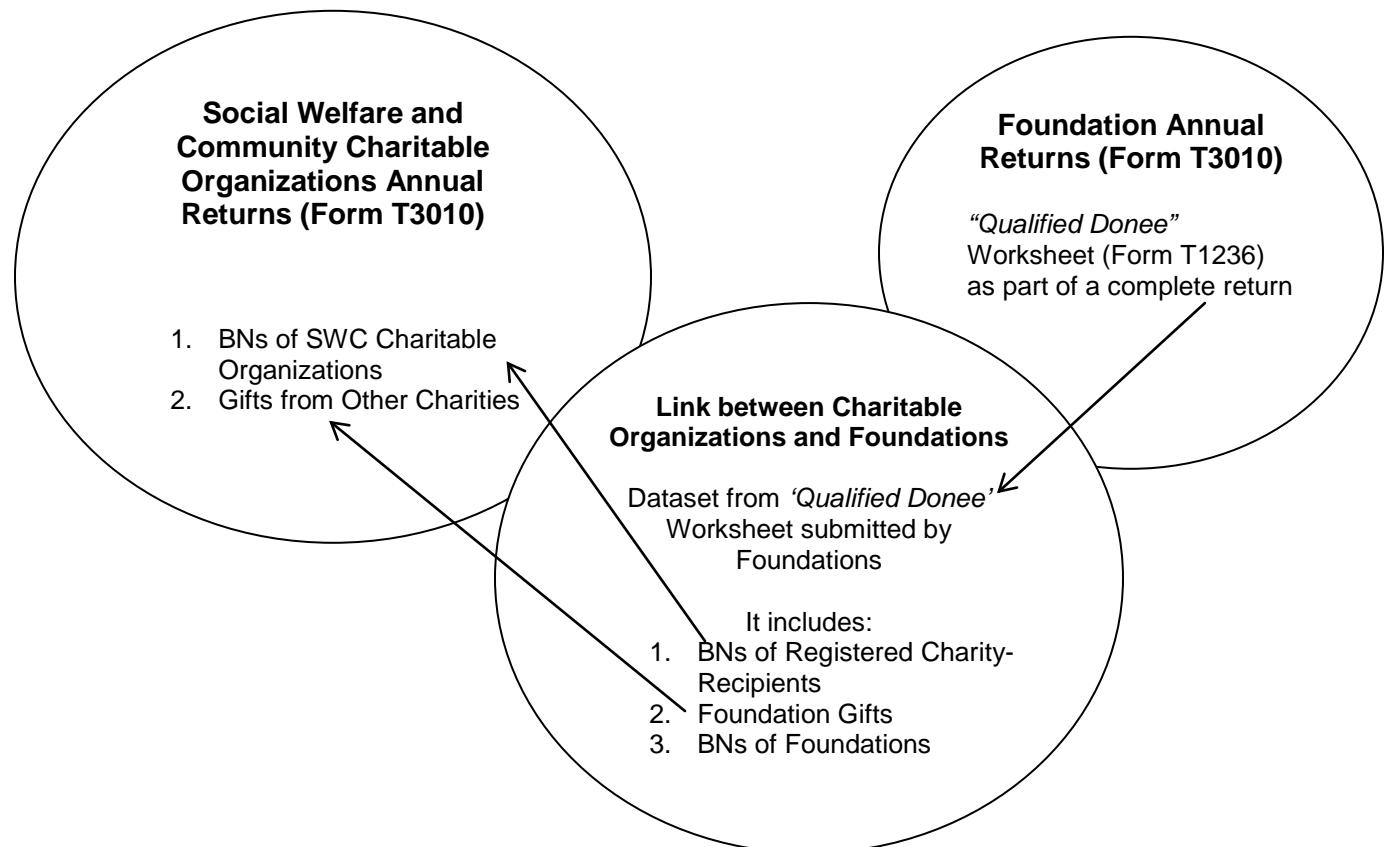
Snapshot of Data Creation

Table 1: Sample Restrictions

	Number of Char. Org.
Social welfare and Comm. Char. org. for 1997 to 2007	24,400
Exclusions:	
1. Always zero private tax-receipted gifts	3,951
2. Always zero gifts from other registered charities	9,565
3. Always operate outside of Canada	413
4. Always inactive during the fiscal period	14
5. Less than 3 observations	410
Sample for merging with foundations data	10,047

SWC organizations that match with foundations data	SWC organizations that do not match with foundations data
3,933	6,114
Always receive gifts from other charities – 59	Always receive gift from other charities – 2,879
Sometimes receive gifts from other charities – 3,874	Sometimes receive gift from other charities – 3,235

Figure 3: Data Matching Process



Summary Statistics

Table 2 : Summary Statistics of Social Welfare and Community (SWC) Charitable Organizations

(\$2001, thousands)	SWC Charitable Organizations that match with Foundations dataset				SWC Charitable Organizations that do not match with Foundations dataset			
	3,933 Charitable Organizations				6,114 Charitable Organizations			
	Mean	Std. Dev.	CV	Median	Mean	Std. Dev.	CV	Median
Private tax-receipted gifts	128.3	2,611.0	20.4	13.4	12.8	75.9	5.9	8.9
Private tax-receipted gifts + Revenues from fundraising	164.3	2,634.0	16.0	25.7	23.3	92.5	4.0	19.7
Gifts from other registered charities	66.5	471.8	7.1	4.7	10.8	52.4	4.9	3.5
Total assets	1,187.6	5,550.6	4.7	149.6	360.9	1,426.0	4.0	187.8

Table 3: Summary Statistics of Economic and Political Measures

	Mean	St. Dev.	Quantile Amounts		
			25%	50%	75%
<i>Demographic and Economic Measures</i>					
% between 35-54 years old	30.4	3.8	28.7	30.4	32.3
% between 55-64 years old	10.2	2.1	8.7	10.0	11.4
% 65 years old and above	14.6	4.2	11.8	14.5	17.3
Total population ('000)	27,536	17,638	16,457	23,653	33,008
% with post-secondary diploma	18.5	11.8	9.7	14.3	24.3
% catholic	41.9	26.7	21.8	30.8	61.4
% protestant	28.1	18.8	10.8	28.8	41.7
% other religion	7.5	9.5	1.1	3.9	10.5
% immigrants	18.4	11.8	6.2	14.8	26.4
% one parent families	4.5	1.3	3.6	4.4	5.3
Family income (\$2001)	66,022	27,391	51,920	59,687	71,041
<i>Political Measures (provincial level)</i>					
% of liberal seats	44.2	24.4	23.1	38.4	60.8
% of conservative seats	26.4	28.9	0.0	23.3	57.3
% of other party seats	29.4	25.7	6.8	13.8	56.0
Total party seats	98.5	24.7	79	103	125
Number of Neighbourhoods (FSAs)	1,057				
Number of Charitable Organizations	3,933				
Number of Observations	37,655				

Estimation Results

Table 4: OLS Regressions

Independent Variables	Dependent Variable: Private Tax- Received Gifts (\$2001)			Dependent Variable: Aggregate Private Donations (\$2001)		
	(1)	(2)	(3)	(4)	(5)	(6)
Gifts from other charities (\$2001)	3.642 (1.906)	3.678 (1.921)	4.295 (1.705)	3.812 (1.740)	3.844 (1.770)	4.306 (1.892)
<i>Economic Measures</i>						
% between 35-54 years old		1.600 (12.51)	-4.099 (11.39)		3.889 (11.99)	-7.936 (11.16)
% between 55-64 years old		17.44 (14.47)	0.360 (15.00)		13.11 (14.12)	-0.361 (15.31)
% 65 years old and above		-7.234 (8.803)	9.280 (11.82)		-7.134 (8.745)	5.423 (11.80)
Total population ('000)		-480.8 (635.8)	2,780 (3,172)		-449.2 (652.5)	3,163 (3,181)
% with post-secondary diploma		-5.338 (5.118)	0.164 (4.215)		-4.924 (4.992)	0.281 (4.324)
% catholic		0.179 (1.555)	7.294 (5.052)		0.321 (1.564)	8.421 (5.092)
% protestant		0.692 (2.853)	-2.595 (1.845)		1.148 (2.633)	-3.08 (1.846)
% other religion		-4.517 (4.549)	6.086 (6.462)		-4.962 (4.745)	7.221 (7.026)
% immigrants		-0.0143 (2.580)	0.563 (5.413)		0.346 (2.535)	0.0280 (5.494)
% one parent families		-27.63 (19.31)	-61.43 (26.34)		-23.39 (18.90)	-60.63 (26.67)
Family income (\$2001)		-2.274 (2.619)	-0.915 (1.833)		-1.911 (2.627)	-0.951 (1.842)
<i>Political Measures</i>						
% of Liberal Party seats		865.6 (906.0)	-145.4 (393.7)		955.0 (896.3)	-286.0 (392.3)
% of Conservative Party seats		-110.9 (1,052)	-627.6 (948.7)		96.72 (1,010)	-1,169 (959.6)
Total party seats		-300.2 (746.8)	1,963 (1,589)		-192.1 (716.1)	1,792 (1,594)
Year effects	No	Yes	Yes	No	Yes	Yes
Charity time trend (with its square)	No	Yes	Yes	No	Yes	Yes
Char. Organ. Fixed Effects	No	No	Yes	No	No	Yes
Observations	37,655	37,655	37,655	37,655	37,655	37,655
Number of Char. Organ.	3,933	3,933	3,933	3,933	3,933	3,933
R-squared	0.433	0.436	0.538	0.466	0.468	0.538

Notes: "Gifts from other charities" is linked to foundation grants. Coefficients in bold are significant at 5% or less and coefficients significant at 10% are in italics. Robust standard errors are presented in parentheses and they are clustered at the charity level.

Table 5: Description of Instrumental Variables

Short Instrument Title	Description of instruments
1. Average assets and investment income of a set of foundations (that make gifts to charities) across category codes in a given year	The value of the instrument is calculated as follows: two-year average of total foundation assets *0.035 (current disbursement quota) + total foundation investment. Total investment is calculated as the sum of interest and investment income and proceeds from the disposition of assets. Then average assets and investment income measure is averaged across category codes of all foundations that make grants to charities.
2. Average investment income of a set of foundations (that make gifts to charities) across category codes in a given year	Interest and investment income is averaged across category codes of all foundations that make grants to charities.
3. Total revenues of a set of foundations (that make gifts to charities) within a province in a given year	Total foundation revenues (excluding private donations) across all foundations that make gifts to charities within a province in which foundations operate.

Table 6: First Stage IV Regressions

	Dependant Variable: Gifts from other charities (\$2001)			
Instrumental Variables (\$2001)	<i>Instrument Set I</i>	<i>Instrument Set II</i>	<i>Instrument Set III</i>	<i>Instrument Set IV</i>
1. Average assets and investment income of foundations across category codes in a given year	0.021 (0.0042)	0.018 (0.004)		
2. Average investment income of foundations across category codes in a given year			0.034 (0.007)	0.029 (0.006)
3. Total foundation within a province in a given year		0.035 (0.021)		0.035 (0.021)
F-test on excluded instruments (p-value)	24.23 (0.00)	12.32 (0.00)	24.48 (0.00)	12.55 (0.00)
Observations	37,655	37,655	37,655	37,655
Number of Char. Org.	3,933	3,933	3,933	3,933
R-squared	0.0025	0.0026	0.0025	0.0026

Notes: Coefficients are from a LIML estimation. Coefficients significant at 5% or less are in bold, at 10% are in italics. Standard errors are robust and clustered at the charity level. All estimations include covariates, year effects, charity time trend and charity fixed effects.

Table 7: Second Stage IV Regressions

Independent Variables	Dependent Variable: Private Tax-Received Gifts (\$2001)			Dependent Variable: Aggregate Private Donations (\$2001)		
	(1)	(2)	(3)	(4)	(5)	(6)
Gifts from other charities (\$2001)	1.921 (0.573)	2.153 (0.687)	2.140 (0.668)	2.681 (0.659)	3.036 (0.834)	2.967 (0.801)
<i>First Stage Results</i>	<i>Instrument Set I</i>	<i>Instrument Set II</i>	<i>Instrument Set IV</i>	<i>Instrument Set I</i>	<i>Instrument Set II</i>	<i>Instrument Set IV</i>
F-test (p-value)	24.23 (0.00)	12.32 (0.00)	12.55 (0.00)	24.23 (0.00)	12.32 (0.00)	12.55 (0.00)
Overidentification test (p-value)	-	0.67 (0.41)	0.65 (0.42)	-	1.18 (0.28)	1.27 (0.26)
Observations	37,655	37,655	37,655	37,655	37,655	37,655
Char. Org. Fixed Effects	3,933	3,933	3,933	3,933	3,933	3,933
R-squared	0.37	0.40	0.40	0.45	0.49	0.49

Notes: Coefficients significant at 5% or less are in bold. Standard errors are clustered at the charity level.

Table 8: Second Stage IV Regressions – Sensitivity Checks

Independent Variables	Dependent Variable: Private Tax-Received Gifts (\$2001)		
	Lagging Gifts from other Charities	Excluding Charities in Quebec	Excluding Charities in Yukon and North West Territories
First lag of gifts from other charities (\$2001)	3.659 (1.948)	-	-
Gifts from other charities (\$2001)	-	2.307 (0.793)	2.146 (0.672)
<i>First Stage Results</i>	<i>Lag of Instrument Set IV</i>	<i>Instrument Set IV</i>	<i>Instrument Set IV</i>
F-test (p-value)	9.57 (0.00)	9.16 (0.00)	12.50 (0.00)
Overidentification test (p-value)	1.72 (0.19)	0.99 (0.32)	0.67 (0.41)
Observations	33,722	27,074	37,625
Char. Org. Fixed Effects	3,933	2,812	3,930
R-squared	0.230	0.430	0.4

Notes: Coefficients significant at 5% or less are in bold, at 10% are in italics. Standard errors are clustered at the charity level.