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

Iryna Khovrenkov

Abstract
As non-governmental providers of public goods, charities are funded by governments and also by individuals and foundations. How do foundation grants to charities affect private donations to these organizations? The standard economic theory on voluntary contributions to the public good hypothesizes that foundation giving will crowd out private donations. An alternative giving dynamic may arise whereby foundations act as complements to private donations because they can provide a signal of charity quality to individuals and thereby influence their decisions to give. This article offers a rigorous empirical analysis of the relationship between foundation and private donations by utilizing a unique data set on Canadian social welfare and community charities matched with their foundation donors. Empirical findings confirm that an additional dollar of foundation grants to charities crowds in private giving by three dollars on average,

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suggesting that private donors may look to foundation grants for information on charities to make informed giving decisions.

**Keywords**
charitable foundations, signaling, crowd in, private giving

Charitable donations from individuals can achieve extraordinary results when they are joined by foundations in achieving a common purpose. At an international level, for instance, private donors to Rotary International and the Gates Foundation have combined their efforts to raise US$425 million for polio eradication (Pope 2011). At a community level, individual givers and St. Joseph’s Healthcare Foundation (in the small Canadian city of Hamilton) together collected CAD$75 million for better hospital care (St. Joseph’s Foundation 2011). Although researchers claim that foundation grants and private donations to charities are positively correlated (Porter and Kramer 1999), is there a causal connection insofar as foundation giving prompts private giving? As the first study of its kind, this article offers a rigorous empirical analysis of the relationship between foundation grants and individual giving using a rich panel of Canadian social welfare and community charitable organizations matched with their foundation donors.

According to the standard economic theory on voluntary contributions to the public good, foundation giving will crowd out private donations (Varian 1994). I explore whether an alternative giving dynamic may arise whereby foundations act as complements to private donations rather than as substitutes. As posited by Rose-Ackerman (1980, 1981) and later claimed by Andreoni (2006), institutional donors, such as foundations, have better access to information on charities or can obtain it at a significantly lower cost than individuals. Given a large number of charities, how can one have good knowledge about the quality of services that these organizations provide? By transferring grants to charities, foundations can provide a signal of charity quality to individuals and thereby influence their decisions to give.

Most of prior empirical research that examines the relationship between two sources of funding in the presence of incomplete information on charity quality has primarily focused on government grants’ signaling quality of the charitable public good (Heutel 2014; Jack and Recalde 2015; Payne 2001). These studies establish that, when private donors look to government funding for information on the charity, the relationship between government
funding and individual donations is complementary. Goddfried (2008), on the contrary, examines the relationship between two sources of private giving, whereby nonalumni private donations (from parents, corporations, or foundations) signal institutional quality to alumni givers. Using panel data on US universities, he is able to establish separate effects of donations by parents, corporations, and foundations (defined as nonalumni) on alumni contributions. He concludes that a 1 percent increase in foundation grants leads to a 3 percent increase in alumni donations. One previous study where individuals look specifically to a foundation for information about a charity is performed by Karlan and List (2012). In a field setting, they analyze the effect of giving by the Gates Foundation on private donations to TechnoServe, a charity that supports poverty reduction. They find that, in providing grants to a lesser-known charity, the Gates Foundation signals charity quality to smaller donors, which not only encourages donations from existing donors but also significantly increases the probability of donating by new donors.

In this article, I move beyond the *one foundation–one charity* setting and compile a unique panel on social welfare and community charitable organizations in Canada to study the relationship between foundation and private giving. I base the empirical analysis on the annual tax filings of 5,688 social welfare and community charities with the Canada Revenue Agency (CRA) between 1997 and 2008. A unique feature of Canadian data compared to similar US administrative data is that it classifies giving to charities into three separate categories: donations from individuals, institutional grants, and government funding. In the United States, donations from individuals and institutional donors appear as one category, “direct public support” (Heutel 2014). Moreover, Canadian data provide much richer and more precise financial information on charities. To capture all forms of private giving, I use both tax-receipted gifts and revenues from fund-raising. Tax-receipted gifts, which serve as the first measure of private giving, include all charitable gifts for which charities issue tax receipts. For the aggregate measure of private giving, I combine tax-receipted gifts with revenues from fund-raising, which consist of proceeds from individuals when charitable organizations sell goods as part of their fund-raising campaigns (e.g., charitable events). As a measure of foundation grants, I use the *gifts from other charities* reported by charitable organizations on their annual returns. This measure includes both gifts from foundations and gifts from other charitable organizations. With separate CRA data on foundations, I can match the charity gift revenues with the grants that charities receive from foundations. This matching exercise
makes it possible to identity a more accurate part of the gifts from other charities.

In addition to the administrative data piece, I integrate Canadian Census data with data on provincial elections to control for the time-varying socio-economic and political characteristics of the neighborhoods in which charities operate. Because Canadian Census is performed every five years rather than every ten years and is reported on a finer census block than in the United States, the data more accurately reflect the demographic changes associated with a geographical area. With a complete panel on social welfare and community charities, I can exploit the charity-specific effects to capture time-invariant quality differences.

I begin the empirical analysis with an ordinary least squares (OLS) estimation of the relationship between private and foundation giving. Although I find a positive and strongly significant effect, I recognize that foundation grants and private donations are likely to be jointly determined, leading to endogeneity. To address the endogeneity issue, I perform a two-stage least squares estimation. As instruments, I use measures that are derived from the data on foundations to proxy for the pool of foundation funding in all of the years of charity operations. The empirical results confirm a positive impact of foundation grants on all measures of private giving. An additional dollar of foundation grants, on average, increases private donations by three dollars. The robustness of this effect is ensured by testing it across various specifications and subjecting it to multiple sensitivity checks. These findings suggest that private donors may look to foundation grants for information on charities to make informed giving decisions.

The remainder of the article is structured as follows. The next section motivates the empirical analysis by reviewing related theoretical and empirical literature. The third section describes the step-by-step creation of the working data set. The fourth section discusses the empirical methodology, presents key findings, and demonstrates their validity with various robustness checks. The last section presents the study’s conclusions.

Theoretical Motivation and Empirical Background

Theoretical and empirical literature that examines how donors interact when contributing to the public good is constantly expanding. A large body of this literature is particularly devoted to explaining the relationship between private donations and government grants as the key sources in funding the provision of public goods. Even in the narrow scope of this
relationship, the spectrum of conclusions is wide. For example, early theories (Bergstrom, Blume, and Varian 1986; Warr 1982) and one empirical study (Andreoni and Payne 2011a) argue that government funding to charities decreases private donations dollar for dollar. 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 empirical work, however, provides support for either partial crowd out (Andreoni and Payne 2003; Gruber and Hungerman 2007; Kingma and McClelland 1995; Payne 1998; Simmons and Emanuele 2004; Steinberg 1985) or no crowd out at all (Khanna, Posnett, and Sandler 1995; Reece 1979). Interpretations of these results are also quite diverse, extending from warm glow (Andreoni 1989) to social pressures (DellaVigna, List, and Malmendier 2012).

Early theoretical models and many empirical studies, despite offering useful insights for understanding donative behavior, assume that agents have perfect information about the quality of the public good. A stream of literature describing a more realistic environment where donors have incomplete information about the public good begins with Rose-Ackerman (1980, 1981). She posited that individual decisions to support charitable programs may depend on their knowledge about these programs. Since individuals face greater time and financial costs to gather information about charities, they may prefer to opt out from giving. Institutional donors (e.g., governments or foundations) may be more able to undertake the expense of learning about charity-specific information. This information about charity quality can then be conveyed to individuals through institutional grants.

Formal economic modeling of asymmetric information in organizations has been initiated by Hermalin (1998). He shows that, under symmetric information about the marginal product of effort, everyone in the organization free rides. Under the asymmetric information, however, the leader can transmit information about the effort by exerting full effort himself or herself, which signals to workers that effort has a higher marginal product. Applying Hermalin’s logic to public goods, Vesterlund (2003) argues that donors with incomplete information about the quality of the public good can acquire sufficient information from the lead donor. Modeling sequential contributions to the public good, Vesterlund finds that, through information revelation, one donor can encourage additional giving from other donors.\(^1\) Andreoni (2006) extends Vesterlund’s analysis and argues in favor of Rose-Ackerman’s earlier proposition that institutional donors are better equipped to signal charity quality because they have better access to charity
information or can obtain it at a significantly lower cost than individuals. One means by which they do so is from the grant applications submitted by charitable organizations to foundations or governments. Another and more specific to foundations is by connecting with charities that operate in the same charitable area as the foundations (Thornton, 2010).

Empirical literature that examines how one source of funding stimulates giving by signaling information about charity quality to another source is just developing. Among only a few are studies that use panel data to examine the change in private donations in response to contributions by other donors. Within a postsecondary sector, Payne (2001) investigates the effect of federal research funding on private donations for both research and nonresearch universities where government grants may be used as a signal of university’s research quality. 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 for individuals. Using data on 577 universities between 1972 and 1997, Payne finds that an additional dollar of federal funding to research universities, on average, increases private donations by 65 cents. This suggests that the effect of signaling research quality outweighs the traditional crowd out effect.

While also exploring the relationship between two sources of funding to universities, Goddfried (2008) studies how alumni giving responds to contributions from nonalumni donors such as parents, corporations, or foundations. Relying on a panel of 1,422 US universities from 1995 to 2006, Goddfried concludes that a 1 percent increase in foundation giving increases alumni donations by 3 percent. His findings also offer supporting evidence of a positive information effect.

More recently, Heutel (2014) has analyzed the relationship between private donations and government grants for a panel of over 29,000 social service charities in the United States. He argues that if the government signals higher quality through higher funding, then government grants can cause higher private donations. He finds that, on average, an additional dollar of government grants leads to an increase in private donations by 30 cents. Heutel concludes that government grants possibly signal information about the quality of the charity, thereby enhancing private giving.

In an article closely related to mine, Karlan and List (2012) examine the relationship between foundation grants and private giving to a charity while utilizing a field experiment approach. Particularly, they analyze the effect of giving by the Gates Foundation on private donations to TechnoServe, a charity supporting poverty reduction. They find that in providing grants to a lesser-known charity, the Gates Foundation signals charity quality to
smaller donors. This not only encourages donations from existing donors, but it also significantly increases the probability of donating by new donors. In my article, I move beyond the “one foundation one charity” setting and use panel data on social welfare and community charities matched with their foundation donors to offer new evidence on signaling charity quality and voluntary contributions to the public good.

**Data on Social Welfare and Community Charities**

All charities in Canada must register with the CRA to receive an income tax exemption, issue tax receipts for individual donations, and receive grants from other registered charities. Upon registration, the CRA classifies charities into charitable organizations and foundations. Charitable organizations are primarily engaged in providing a range of public goods and services, whereas foundations devote their activities to raising funds and allocating them as grants to other registered charities. Additionally, the CRA assigns all charities into six broad categories based on their mission statements: social welfare, community, religious, health, education, and other (arts, culture, and organizations supporting other purposes). The CRA mandates that all registered charities file an annual return (form T3010) within six months of the end date of their fiscal periods. Failure to comply with these regulations leads to the revocation of the charity’s registered status. The return includes detailed information on charitable activities, fund-raising, and financial operations. The CRA data collect richer financial information on Canadian registered charities compared to the Internal Revenue Service (IRS), which offers similar administrative data on non-profit organizations (form 990) in the United States.

Because the available data from the CRA are collected for administrative purposes only, I prepare these data for a research study in the following manner. At the initial cleaning stage, I appropriately convert negative values into positive values and express them in 2001 dollars. I also include information that approximately reflects a 12-month period (capturing more than 10 months and less than 14 months). Next, I use the CRA classification system to extract all charitable organizations that serve social welfare and community purposes. Specifically, I focus on the following categories: care, welfare (three codes), community (three codes), and recreation. Studying one type of charity is considered a common practice in the empirical literature because charities are different in many respects, from their operational design to the types of donors that support these organizations (Andreoni and Payne 2011b; Heutel 2014). The initial sample includes over
25,000 unique social welfare and community charitable organizations for the 1997 to 2008 period.\(^5\)

From the charity annual returns, I collect three revenue measures for my analysis. The first measure is tax-receipted gifts, which includes all charitable donations for which charities issue tax receipts to individuals and serves as the first measure of private giving.\(^6\) The second measure is revenues from fund-raising, which represents individual contributions collected at charitable events.\(^7\) I combine this measure with tax-receipted gifts to create the aggregate measure of private giving. Finally, gifts from other charities is a revenue measure that combines gifts from foundations and other charitable organizations. This revenue indicator is used to create a measure of foundation giving. This decomposition of giving from private donors such as individuals and institutions (foundations, other charities, etc.) is a unique feature of the CRA data. Similar US administrative data do now allow for such differentiation, thus limiting one’s ability to perform this type of analysis (Heutel 2014).

The manner in which charities collect gifts and perform their charitable activities varies across the neighborhoods in which these charities operate. To capture the differences in the socio-economic and political characteristics across neighborhoods, I integrate data from two additional sources via postal codes obtained from the charity annual returns. First, I use Canadian Census data for the years 1996, 2001, and 2006. Continuity between years is achieved with linear interpolation.\(^8\) This action captures the time-varying characteristics of the forward sortation area, which is a rough approximation of an 8,000-household neighborhood.\(^9\) Second, I use general elections data to obtain measures of political party affiliation.\(^10\) Doing so is necessary to capture the differences in political affinities that may be reflected in general giving trends.

I impose additional restrictions on the sample of social welfare and community charitable organizations to further ensure the quality of the working data set. First, I exclude 2,407 charitable organizations that always report zero aggregate private donations (tax-receipted gifts and revenues from fund-raising). Second, I eliminate 812 charitable organizations that always report operating outside of Canada because I am focusing on the local provision of public goods. Third, I exclude 191 charities that have reported zero revenues, assets, and expenses for more than three years. While inactive, charities are still required by law to file their information returns to maintain their registered status. My final exclusion consists of 1,525 charitable organizations that have fewer than three years of observations. This restriction ensures a certain degree of continuity in charity
operations. After the last restriction, I arrive at a sample of 20,150 charitable organizations.

The next step is to perform a matching exercise in which the cleaned sample of charitable organizations is matched with their foundation donors. To that end, I use data on foundations from their tax filings between 1997 and 2008. In particular, I rely on the Qualified Donee Worksheet (form T1236), which collects information on their gift recipients by unique registration numbers and charity names, and specific gift amounts transferred to other registered charities (see Online Appendix for a snapshot of this worksheet). First, I match 20,150 social welfare and community charitable organizations with their foundation donors via the unique business numbers of these charities. A charity is defined as “matched” if a foundation in the current database reports having transferred a grant to a charitable organization in at least one year. I arrive at 5,688 charities that satisfy the matching criterion, while the remaining 14,462 charitable organizations cannot be matched, which are further explored in the section on robustness checks. Summary statistics for the three samples (total, matched, and unmatched) can be found in the Online Appendix.

Second, I review how accurately the original measure of gifts from other charities is linked to specific grant amounts transferred by foundations. There are a few instances, however, when the value of the gifts from other charities cannot be reconciled with the amounts reported by foundations. First, it is possible that some of the non-matched revenue comes from other charities and not foundations. Through this procedure, I match a part of the revenue from other charities that is potentially more accurate because foundations tend to establish rigorous competitions for their funding. Charities, however, may be affiliated, which means that they may develop a relationship in which one transfers gifts to the other on a regular basis. If their revenues are correlated with some unobservable, then the result may be an omitted variable bias. Second, some of the non-matched revenue may result from the data collection issue. Here, I can use aggregated measures from the foundation data to create instruments that represent a potential pool of foundation funding. Finally, there are 1,056 charities that never report receiving positive gifts from other charities, with foundations reporting having given a positive gift in at least one year. For the years in which I observe a positive gift from a foundation, I replace zero gifts from other charities with the positive gift. I argue that foundations may be more diligent in keeping records of transferred gifts due to their disbursement quota obligations. I exclude these charitable organizations as part of my robustness checks, the results from which are presented in the Online Appendix.
Empirical Analysis and Results

Empirical Specification

For the empirical analysis, I focus on a panel of 5,688 social welfare and community charitable organizations in Canada. I estimate the impact of foundation giving on private donations to these charities using the following empirical equation:

\[
\text{Private donations}_{ct} = \alpha_c + \gamma_t + \beta \times \text{Gifts from other charities}_{ct} + \lambda \times \text{Charity characteristics}_{ct} + \varepsilon_{ct}.
\]  

(1)

The variable \(\text{Private donations}_{ct}\) refers to all private donations to a charitable organization \(c\) at time \(t\). As defined in the section on data on social welfare and community charities, tax-receipted gifts and aggregate private donations represent two measures of private giving, whereas \(\text{Gifts from other charities}_{ct}\) is a measure of foundation giving. The empirical specification also includes \(\text{Charity characteristics}_{ct}\), which control for the socio-demographic and political characteristics of the neighborhoods in which charitable organizations operate. These variables include the total population and the shares of the population who are less than 19 years old, between 55 and 64 years, 65 years and older, those with a postsecondary diploma, and those who are immigrants. I also control for average family income with its square term. As a proxy indicator for wealth in the neighborhood, I use the percentage of owned occupied dwellings (Choudhury and Hartman 2015). For political measures, I use the shares of provincial party seats. Summary statistics for these measures are presented in table 1.

All regressions include charity fixed effects to capture time-invariant charity characteristics and year effects to control for time-varying local macro-level trends. Finally, I incorporate the charity-specific time trend and its square term to capture changes that may be occurring at the charity and that may be correlated with individual and foundation gifts. \(^{11}\)

Empirical Strategy

The relationship between foundation and private giving that is captured by \(\beta\) in equation (1) is likely to be endogenous. The endogeneity issue can arise because both foundation and individual gifts can be jointly determined. On one hand, if both sources of funding increase in response to an unexpected event such as a natural disaster, then the estimates will have an upward bias. On the other hand, the estimates can be biased downward if foundation
grants and private donations are negatively correlated. For example, charitable organizations can seek foundation grants based on their existing individual contributions. In a year when combined private donations are lower than expected, charities may actively apply for foundation grants to compensate for the difference. During years in which they are successful in attracting private donations, charities may decide not to apply for foundation funding. Another possible case is that foundations may consider the level of private donations when transferring gifts to charitable organizations. Choosing an empirical strategy that will adequately overcome these biases is an important next step.

Previous literature has found that the most common way to address the issue of endogeneity is to implement an instrumental variable strategy (for reviews, see Bredtmann 2016; Ribar and Wilhelm 2002). A few scholars have relied on alternate empirical approaches to address endogeneity such as lagged values and experiments. For example, Khanna, Posnett, and Sandler (1995) regressed lagged values of government grants (and other

Table 1. Summary Statistics of Socio-economic and Political Measures.a

<table>
<thead>
<tr>
<th>Socio-economic and Political Measures</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>25th Percentile</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Charitable Organizations: 5,688</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic and economic measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% less than 19 years old</td>
<td>22.42</td>
<td>5.82</td>
<td>19.50</td>
<td>26.22</td>
</tr>
<tr>
<td>% between 55 and 64 years old</td>
<td>10.47</td>
<td>2.19</td>
<td>8.92</td>
<td>11.83</td>
</tr>
<tr>
<td>% 65 years and older</td>
<td>14.74</td>
<td>4.22</td>
<td>11.97</td>
<td>17.46</td>
</tr>
<tr>
<td>% with postsecondary diploma</td>
<td>18.29</td>
<td>11.71</td>
<td>9.60</td>
<td>23.66</td>
</tr>
<tr>
<td>% immigrants</td>
<td>17.30</td>
<td>15.15</td>
<td>4.88</td>
<td>24.43</td>
</tr>
<tr>
<td>Total population (thousands)</td>
<td>28.03</td>
<td>18.35</td>
<td>16.61</td>
<td>33.42</td>
</tr>
<tr>
<td>Family income (CAD$2001, thousands)</td>
<td>66.92</td>
<td>28.18</td>
<td>52.77</td>
<td>71.93</td>
</tr>
<tr>
<td>Family income square (CAD$2001, millions)</td>
<td>5.270</td>
<td>8.470</td>
<td>2.780</td>
<td>5.170</td>
</tr>
<tr>
<td>% of owned occupied dwellings</td>
<td>57.96</td>
<td>20.78</td>
<td>42.72</td>
<td>75.69</td>
</tr>
<tr>
<td>Political measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of liberal party seats</td>
<td>41.22</td>
<td>25.27</td>
<td>23.08</td>
<td>60.80</td>
</tr>
<tr>
<td>% of new democratic party seats</td>
<td>12.20</td>
<td>18.41</td>
<td>0.00</td>
<td>72.41</td>
</tr>
<tr>
<td>% of parties other than conservatives</td>
<td>16.96</td>
<td>24.86</td>
<td>0.00</td>
<td>39.20</td>
</tr>
</tbody>
</table>

aAuthor’s computations. The total number of neighborhoods (forward sortation areas [FSAs]) is 1,020 and the total number of observations is 61,187.
explanatory variables) on current voluntary contributions to deal with the endogeneity issue. Later, Khanna, and Sandler (2000) criticized this approach for its inability to accurately reflect the nature of fund-raising campaigns where government support is advertised as it occurs in the present versus the past. Ribar and Wilhelm (2002) also commented on the instrumental variables approach as being more convincing than the “lag identification.” Recently, Bellemare, Masaki, and Pepinsky (2017) concluded that the use of lagged independent variables to overcome endogeneity issues is highly problematic as they lead to inaccurate inferences.

Laboratory experiments, while valuable and informative, have an important limitation of potentially lacking external validity outside of the lab (Shang and Croson 2009). The question that remains about field experiments, which are an important research tool for studying charitable giving and addressing existing concerns with laboratory experiments, is their generalizability (Harrison and List 2004).

Even if an instrumental variable approach is more defensible, the challenge of the endeavor is in selecting intuitively convincing and empirically valid instruments. One possible way to overcome this challenge is to build on the instruments that have been used previously. The instruments from many existing works, however, are specifically derived to establish a causal relationship between government grants and private donations. They would not be justified to determine the effect of foundation grants on private donations. A summary of instruments used in the literature since 1998 can be found in the Online Appendix.

The robustness of the findings depends on whether the selected instruments can predict gifts from other charities and remain uncorrelated with the error term in the structural equation for private giving. To ensure the desired exogeneity of the instruments, I use foundation-level data on assets and revenues to create measures that reflect the total foundation funding available to charitable organizations. The main goal of these instruments is to ensure that a given charity has access to the pool of foundation money even in the years in which it reports receiving no funding from foundations.12

The first instrument represents the total foundation funding in a given province to charities in non-social welfare and community sectors such as health, education, cultural, historical, and environmental sectors.13 This measure serves as a proxy for the size of the funding pie from foundations accessible to the charity. The second instrument is computed from total foundation assets and is derived in two steps. First, for each foundation, I compute the average of its total assets over the previous two years. Second,
I average these assets across all foundations within a given province and then match them with the province of a charitable organization in a given year. Total foundation assets can be treated as an approximation of the level of foundation grants available to charities, primarily because the federal government requires foundations to disburse out of their assets in the form of grants on an annual basis. Because these instruments are aggregated at the foundation level, their intuitive exogeneity is plausible.

**Empirical Results**

I begin the empirical analysis by estimating the effect of foundation giving on private giving, using the standard OLS approach. I find that, on average, an additional dollar of foundation grants increases private individual donations by 3.5 dollars. Although the coefficients are positive and significant, foundation grants and private donations are likely to be jointly determined for the reasons discussed above. Therefore, OLS estimates may suffer from endogeneity and omitted variable biases. OLS results are presented in the Online Appendix.

To address these biases, I estimate the empirical equation (1) using three estimation approaches: limited information maximum likelihood (LIML), two-stage least squares (2SLS), and generalized method of moments (GMMs). Although these methods produce asymptotically similar estimators, LIML is superior in the presence of weak instruments (Staiger and Stock 1997).

I begin with the first-stage regressions presented in table 2, where I use the pairing of two instruments carefully discussed in the previous subsection. The coefficient on the pool of foundation funding is positive and significant at a level of less than 1 percent. The coefficient associated with foundation assets matched with a charity’s province of operation is also positive and significant. Its positive sign suggests that the higher the previous year’s assets of foundations, the higher the level of foundation grants to be disbursed to a charitable organization in the current year. Jointly, these instruments yield an $F$ statistic of 9.12. According to Stock, Write, and Yogo (2002), the selected instruments show the desired statistical strength.

I proceed with LIML, 2SLS, and GMM estimations with results shown in table 3, which suggests that foundation grants have a positive impact on private giving to social welfare and community charitable organizations. The overidentification tests across the three estimations are also fully satisfied. I find that an additional dollar of foundation giving, on average,
increases tax-receipted gifts by 2.2 dollars. Estimating the effect of foundation grants on aggregate private donations, I also find a significant and a positive coefficient of 3.1. Although I observe that the GMM coefficients are slightly smaller, the size of their standard errors is consistent with the LIML and 2SLS estimations (see the Online Appendix for LIML regression results with all coefficients). These findings support a positive relationship between foundation giving and private donations, suggesting that the positive effect of transmitting information on charity quality outweighs the standard crowd out effect.

**Robustness Checks**

I explore the robustness of a positive relationship found between foundation grants and private donations with several sensitivity checks. The findings presented in subsequent tables are only for the aggregate measure of private giving with the pairing of two instruments. Additional sensitivity checks that acknowledge provincial and territorial differences in charitable giving as well as nonlinear variations in the instruments with other sample restrictions are provided in the Online Appendix.

*Lagged gifts from other charities.* In the first sensitivity check (table 4), I lag the *gifts from other charities* to reflect the timing aspect of more accurately responding to a signal. When a foundation transfers a grant to a charitable

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**Table 2. Results from the First-stage Regressions.**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Gifts from other charities (robust standard errors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruments</td>
<td></td>
</tr>
<tr>
<td>1. Total foundation funding in a given province to non-social welfare and community charities (thousands)</td>
<td>21.24 (7.09)</td>
</tr>
<tr>
<td>2. Average of the previous year’s assets across all foundations in a given province matched with a charity’s province of operations (thousands)</td>
<td>14.77 (4.30)</td>
</tr>
<tr>
<td>F test on instruments (p value)</td>
<td>9.53 (.0001)</td>
</tr>
</tbody>
</table>

*aCoefficients that are significant at the 5% level are in boldface. All specifications include year effects, the charity time trend, charity fixed effects, and the following covariates: total population; family income; family income square; share of owned occupied dwellings; the share of the population: less than 19 years of age, between 55 and 64, and 65 years and older, with post-secondary education, and those who are immigrants; the share of liberal party seats; the share of new democratic party seats; and parties other than conservatives.*
organization, individuals may require time to potentially learn about the transfer and decide on their giving (Heutel 2014). I perform two types of estimations. The first estimation (panel A in table 4) is similar to that of Khanna, Posnett, and Sandler (1995), where lagged gifts from other charities are regressed on private donations without incorporating instrumental variables. The coefficient on the measure of foundation giving remains positive, but statistical significance cannot be established. The robust standard error is also much higher and as claimed by Bellemare et al. (2017), using lagged independent variables can lead to inaccurate inferences. The second estimation (panel B in table 4) is the LIML estimation with a lagged gifts from other charities variable. I find that the coefficient of the measure of foundation giving is positive and statistically significant. Its magnitude, however, increases to almost four dollars, and the $F$ statistic on the joint significance of the two instruments is 7.19, which is slightly below the critical value noted in Stock, Wright, and Yogo (2002).

**Foundation multi-year grants to charities.** In this robustness check, I account for the possibility that some charitable organizations may engage in a long-

### Table 3. Results from the LIML, 2SLS, and GMM Regressions.a

<table>
<thead>
<tr>
<th>Estimation Approach</th>
<th>LIML</th>
<th>2SLS</th>
<th>GMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Effect of foundation giving on tax-receipted gifts</td>
<td>Gifts from other charities (robust standard errors)</td>
<td>2.250 (0.861)</td>
<td>2.274 (0.844)</td>
</tr>
<tr>
<td>Overidentification test of instruments:</td>
<td>Chi-square statistics ($p$ Value)</td>
<td>1.32 (.251)</td>
<td>1.30 (.254)</td>
</tr>
<tr>
<td>Panel B: Effect of foundation giving on aggregate private donations</td>
<td>Gifts from other charities (robust standard errors)</td>
<td>3.142 (1.040)</td>
<td>3.170 (0.974)</td>
</tr>
<tr>
<td>Overidentification test of instruments:</td>
<td>Chi-square statistics ($p$ value)</td>
<td>2.37 (.123)</td>
<td>2.35 (.125)</td>
</tr>
</tbody>
</table>

Note: LIML = limited information maximum likelihood; 2SLS = two-stage least squares; GMM = generalized method of moment.

aCoefficients that are significant at the 5% level are in boldface. All specifications include year effects, the charity time trend, charity fixed effects, and the following covariates: total population; family income; family income square; share of owned occupied dwellings; the share of the population: less than 19 years of age, between 55 and 64, and 65 years and older, with postsecondary education and those who are immigrants; the share of liberal party seats; the share of new democratic party seats; and parities other than conservatives.
term funding relationship with foundations through multi-year grants, thus reinforcing the information effect on giving. This may occur if a charitable organization advertises a grant every year for the length of the funding agreement as opposed to only in the first year when the funding agreement is signed. I face a data challenge in distinguishing between the following three scenarios: a multi-year grant that is paid out in portions and a fixed amount is reported on an information return every year, a multi-year grant that is deposited in the first year and reported on an information return only in that year, and a situation where an organization is successful in attracting a grant from the same foundation every year by submitting different proposals for funding. Given the richness of the CRA data, it is possible to identify those charitable organizations that report having received a grant from the same foundation at least two years in a row. I test the sensitivity of my results by excluding these (10,024) observations and repeating the estimation. I find that the coefficient on the measure of foundation giving remains significant and positive, and the $F$ statistic on the joint significance of the instruments is satisfied (table 5). The magnitude of the coefficient,
however, falls by almost one dollar, suggesting that the information effect on giving may have been reinforced by a multi-year funding relationship.

**Non-matched sample.** I test the effect of gifts from other charities on the aggregate private donations for 14,462 charitable organizations that did not match with foundation gift data. There are at least two reasons for performing this test. On one hand, these charities may not be matching due to a data collection issue, but they are in fact receiving gifts from foundations. On the other hand, it may be the case that these charities are simply receiving gifts from a set of non-foundation charities. To obtain a sense of the effect of charity gifts on private donations, I run OLS regressions, controlling for the socio-economic and political characteristics of the neighborhoods in which charities operate and including charity fixed effects, year effects, and a charity time trend with its square (for the regression results, see table 6). The coefficient on gifts from other charities in column (1), which includes the entire non-matched sample, although positive, is small (0.014) and insignificant. Then, I test this effect for the charities that report

### Table 5. Robustness of the Results: Multi-year Grants to Charities.\(^a\)

<table>
<thead>
<tr>
<th>Restriction</th>
<th>Aggregate Private Donations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifts from other charities (robust standard errors)</td>
<td>2.479 (0.747)</td>
</tr>
<tr>
<td>F statistic on instruments (p value)</td>
<td>8.82 (.0001)</td>
</tr>
<tr>
<td>Overidentification test of instruments</td>
<td>1.145 (.284)</td>
</tr>
<tr>
<td>Chi-square statistic (p value)</td>
<td>5,686</td>
</tr>
<tr>
<td>Number of charitable organizations</td>
<td>51,163</td>
</tr>
</tbody>
</table>

\(^a\)Coefficients that are significant at the 5% level or less are in boldface. All specifications include year effects, charity time trend, charity fixed effects, and the following covariates: total population; family income; family income square; share of owned occupied dwellings; the share of the population: less than 19 years of age, between 55 and 64, and 65 years and older, with postsecondary education, and those who are immigrants; the share of liberal party seats; the share of new democratic party seats; and parties other than conservatives.
receiving gifts from other charities at least once over the sample period (excluding 7,768 charities that never report non-foundation gifts). I continue to find a small and insignificant effect (column (2)). Finally, I match 14,462 social welfare and community organizations with non-foundation gift data. When I run the OLS regressions with 3,412 charitable organizations that matched a non-foundation charity donor (i.e., a grant-giving charitable organization), I continue to find an insignificant effect (column (3)). These verifications strengthen the robustness of my original findings that the positive relationship between foundation grants and private donations is unique to charities that receive foundation support.

**Evaluation of Findings**

Although the estimation results provide evidence of a positive relationship between foundation and private giving, the question of how meaningful these findings are remains. Because this is the first study of its kind, I can compare my results only to studies that examine the effect of government grants, which act as signals of charity quality, on private donations. Andreoni

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**Table 6. Robustness of the Results: Regressions for the Non-matched Sample.**

<table>
<thead>
<tr>
<th>Non-matched Sample Restrictions</th>
<th>Aggregate private donations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All non-matched SWC char. orgs.</td>
</tr>
<tr>
<td>Gifts from other charities (robust standard errors)</td>
<td>(1) 0.0145 (0.0121)</td>
</tr>
<tr>
<td>Number of Char. Orgs.</td>
<td>14,462</td>
</tr>
<tr>
<td>Observations</td>
<td>140,019</td>
</tr>
</tbody>
</table>

*All specifications include year effects, the charity time trend, charity fixed effects, and the following covariates: total population; family income; family income square; share of owned occupied dwellings; the share of the population: less than 19 years of age, between 55 and 64, and 65 years and older, with postsecondary education, and those who are immigrants; the share of liberal party seats; the share of new democratic party seats; and parties other than conservatives. SWC = social-welfare and community.*
(2006) claims that both governments and foundations can signal charity quality to individuals, whereas Rose-Ackerman (1980) argues that, given the distinct natures of these institutional donors, private givers will likely have different perceptions of the two donors and hence will react differently to their signals. Foundations, unlike governments, cannot utilize the tax system to extract contributions from individuals, thereby allowing for a completely voluntary relationship with individuals. It is important to acknowledge these differences when making comparisons with the existing crowd in effects.

In relation to the previous literature, in which the crowd in effect of private donations does not exceed one dollar, the effect of three dollars may appear very large. One possible explanation for finding a larger magnitude potentially relates to how individuals may be perceiving institutional donors and their role in supporting charity operations. Glazer (2016) in a theoretical model and Gneezy, Keenan, and Gneezy (2014, 313) in a field experiment claim that individual “contributions are greater if a donor believes that the overhead costs have been financed by other donors.” If individuals treat foundations as those “other donors” capable of covering charity overhead costs, the literature supports a significant increase in individual donations to a charity.

Another explanation for a larger magnitude pertains to uncovering the composition of the crowd in effect. Following Andreoni and Payne (2003,
2011b), who decompose the crowd-out effect of givers and fund-raisers in the presence of government grants, what if foundation grants crowd in both givers and fundraisers, thus re-enforcing the crowd-in effect? Andreoni (2006) and Karlan and List (2012) argue that, in theory, the relationship between foundation giving and fund-raising by charities is likely to be positive. Empirically, however, this relationship has not been tested and calls for a rigorous analysis in the future. In the meantime, determining the effect of foundation giving on private donations net of fund-raising expenses can provide interesting insights. While the findings presented in table 7 continue to support a positive relationship between foundation grants and private giving, the magnitude of the coefficient on net private donations is smaller by one dollar compared to the benchmark finding shown in table 2. This may hint at an underlying positive yet uncovered relationship between foundation grants and fund-raising that is worth exploring.

Conclusions

Does foundation giving stimulate or suppress private donations to charitable organizations? By utilizing national data on charitable organizations and foundations, I find a positive and a significant relationship between foundation giving and private donations to social welfare and community charitable organizations in Canada. This study offers a novel insight into how the relationship between two sources of private funding can be more than substitutes. On a larger level, this article advances our understanding of the importance of leadership gifts in supporting charitable causes.

I perform an extensive empirical analysis using a panel of 5,688 social welfare and community charitable organizations in Canada that are matched with their foundation donors for the 1997 to 2008 period. By utilizing rich CRA data on foundations, I construct exogenous instruments to predict a pool of foundation funding for a given charity. The LIML estimates suggest that, on average, an additional dollar of foundation grants increases aggregate private giving by three dollars. The robustness of this result still holds when it is subjected to various sensitivity checks. These findings support the initial claim that private givers may look to foundation grants as a signal of charity quality to make informed giving decisions.

What public policies can be proposed to encourage grant making by foundations? Performing a size-based analysis of foundations in Canada, Khovrenkov (2016) finds that especially large private foundations have not reached their full granting potential as they tend to under-disburse compared to smaller foundations. A disbursement policy accounting for a
varying scale of foundation operations may be required, so that more funds are directed to financing charities. Andreoni, Payne, and Smith (2014) confirm that, for small UK charities, external grants are essential for their survival and growth. This argument also holds for a sample of US charities that view foundation grants as helpful in their operations (Delfin and Tang 2008).

Findings of a positive relationship between foundation grants and private giving provide important implications for charity managers. Since lack of awareness is likely to reduce giving, announcing the receipt of foundation grants by charities has the benefit of attracting donations (Karlan, List, and Shafir 2011; Vesterlund 2003). Charity managers should also consider developing long-term internal resource strategies in order “to use upfront monies efficiently” in generating “the greatest level of gifts” (List 2011, 175). Charities may also wish to collaborate with governments for the purposes of creating a foundation grant registry. Because private givers may use foundation grants as a signal of charity quality, these individuals may benefit from having access to information about which charities foundations are funding (Broughman and Cooter 2005).

The role of charitable foundations as active contributors to a charitable public good has been largely unexplored. Steinberg (1991) indicates that, where possible, extending the analysis of charitable contributions by corporations, foundations, and bequests to other countries can offer valuable insights. One natural extension is to explore the effect of foundation grants on private donations to US charities. With returns filed to IRS by both charitable organizations and foundations in the United States, researchers can find creative ways of linking foundation donors with charity donees. The remaining data pieces such as US Census and Elections data can be easily integrated. Rose-Ackerman (1980) claims that individuals are likely to view foundations favorably compared to governments, because foundations cannot impose a tax system on individuals to extract donations. A recent study on US foundations (Mosley and Galaskiewicz 2015) finds that these organizations are the key funders of welfare services (childcare, family services, etc.) at the time when governments experience budgetary constraints. This active involvement of foundations in the provision of public goods can potentially translate to the charitable sector. Whether US foundations can signal charity quality to US private givers is an interesting empirical question worth exploring.

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Notes
1. By deriving a multistage model, Bilodeau and Slivinski (1998) also find that a large enough initial donation from a lead donor (who is a founding entrepreneur) can incentivize another member of the public to make a positive donation, where nothing may have contributed had there been no lead donor.
2. Since foundation tax returns are still filed manually, information from these returns is keyed in by the Canada Revenue Agency (CRA) staff in order to create machine readable electronic forms. This process has been known to generate errors (Payne 2012). In consultation with the CRA and careful hand checking of records, negative values of the following measures were converted into positive values: tax-receipted donations, revenues from fund-raising, total assets (however, some components of assets could be negative, i.e., accumulated amortization of capital assets), total expenses, and total government revenues.
3. All dollar amounts are adjusted to 2001 levels using the consumer price index.
4. Since charities can change fiscal periods, their record may reflect a time frame that is less than ten months or more than fourteen months. Observations outside of the “year measure” (more than ten months and less than fourteen months) were dropped. In addition, this year measure accounts for different fiscal year ends in the following manner: for organizations with fiscal years ending on May 31 or earlier, they are assigned previous calendar year (2001, if fiscal year ends on May 31, 2002) because seven months or more fall to the previous calendar year.
5. The “T3010 Registered Charity Information Return” form has changed twice during the sample period—in 2003 and 2005. The reporting of key financial measures has not changed; however, some measures previously reported in the confidential section have become publicly available since 2003.

6. Tax-receipted gifts may include a small portion of gifts from corporations, which 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 because public recognition of a corporation’s gift is not allowed if a tax receipt is issued.

7. Revenues from fund-raising do not include revenues from institutional donors because fund-raising does not include requests for funding from foundations and governments.

8. The linear interpolation procedure has also been used by Luttmer (1998).

9. The forward sortation area (FSA) is the first three characters of the postal code. Individual FSAs are associated with a postal facility from which mail deliveries originate. However, since the unit of analysis is a charity, any relationship between foundation and private giving is attributed to a charity, even if it serves a larger area.

10. These data are provided at the postal code level mapped into a riding. Unlike the United States, the political party system in Canada consists of more than two active parties. The most popular are the Conservative, Liberal, New Democratic, Bloc Quebecois, and Green parties.

11. A charity-specific time trend takes the value of 0 for the first time the charity is observed, which then increases by a unit per year. The rationale for including a charity-specific time trend is to capture trends that may be occurring in the charity. This “global measure” is used in place of other charity measures (revenues, expenses, etc.), but their direct inclusion may bias the coefficient of interest due to their potential endogeneity (Andreoni and Payne 2011a, 14).

12. One possible limitation of these instruments is that they may not adequately deal with challenge and matching grants that foundations sometimes award to charities given the nature of these gifts. For example, measures that predict matching grants would be correlated with private donations and the matching rate may remain uncaptured, creating an omitted variable concern. An insightful discussion on the nature of these types of gifts (not limited to foundations) and their effects on private donations can be found in Rondeau and List (2008).

13. This instrument was adopted from Andreoni and Payne (2011a). A total pool of government funding was modified to a total pool of foundation funding for non-social welfare and community charities. The instrument excludes religious charities because foundation funding to these organizations is minimal. As a verification check, the results continue to hold (and no significant changes are
observed from the current findings) when religious charities are included into the instrument.

14. Another data issue that may result in charities not matching with their foundation donors would arise if charities are systematically reporting the receipt of foundation grants under a different revenue category. The raw data from the Canada Revenue Agency is received by Public Economics Data Analysis Laboratory at McMaster University, which are then accessed by researchers. The dedicated lab manager thoroughly cleans, hand checks, and verifies the data for the purposes of creating a research ready data set. After carefully inspecting other revenue categories, I conclude that charities did not report foundation grants elsewhere.

References


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Iryna Khovrenkov holds a PhD in Economics from McMaster University (Ontario, Canada). She is an assistant professor at Johnson Shoyama Graduate School of Public Policy at the University of Regina. Her main research interests are in economics of charities, applied microeconomics, public economics, and tax policy.