UNDERSTANDING DONOR-ADVISED FUNDS:
HOW GRANTS FLOW DURING RECESSIONS

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Abstract

Donor-advised funds (DAFs) are becoming increasingly popular. DAFs receive a growing share of all charitable donations and control a sizable proportion of grants made to other nonprofits. The growth of DAFs has generated controversy over their function as intermediary philanthropic vehicles. Using a panel data set of 996 DAF organizations from 2007 to 2016, this article provides an empirical analysis of DAF activity. We conduct longitudinal analyses of key DAF metrics, such as grants and payout rates. We find that a few large organizations heavily skew the aggregated data for a rather heterogeneous group of nonprofits. These panel data are then analyzed with macroeconomic indicators to analyze changes in DAF metrics during economic recessions. We find that, in general, DAF grantmaking is relatively resilient to recessions. We also find payout rates increased during times of recession, as did a new variable we call the flow rate.

Introduction

The growth of donor-advised funds (DAFs) demands more attention from researchers. With tens of thousands of new donor-advised fund accounts established every year, they have been called "the fastest-growing vehicle in philanthropy" (National Philanthropic Trust, 2017). In 2016, DAFs accounted for 10% of charitable donations by individuals (Andreoni, 2017). That same year, Fidelity Charitable Gift Fund, a donor-advised fund sponsor, surpassed the United Way as the top nonprofit in donations received (Lindsay, Olson-Phillips, & Stiffman, 2016; National Philanthropic Trust, 2017). Every year, donor-advised funds facilitate hundreds of thousands of people making billions of dollars of transfers to the nonprofit sector. This article analyzes a comprehensive data set to better understand the flow of money through donor-advised funds as intermediary philanthropic organizations.

We begin by overviewing the fundamental DAF activities and the different types of sponsor organizations. We briefly review issues regarding donor-advised funds that are salient to public policy debate. We then present our data and our analyses with two specific aims: 1. Analyze how donor-advised fund grantmaking relates to other metrics; and 2. Explain how DAF activities relate to economic conditions. Using a panel data set of nearly one thousand donor-advised fund organizations from 2007-2016, we offer empirical analyses of grants, payout rates, and a new metric called flow rate. Merging this panel data with macroeconomic indicators, we then explore how DAF activity changes during recession conditions. We discover important correlations between DAF activity and economic conditions that will be useful for policy considerations. While other forms of charitable giving generally drop during economic downturns, we find that grants from DAFs remain relatively stable in recession conditions, despite reduction in contributions and

decline in assets. This contributes to an increase in payout rates and flow rates during recessions. Given these findings, donor-advised funds may be an important resource to the nonprofit economy in future recessions.

Overview

Donor-advised funds are intermediary philanthropic vehicles. They function as personal giving accounts, like checking or savings accounts that are designated irrevocably for charitable giving. There are three basic activities that occur in the use of donor-advised funds (see Figure 1). First, a person contributes money, or other assets, into a donor-advised fund account. The account is held by a 501(c)(3) nonprofit organization, known as a donor-advised fund sponsor, so the contribution into the account is considered by the Internal Revenue Service (IRS) to be a tax-deductible donation. Second, the nonprofit organization manages the assets in the account for a fee. Third, the donor advises the sponsor to make grants out of the donor-advised fund account to recipient public charities.

[Figure 1. here]

Donor-advised fund sponsors can be grouped into three categories: community foundations, single-issue charities, and national sponsor organizations (National Philanthropic Trust, 2017). Community foundations were the original sponsors of donor-advised funds. They are the most common type (60% of all DAF sponsors) and usually attract donors within a specific geographic region. Single-issue charities host donor-advised funds as a way to attract and retain donors for a certain cause, such as religion or education. National sponsor organizations (NSOs) are typically subsidiary nonprofits to financial services providers such as Fidelity, Vanguard, or Schwab. There were only 46 NSO entities that reported to the IRS in 2015

(5% of all DAF sponsors), but these relatively few organizations controlled about half (49%) of all assets under management in donor-advised funds.

Donor-advised Fund Issues

There are many reasons why people use donor-advised funds. They offer low cost, easy-to-use solutions for conducting charitable giving. However, the proliferation of donor-advised funds has sparked public policy debates around several issues (Daniels, 2015). This section explains some of the main issues that donor-advised fund reform advocates raise. This review gives context to our analyses on grantmaking and DAF activity. However, the purpose of our analyses is not to respond to the debates, but rather to provide insightful empirical evidence to inform policy discussions.

Donor-Advised Fund Growth

What makes donor-advised funds an important topic to study is the sheer scope of their growth in recent years (Dagher, 2017). Daniels and Lindsay (2017) have aptly described the expansion of donor-advised fund usage as "reshaping the philanthropy landscape" (p. 26). In their annual report on donor-advised funds, National Philanthropic Trust (2018) reported that in the fiscal year 2017, the total assets under management by donor-advised funds reached over $110 B (an increase of 27.3% over the previous year), and a total of 463,622 individual accounts (an increase of 60.2%). In comparison to the 82,516 private foundations that control about $856 B in assets, donor-advised funds represent a significant market share of nonprofit assets. In the same year, DAFs granted $19.08 B, roughly 40% of the $49.5 B granted by private foundations (National Philanthropic Trust, 2018). One caveat to this statistic is that DAFs are able to make

grants to other DAFs. In a special report on donor-advised funds, Giving USA (2018) reported: "From 2012 to 2015, DAF-to-DAF granting accounted for 4.4 percent of all dollars from donor-advised fund grants" (p. 29). On all measures, assets, number of users, grants distributed, and contributions received, donor-advised funds have experienced prolific growth, which raises the importance of understanding them more fully.

Timing of the Tax Deduction

Perhaps the most attractive feature of donor-advised funds is also the most controversial. Donors claim a tax deduction in the year that they contribute to the DAF, without needing to decide where the money will be distributed. Rooney (2017) notes that this separation in timing makes it easier for donors to make major giving decisions and allows donors to maximize tax benefits during periods of income fluctuation. There is no legal requirement for money placed in a donor-advised fund to be used within a certain timeframe; it is possible that the money could sit in the account indefinitely. Madoff (2016a) questioned the current legal treatment of donor-advised funds, and argued that donors should not get a publicly subsidized tax-deduction until their donation is in the hands of an organization that will use it to create public goods.

Tax Advantages

The immediate deduction and other tax treatments of donor-advised funds allow their users several tax advantages. Contributions of appreciated assets into donor-advised funds avoid capital gains taxes and receive a deduction for the fair market value of the asset (such donations to private foundations do not receive a deduction for the full fair-market value). Moreover, donor-advised funds can be used to bunch charitable donations that normally would be made over a period of years. Andreoni (2017) explained how using a donor-advised fund to front-load

charitable giving into a single year maximizes tax advantages. There is some evidence that the recent increase in the standard deduction prompted a spike in contributions to donor-advised funds at the end of 2017 (Rubin, 2018). These tax advantages are a driving motivation for the use of DAFs, but also cost the federal government through the loss of tax revenue, and some suggest that such tax advantages benefit primarily the wealthy (The Economist, 2018). Andreoni (2017) explained that from a public policy standpoint, net societal benefit of DAFs would only be worth the cost if they generated more charitable giving to compensate for losses in tax revenue. Many argue that such tax advantages should not be offered without a guarantee for when and how the money will be used for charitable purposes (Gelles, 2018; Hussey, 2010; Madoff, 2016b).

Regulation

The timing of the tax deduction has led to policy suggestions around payout rates and time limits on donor-advised funds. Madoff (2016a) suggested requiring DAF accounts to meet a minimum payout rate, like private foundations. Generally, the organization-level payout rates of DAF sponsors well exceed the 5% minimum imposed on private foundations, as will be shown later in this paper. However, payout rates of individual accounts within a DAF sponsor may range widely. In 2014, David Camp of the House Ways and Committee, proposed to tax individual donor-advised fund accounts if the money had not been allocated within five years (Colinvaux, 2017; Daniels, 2015). At the organization-level, Andreoni (2017) found that the "shelf-life" of money is between 3 to 4 years. Both the minimum payout rate and time limit for DAF accounts are attempts to bring more assurance that money going into donor-advised funds will be used in a timely manner for public purposes. Other possible regulations involve more accountability, regulation of grants, or different tax treatments for contributions into DAFs (Colinvaux, 2017).

Available Data

The biggest limitation to the study of donor-advised funds is the availability of data. Brostek's (2006) Government Accountability Office report offered summary statistics and requested that more data be collected on DAFs by the IRS. The Pension Protection Act of 2006 began to require DAF sponsors to report specific information on their annual Form 990. Since then, the Treasury Department (McMahon, 2011), Congressional Research Services (Sherlock & Gravelle, 2012) and the IRS (Arnsberger, 2012, 2016) have produced reports that used this 990 data to analyze DAF trends over time. These reports provide summary statistics on aggregated IRS data, and some bivariate analysis with little or no inferential statistics. In 2016, the IRS was mandated to release machine-readable data from electronic filings of 990s (Orsen-Phillips, 2016; Perry, 2015), however not all DAF sponsors file electronically and the data format still requires extensive manual work.

Starting in 2006, National Philanthropic Trust (NPT), which is itself a DAF sponsor, began compiling 990 data made publicly available by the IRS. NPT has used this compiled dataset to produce an annual report on donor-advised funds (National Philanthropic Trust, 2017). The NPT report is often cited by other articles as a primary source of donor-advised fund statistics (c.f. Andreoni, 2017; Colinvaux, 2017; Madoff, 2014; Rooney, 2017). *The Chronicle of Philanthropy*, has collected its own primary data by conducting annual surveys of 105 of the largest donor-advised fund sponsors since 1999. This data is useful because it has information not collected by the Form 990, such as administrative fees, and because it predates 2006, when all DAF sponsors began reporting to the IRS. *Giving USA* (2018) produced a special report on donor-advised funds, using IRS Statistics of Income microdata. Other primary data come from annual reports produced by DAF sponsors themselves, such as Fidelity Charitable (2017) and

National Christian Foundation (2017). What is needed is a deeper analysis of donor-advised fund activity, to better understand trends and behaviors within this subset of nonprofits.

Data for this Study

The data we use allow us to investigate DAFs with more granular analyses than previous empirical work. They have been collected on discrete DAF sponsor organizations and, therefore, can better reveal some of the complexities of donor-advised funds. Beginning in 2006, all donor-advised fund sponsors report four relevant pieces of data: 1) the total number of accounts managed by the DAF sponsor, 2) the total value of contributions collected, 3) the total year-end value of assets, and 4) the total value of grants made. These variables are reported by each sponsor organization as aggregated totals; they are not individual, account-level data. The four variables are reported annually on the Form 990, Schedule D and eventually made public. The panel data used in this study includes 996 donor-advised sponsors for years 2007-2016. Our data set also includes the Employer Identification Number (EIN), name of the organization, the month of the organization's fiscal year end, and sponsor type: community foundation, single-issue charity, or national sponsor. In Table 1, we present the summary statistics for our panel data, including the sum, mean, and median values for each of the four key variables.

[Table 1 here]

Data completeness

Because our research aims to understand variation among DAF sponsors, we must carefully define the study population and ensure that we have captured all relevant organizations. The 996 donor-advised fund sponsors in our panel include all DAF sponsors with substantive

activity. By comparison, the IRS reported a total of 2,121 DAF sponsors in tax year 2012, which were all nonprofits that returned a Schedule D in their 990 (Arnsberger, 2016). The total reported by the IRS fails to account for the fact that many exempt organizations erroneously submit a Schedule D when they do not actually operate donor-advised fund accounts and that many small DAF sponsors have little to no activity. While our panel has fewer than half of the organizations claiming to operate DAFs, it represents almost the entirety of DAF assets reported by the IRS[2].

Using the IRS Form 990 data on donor-advised funds also requires careful handling of missing data. Missing data problems take three forms: erroneous information, slow reporting, and inconsistent reporting by some organizations in the panel. Some missing data result from poor accounting practices, including submitting when not active, placing information in the wrong fields, and submitting erroneous values. We drop any observation with missing data on all four key variables from all of our analyses. We also drop any variables that include clearly erroneous data (e.g. negative payout rates) in analyses of those values. Another issue is the timing of when the data is made available, which can take several years in some cases. We are missing about 80% of the data for year 2016 because it had not yet been released by the IRS when we collected the data. Therefore, we do not include that year in most of the analyses. Finally, to account for inconsistent reporting, as well as emerging and discontinued DAFs, we create a balanced panel. We conduct most analyses with both the full panel and the balanced panel. We present the balanced panel for longitudinal analyses to eliminate organizations that may have inconsistent accounting, and to ensure that our results are not due to different panel assemblies between years. We use the full set of observations in regressions and other analyses when we do not find a significant difference between the balanced and full panels.

Skewness

One of the unique contributions of this paper is to highlight the skewness of the data behind aggregated DAF statistics. This skewness can be clearly seen in Table 1 by looking at the means and medians in the summary statistics. For example, in 2015, the total value of assets in donor-advised funds was \$74.0 billion. The mean was \$83 million, but this represents roughly the 85th percentile of the distribution; the median DAF only held about \$5.6 million in assets. The single largest DAF sponsor, Fidelity Charitable, held \$15.2 billion (21% of the total sum). The ten largest DAFs (top 1.1% of the distribution) held \$43 billion (58% of the total sum). Two problems result from the skewness in the data. First, any patterns in the aggregated statistics will be due to a few large organizations. To more accurately represent DAF activity in our analyses, we report the statistics for the median organizations whenever possible. Second, highly skewed data pose challenges for regression analyses. The outliers unduly leverage any regression line being fit to the rest of the data, and the standard errors of the residuals in regressions are not normally distributed. To mitigate these challenges, we use log transformations or inverse hyperbolic sine transformations of the variables in most of our regression analyses.

Most DAF analyses in both academic and practitioner literatures use the aggregated national totals. Using aggregated statistics to calculate mean averages with DAF data can be misleading. For example, the average account size of donor-advised funds in 2015 was \$278,458, and the average contribution into DAFs was \$77,330, when calculated using aggregated sums. Looking at all DAF organizations in our sample for 2015, the range of average account sizes was \$251 to \$74.4 million and the median was \$137,923 (half of the average value calculated with aggregated statistics). In 2015, the range of average contributions by organization was \$3 to \$254 million and the median value was \$21,238 (only 27% of the average calculated with aggregated statistics). Using aggregated data, Andreoni (2017) estimated the income of the

average DAF user to be between $1.4 and 2.2 million, which provided evidence for the claim that DAFs are used predominantly by the very wealthy. Using organization-level data leads to a substantially different understanding of the typical DAF user. Understanding the skewness of data allows researchers and others to more carefully interpret aggregated DAF statistics.

Methods and Findings

We approach our analyses of donor-advised funds in an exploratory manner. We identify grants as the key variable of interest because understanding DAF granting seems to be at the crux of much of the public policy debate. First, we analyze the relationship between grants and other DAF variables. We then examine the ratios of grants to assets, known as payout rates, as well as the ratio of grants to contributions, a new metric we call flow rate. Lastly, we explore how these key DAF metrics relate to macroeconomic indicators.

Grants, Payout Rates, and Flow Rates

In 2015, over $13.5 billion was granted to public charities out of DAFs. Sponsor grant totals ranged from $0 to $2.8 billion, with a mean of $15.5 million and a median of $750,000. Out of 897 observations for that year, only 5 sponsors (less than 1% of the population) reported $0 in grants. In the absence of immediate economic incentives, such as tax deductions, what factors explain this outflow of money from DAFs to other nonprofits? To understand grants coming out of DAFs, we begin by analyzing the relationships between grants and the other DAF variables. Figure 2 shows scatter plots of grants with the other three variables. There are generally strong and positive correlations between the value of grants coming out of DAFs and the value of assets, contributions into DAFs, and number of accounts. This is unsurprising. Using organization-level data, as the size of an organization increases, so should its activity.

[Figure 2 Here]

To further explore these relationships, we turn to regression analyses of grants and related ratios. Grants, contributions, and assets, like many monetary variables, are highly skewed. However, a log transformation does not allow for zero values, which are present in our data. Therefore, we perform an inverse hyperbolic sine (IHS) transformation to correct for skewness. The IHS transformation is preferred to a log transformation when the skewed variable also includes zeros, because the IHS transformation allows for zero and negative values (Burbidge et al. 1988, MacKinnon and Magee 1990, Pence 2006). The IHS transformation is interpreted similarly to a log-log transformation.

Grants

To understand the variation in grant amounts, we run a regression of grants on the other DAF variables – contributions, assets, and number of accounts. Table 2, models 1 through 3, show that each of the other DAF variables correlates positively and significantly with grants, as was observed in the scatter plots in Figure 2. Model 4 shows these variables entered into the same model. Each still significantly explains a portion of the variance in grants. Model 5 controls for year fixed effects, to account for any major events that may cause changes in grant-making and other DAF variables for all organizations in a particular year. Model 5 shows that, holding other DAF variables constant, a one percent increase in assets yields a 0.41 percent increase in grants; a one percent increase in contributions into DAFs yields a 0.35 percent increase in grants out of DAFs; and a one percent increase in the number of accounts yields a 0.39 percent increase in grants. These simple findings suggest that grants coming out of DAFs are not based solely on

the amount of assets in the DAF. Other variables, such as the contributions coming into the DAFs within the same year, also explain the amount of grants going out that year.

[Table 2 Here]

Payout Rate

As discussed above, a common statistic used to describe donor-advised fund behavior is the ratio between grants and the asset value – known as the payout rate. The payout rate concept is derived from policies regulating private foundations. How this ratio is best calculated for donor-advised funds, and what it means in the donor-advised fund context, has been a matter of some debate (Daniels & Lindsay, 2016b; Madoff, 2014). While the National Philanthropic Trust (2017) uses the same method for calculating payout rate as is used by foundations[3], Arnsberger (2016) provided a formula that indirectly accounts for investment earnings and fees in the calculation of asset value, uses data from within the same reporting year[4], and generally yields slightly lower rates. It will be used for the analyses in this article, because it mitigates problems with missing data between years.

In 2015, a relatively representative year, the median payout rate by DAFs was 13%, which has remained fairly flat between 2007 and 2015. Out of 849 observations in 2015, 156 (18% of the sponsors) had payout rates of 5% or less, giving us an indication of the minority that grant the same or less than the minimum for private foundations. Table 3 depicts the generally flat trend of payout rates, which indicates that grant values grow at roughly the same rate as asset values. The exception to the flat payout rates in this period is in 2008, when the median payout rate reached 16%. Because 2008 was the beginning of an economic recession in the United

States, the increase in payout rate indicates that further examination of DAF use during recessions is warranted.

[Table 3. Here]

Flow Rate

While payout rate is a useful measure of DAF activity, it only measures the relationship of grants to assets, and we know from our regression analyses that grants also correlate with contributions. Holding assets constant, grants still change when contributions change. In other words, the amount of grantmaking from a DAF sponsor is explained in part by the amount of money coming into a DAF sponsor within the same year. This finding means that we cannot think of DAFs as operating like private foundations, where the grantmaking is based almost completely on the level of assets. We must think of DAFs as a different type of intermediary philanthropic organization.

To understand DAF operations, we must use measures that capture not only grantmaking in relation to assets but also grantmaking in relation to contributions. DAF account holders often contribute funds to established DAF accounts, and this activity is not captured well by a payout rate. Using an individual example, suppose a donor transfers $10,000 of securities into a DAF account that began the year with $2,000, and then grants $9,000 out to various charities that same year. Assuming no interest or fees, according to the formula above, the payout rate would be $9,000 divided by $2,000, or 450%. This measure is not a good indicator of how this donor-advised fund was used. Another way to look at the same DAF activity would be to consider that a donor contributed $10,000 into a DAF account and granted out 90% within the same year. The ratio of grants to contributions gauges an important aspect of DAF usage that is not measured by

payout rate. We call this measure the flow rate and use it at the organization level to assess the volume of grant money leaving DAF coiffeurs in relation to the volume of DAF money entering DAF coiffeurs within the same year.

If donor-advised fund sponsors were likened to a reservoir, the flow rate would measure the amount of water released by the reservoir as a percentage of the amount of water coming into the reservoir. This gives us a sense of the rate at which water is flowing through a reservoir. Just as water flowing into a reservoir is not necessarily the same water that is flowing out, we are unable to distinguish whether the money being granted from donor-advised funds is the same money as that which is being contributed within a given year. Without individual account-level data, it is impossible to use this statistic to measure how individuals are using their accounts. If a DAF sponsor has a 90% flow rate, the grants may be coming out of different accounts than those receiving contributions, but we still get a sense, at the organization level, of the rate at which money is coming and going.

Recent articles and reports about donor-advised funds have begun to use other measures of how money is flowing in and out of DAFs, to get a more complete picture of DAF usage. Fidelity Charitable claimed that "three-quarters of donor contribution dollars are granted within 5 years" (Fidelity Charitable, 2017). Andreoni's (2017) "shelf-life" of donor-advised fund money estimates that contributions into DAFs for a given year will be spent, after all previous moneys are spent, within 3 to 4 years. The flow rate variable is limited in its ability to describe all DAF activity, but it gives an additional perspective to the common measure of payout rates and is helpful in understanding how DAFs function.

The median flow rate in 2015 was 87%. This means that for the median DAF sponsor, the value of the grants given out of the organization was 87% of the value of the contributions that were made into the organization in that year. It also suggests that about 13% of the value of contributions is remaining in the organization to be used in the future. The median for this statistic has remained fairly flat over the time period of the data, except for the year 2009, when it peaked at 103% (see Table 3). This means that in 2009 the median DAF sponsor gave away *more* money than it received – another indication that DAF activity is different during a recession.

Differences Across DAF Categories

DAFs in the United States range from large national sponsors to small single-issue charities. It is possible that different types and sizes of DAFs behave differently. This section of the analysis looks at how the type and size of DAFs relate to the metrics of grants, payout rates, and flow rates. These relationships are important for policy makers, as legislation may have distinctive consequences on different types and sizes of DAFs.

Type

There are three types of donor-advised fund sponsors: community foundations, single-issue charities, and national sponsors. We explored how DAF metrics differ by sponsor type by regressing grants on the other DAF variables separately for each sponsor type (Table 4). We found differing coefficients for each explanatory variable (assets, contributions, and number of accounts). We find that an increase in National sponsor assets is not associated with a significant increase in grants. Contributions and number of accounts do significantly explain differences in granting from National sponsors. This is in contrast with community foundations and single-

issue charities where increases in all three variables are significantly associated with increases in grants. These findings, taken together, suggest that national sponsors are not as reliant on or responsive to asset levels when making grants. Granting from community foundation DAFs and single-issue DAFs is more affected by asset levels, after controlling for contributions and number of accounts, suggesting that there may be more of an emphasis on preserving an asset base among these sponsors or the donors they work with.

[Table 4 here]

Size

Not all donor-advised funds are the same size. Some sponsors are extremely large, but the vast majority are relatively moderate or small. To analyze how the relationship between grants and other DAF variables differs by size, we categorized DAF sponsors into three categories: small, medium, and large. We used the median asset value in 2014 ($5.56 million) to differentiate the small and medium DAF organizations. We chose 2014's median because we have the most complete data for that year. We defined the largest DAF sponsors as those with assets over $1 billion. This group can be thought of as outliers. It has very few organizations (less than 1% of all observations) but has the potential to influence relationships in the regression analyses.

When we regressed grants on other DAF variables separately by size category (see Table 5), we found that each size group has different relationships between the explanatory factors (assets, contributions, or number of accounts) and grants. We found that larger DAF sponsors are significantly more responsive to changes in contributions than changes in assets. The large sponsors behave similarly to the national sponsors, because most (but not all) of the large

sponsors are national sponsors. Medium sponsors' grants respond significantly more to changes in assets than do the large sponsors' grants. For both medium and small sponsors, grantmaking increases significantly with increases in contributions, assets, and number of accounts. Again, we find that donor-advised funds sponsors are not granting solely based on assets and that there is significant variation between different sizes of sponsors.

[Table 5. Here]

Payout Rates and Flow Rates by Type and Size.

Knowing that type and size affect the relationship between grants other DAF variables, we also explored categorical effects on the metrics of payout rates and flow rates. If we track payout rates and flow rates over time, we see differing trends in each category. Figure 3 shows the longitudinal trends of the median payout and flow rates from a balanced panel of organizations by type and size. In Figure 3(a) we see that community foundations have consistently lower payout rates, and Figure 3(b) shows that single-issue charities have consistently higher flow rates. Figure 3(c) displays consistently higher payout rates among large organizations. We tested categorical differences in the metrics with pooled quantile (median) regressions of the payout rates and flow rates by size and sponsor type and found that each of these differences was significant at the 0.05 level. (Appendices A1 and A2). Figure 3(d) shows a peak in flow rates among all sizes in 2008-2009 (an indicator of the economy's influence on flow rates), with flow rates dropping more substantially among large organizations in later years.

[Figure 3 Here]

DAF Activity and the Economy

We have already noted that payout rates and flow rates both peaked during recession periods with fiscal year ends in 2008 and 2009. Median payout rates peaked in 2008 at 16%, and median flow rates peaked in 2009 at 103%. Two patterns help explain these phenomena. First, by all measures – sum total, median, and means – grants actually increase in fiscal year 2008 (see Table 1), during an economic recession. Contrast this phenomenon with the drop in overall charitable giving from individuals and private foundations during this same year (Reich & Wimer, 2012). The increase in the value of grants going out of DAFs, however, corresponded with a decrease in both the value of contributions coming into DAFs and asset values. These conditions led to the highest ever payout rate among donor-advised funds. The second pattern, which helps to explain the increase in flow rates, is that grants out of DAFs did not drop as much as contributions between 2008 and 2009 (see Table 1). During the first two years of the recession, 2008 and 2009, contributions dropped substantially each year – similar to the decreases in all charitable giving (Reich & Wimer, 2012). While grants did decrease from 2008 to 2009, they only decreased by 7% of the aggregate total, compared to a 36% decrease in contributions into DAFs.

In order to more deeply explore how DAF activities relate to the economy, we merged the panel data with specific macroeconomic indicators that are known to correlate with other forms of charitable giving: GDP, the S&P 500 index, Consumer Confidence Index (CCI), and unemployment rates[5] (List & Peysakhovich, 2011; Parth, Wilhelm, Rooney, & Brown, 2003). Our measure of GDP came from Macroeconomic Advisers (2017), the S&P 500 index numbers came from Cboe (2017), the Consumer Confidence index from the Organisation for Economic Cooperation and Development (2017), and unemployment statistics from Bureau of Labor Statistics (2017). We used monthly statistics from 2007 to 2016 for each indicator because

sponsor organizations had different months for their fiscal year end. If a sponsor reported their fiscal year end as September, the economic factors merged with that sponsor's data were for the month of September in each year. In this way, changes in the economy and changes in DAF metrics are aligned by month to reduce unintended lagged effects.

First, we scrutinized a correlation matrix of the macroeconomic indicators and DAF variables (Appendix A3) to detect patterns in significant correlations (see List & Peysakhovich, 2011). We found that changes in contributions into DAFs correlated significantly with changes in the GDP, and changes in asset values correlated significantly with changes in the S&P 500 index. DAF grants, interestingly, did not correlate with either of these economic variables. Because GDP and the S&P 500 seemed to be the most influential correlates with DAF activity, we used those two macroeconomic factors as our indicators for recession conditions. We coded dummy variables for 12 month periods in which the GDP had a negative change (GDP recession) or a positive change (GDP growth), and likewise for the S&P 500 index. Note that GDP and the S&P index do not follow each other exactly. So, there are 12 month periods when one may increase while the other decreases. We track both to see if DAF activity may be more sensitive to one or the other indicator.

In Figure 4, we present the Kernel density plots of the three DAF metrics of interest (grants, payout rates, and flow rates) during periods of economic growth and recession (measured by GDP and S&P). Figures 4(a) and 4(b) show the distribution of the percent changes in grants during years with different economic conditions. During recessions (blue dotted line), organizations do not dramatically change grantmaking. The shift to the left in the distribution of percent changes in granting during GDP recessions indicates that a slightly larger proportion of sponsors had decreases in grantmaking during recessions. Looking at payout rates in both

Figures 4(c) and 4(d), the shift to the right in the distribution indicates that, during both GDP and

S&P recessions, substantially more sponsors had large payout rates above 15 or 20 percent. For

flow rates, shown in Figures 4(e) and 4(f), the flattening of the distribution and shift towards the

right also indicates substantially more sponsors with higher flow rates during the recession. In

the GDP recession graph, there is a marked increase in the proportion of sponsors with flow rates

above 100 percent, which indicates that these organizations were granting more than they

received in contributions. These distributions begin to suggest that donor-advised fund granting

stayed largely consistent during the recession, despite changing economic conditions and

organizational inputs.

[Figure 4 Here]

We next test if these changes during recession conditions vary by sponsor type and size

and are statistically significant. We begin by running t-tests for the differences of means in the

percent changes in our three DAF metrics during economic growth versus recession. We then

analyze these differences according to the size and type of the sponsor organizations

(Appendices A4, and A5). Overall, average grants during GDP recession are 4.5 percentage

points less than average grants during GDP growth. They are not significantly different in S&P

recession. Average payout rates are 2.1 percentage points and 0.9 percentage points higher

during GDP and S&P recessions respectively. Likewise, flow rates are 12.1 percentage points

and 3.4 percentage points higher during GDP and S&P recessions respectively. Of the three

sponsor types, community foundations had the largest percentage decrease in grants (in GDP

recessions) and the largest increase in payout and flow rates (in both GDP and S&P recessions).

Only the changes in community foundations were significant at the 0.05 level. National sponsors

and single-issue charities had overall increases in their rates, but had so much variance, the

changes were not significant. When looking at size groups, the medium-sized DAFs were the only group where payout rates were significantly higher in both forms of recession. The most striking changes were the average flow rates in the large ($1B+ in assets) sponsors, which were 50 percentage points and 30 percentage points higher during GDP and S&P recessions, respectively. The higher flow rates among large DAF sponsors during recession indicate that large DAFs are granting more from contributions than from assets.

Finally, we ask whether the changes in DAF metrics (grants, payout rates, and flow rates) differ according to the magnitude of the changes in the economy. For each level of change in the economy in our data, we calculate the point estimates for percent change in grants and the point estimates for payout rate and flow rate. Figure 5 shows the point estimates and 95% confidence intervals, which vary in width based on the number of observations (and to a lesser extent the variation) at each level of recession. The figure shows different patterns of DAF activity for recession and growth conditions. The non-parametric regression displayed in these figures adds additional insight to our t-test results. In the t-test, most of the recession periods measured were severe recessions, while many of the growth years were minor growth years, leading to a larger difference in grants.

[Figure 5 Here]

We see in Figure 5 that the point estimates for changes in grants are actually higher during slight GDP recessions (but with much larger confidence intervals), and that increases in grants are also present during the smallest decreases in S&P. As recessions are more severe, there is a trend for grants to also decrease. However, many of these changes are not significant, and the most severe GDP recession still has a positive point estimate for changes in grants,

though it is not significant at the .05 level. This suggests that donors' grantmaking is affected by the severity of recessions, but the relationship may not be linear. It is important to note that in slight recessions, the assets are still contracting, thus an increase in grants is countercyclical to what would be expected. Payout rates seem to increase with more severe recessions, which is explained by greater drops in asset levels, but relatively smaller drops in granting. Flow rates seem to follow a similar, but less dramatic, pattern, signaling that the contributions are not dropping as much as assets during more severe recessions. What we learn from these analyses is that DAF granting differs according to the magnitude of changes in the economy. Overall, we see donor-advised fund sponsors continued to distribute money in a way that was resilient to the economic downturn.

Discussion and Conclusions

This article introduces donor-advised funds, reviews some main issues salient to public policy discussions, and presents some of the first organizational-level analyses from a sample that approaches the full, active population. The new data provided in this article pulls back the curtain on the mostly aggregate numbers that we have hitherto seen in the reports and articles about donor-advised funds. We are beginning to understand the complexity and heterogeneity of this increasingly important subset of nonprofit organizations.

One of the main contributions of this paper is the statistical evidence for heterogeneity among various types and sizes of DAF sponsors. Much attention has been given to the largest DAF sponsors, such as Fidelity, Vanguard, Schwab, and National Philanthropic Trust. It is readily apparent that the activities of such organizations dominate the national trends. It is almost impossible to talk about "normal" donor-advised funds by looking at national sums, because they

are strongly influenced by the largest sponsors. By segregating these larger organizations in our analysis, we can study the other 99% of donor-advised funds more effectively. This work highlights the skewness of DAF data and contributes to researchers' ability to more accurately analyze and discuss them. We hope that future discussions about donor-advised funds will no longer assume that the "average" DAF sponsor is just a smaller version of Fidelity Charitable. We see from our data that smaller and medium donor-advised fund sponsors behave differently than the large ones, and community foundations, single-issue charities and national sponsors each behave differently.

Using organization-level data also uncovers evidence that donor-advised funds are a more mainstream philanthropic vehicle than some have suggested. Our data suggests a lower average account level than was previous supposed from the aggregate data (c.f. Andreoni, 2017). This is supported by evidence that the number of DAF accounts is rapidly increasing. National Philanthropic Trust found a 60% increase in the number of donor-advised fund accounts in 2017 and a 20% decrease in the average account balance (National Philanthropic Trust, 2018). Callahan's (2017) book about ultra-wealthy philanthropists suggests that DAFs are a tool for the wealthy to circumvent regulations around private foundations. The Economist (2017) also suggested that donor-advised funds are primarily a tax saving vehicle for the philanthropy of the extremely wealthy. While DAFs may be used to maximize tax advantages among elite wealth holders, we find evidence suggesting DAF proliferation among a broader base of charitable donors.

Our findings also suggest that DAF sponsors behave differently than private foundations and require different metrics. Median and average payout rates are multiple times higher than the 5-6% that private foundations pay out. In addition, DAF grants are correlated closely with

contributions. To measure this distinct phenomenon, we introduce the flow rate metric, which we hope will lead to a more sophisticated understanding of donor-advised funds. While payout rates are a critical measure of DAF activity, payout rates do not fully or accurately describe the continual flow of money through donor-advised funds. Focusing on payout rates misguidedly equates donor-advised funds, which make grants using a combination of contributions and assets, with private foundations, which generally make grants using endowment earnings.

Much of the concern around donor-advised funds focuses on the fact that once money is placed into a DAF account, there is no guarantee that money will be redistributed (Daniels, 2015, Daniels & Lindsay, 2016b, Madoff, 2016b). Many reform advocates fear that money will stagnate in donor-advised funds. When considering our findings on this topic, it is important to reiterate that the data and analyses in this article cannot be used to directly address the individual use of donor advised funds. While our findings describe organizational behavior, they cannot describe how individuals use DAFs. Inferring patters of individual behavior from ecological data, such as 990 returns, involves multiple assumptions that cannot be supported by the data currently available on donor-advised funds (King, 1997). Andreoni (2017) suggested that, from a public policy perspective, one should focus on the aggregate activities, not individual accounts. While the individuals may benefit from the tax advantages of donating to donor-advised funds, the onus is on DAF sponsors to maintain a charitable purpose for their exempt status.

When we analyze organizational-level DAF activity, we observe that DAF grantmaking is relatively robust when compared to DAF assets and contributions. The median payout rate is approximately 13%, indicating that funds for DAF grantmaking are not generated solely from interest earnings. Median flow rates of 87% suggest that donor-advised funds act as pass-through philanthropic intermediaries, not as long-term parking lots for charitable dollars. The rise of asset

levels seems to be driven by the remainder left in the accounts combined with compound

interest. While researchers and policymakers would ultimately like to know to what extent these

patterns hold for individual DAF accounts, these organization-level patterns are valuable because

they can help researchers and policymakers to compare DAFs to other nonprofit grantmaking

institutions.

We also found that different types of sponsor organizations behave differently. These

differences in donor-advised funds sponsors presumably reflect the differences in clientele across

the organizations. Community foundation DAFs act more like grantmaking foundations than

other DAF sponsors. This suggests that those who use community foundations take a more grant-

on-earnings approach than those who use other types of DAF sponsors. Community foundations

significantly decreased their grants during recessions, following the pattern of private

foundations. Single-issue charities had the highest flow rates, suggesting that they operate more

as pass-through intermediaries, functioning to liquidate assets and then distribute those assets

quickly to related charitable entities. More research will have to drill down on the various groups

and subgroups of donor-advised funds. For example, how do religious donor-advised funds differ

from other single-issue charities? Or how do urban community foundation DAFs differ from

those in rural communities? In regards to size, we see that smaller sponsors tend to have higher

flow rates. Larger sponsors, however, have higher payout rates. These patterns suggest that

regulations meant to control payout rates would primarily affect DAFs with smaller assets.

Our final analysis of donor-advised activities during recession conditions is perhaps the

most important contribution of this paper, when considering their place in the nonprofit sector

and society as a whole. Giving from foundations decreased as readily as individual giving during

the recession years of 2008-2009 (Reich & Wimer, 2012), when nonprofits needed the money

the most. During this time, donors with money in donor-advised fund accounts were uniquely

positioned to continue to support the causes they cared about. Our findings suggest that

grantmaking from donor-advised funds is less affected by economic recession than other forms

of charitable giving. More research will be needed to understand what charities benefit from this

DAF recession giving. Furthermore, policy makers may want to carefully consider the recession-

resilient nature of donor-advised funds as they formulate regulation for this growing form of

philanthropy.

Endnotes

[1] The Bill and Melinda Gates Foundation granted $4.5 billion, and DAF grants from Fidelity
Charitable totaled $3.5 billion (Bill & Melinda Gates Foundation, 2017; Fidelity Charitable,
2017a).

[2] The IRS reported that all DAF sponsors had a combined asset value of $52.9 billion for that
2012 tax year, and the sample for this study has a combined asset value of $56.8 billion for fiscal
year 2013. The difference is due to the panel data being organized by fiscal year instead of tax
year (calendar year), as well as some IRS file error as noted by Arnsberger (2016).

[3] NPT divides grants in a given year by the year-end assets of the previous year.

[4] Arnsberger divides grants in a given year by the year-end asset value in the same year plus the
grants for that year minus the contributions that year.

[5] GDP and S&P 500 are inflation adjusted to 2012 dollars, and unemployment rates are
seasonally adjusted.

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1 Tables

Table 1. Summary Statistics by Year

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Grants (in millions $)									
Sum	6,801.98	7,559.21	6,997.71	7,531.37	8,225.22	8,427.04	9,586.95	11,901.84	13,567.33
Median	0.33	0.47	0.43	0.46	0.55	0.53	0.63	0.64	0.75
Mean	8.58	8.76	7.47	7.89	8.52	8.97	10.58	13.25	15.54
Std Dev	48.88	52.44	45.09	48.78	53.39	55.25	71.38	90.93	112.52
Assets (in millions $)									
Sum	34,168.85	32,201.82	30,805.65	34,945.75	38,471.62	44,408.80	55,817.16	67,467.20	74,028.38
Median	3.56	3.26	3.24	3.50	3.93	4.35	5.08	5.56	5.91
Mean	39.92	35.39	32.43	36.36	39.78	46.80	60.60	73.98	83.93
Std Dev	215.84	206.04	174.17	199.42	238.72	301.80	416.42	536.10	625.36
Contributions (in millions $)									
Sum	10,444.49	9,657.48	7,206.81	9,670.48	10,478.60	13,852.38	16,855.14	19,117.67	20,558.33
Median	0.63	0.58	0.47	0.53	0.60	0.67	0.82	0.87	0.92
Mean	13.22	11.15	7.67	10.13	10.88	14.85	18.69	21.34	23.88
Std Dev	80.46	73.99	46.48	65.45	73.17	122.80	151.55	164.23	185.54
Number of accounts									
Sum	156,620	171,592	178,770	182,407	190,461	203,655	217,346	239,979	265,851
Median	29	31	33	33	36	38	39	42	47
Mean	185.57	189.60	187.00	187.66	196.35	211.70	235.48	260.85	297.71
Std Dev	1,538.98	1,685.24	1,719.23	1,764.01	1,785.13	1,900.97	2,144.05	2,398.41	2,784.19
Observations	832	888	934	954	976	962	930	926	902

Note: Organization-years with all zeros or missing values are not included in the table. DAF data inflation-adjusted to 2012 dollars.

Table 2. Regression of Grants on Other DAF Variables

	DV: Grants				
	(1)	(2)	(3)	(4)	(5)
Assets	0.973***			0.415***	0.412***
	(0.0412)			(0.0494)	(0.0495)
Contributions		0.622***		0.345***	0.346***
		(0.0263)		(0.0324)	(0.0322)
Number of Accounts			1.339***	0.398***	0.391***
			(0.0444)	(0.0618)	(0.0615)
Year FE	No	No	No	No	Yes
Observations	8058	7964	8080	7866	7866
Adjusted R^2	0.430	0.481	0.443	0.592	0.597

Note: Organization-years with all zeros or missing values are not included in the table. Robust standard errors clustered at the EIN level. DAF variables inflation-adjusted to 2012 dollars. All variables transformed using the inverse hyperbolic sine (IHS) function.

Table 3. Summary Statistics of DAF Metrics by Year, Balanced Panel

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Payout rate, Grants/(Assets+Grants-Contributions)									
Median	0.12	0.16	0.12	0.13	0.13	0.13	0.12	0.12	0.13
Mean	0.30	0.40	0.29	0.25	0.31	0.34	0.28	0.27	0.27
Std Dev	0.99	2.53	0.87	0.53	0.91	1.69	0.89	1.07	0.65
Flow rate, Grants/Contributions									
Median	0.68	0.90	1.05	0.99	0.91	0.85	0.83	0.89	0.87
Mean	1.71	2.56	2.41	2.78	2.56	2.54	2.28	4.05	4.41
Std Dev	8.10	17.89	8.47	15.34	12.86	10.60	12.30	31.29	39.46
Observations	699	699	699	699	699	699	699	699	699

Note: Only organizations with DAF metrics in each year included in the data set. Data cleaned to exclude organization-years with anomalous rate values.

Table 4. Regression of Grants on Other DAF Variables, by Sponsor Type

	DV: Grants			
	(1) All	(2) Community	(3) National	(4) Single-issue
Assets	0.415***	0.488***	0.0348	0.357***
	(0.0494)	(0.0715)	(0.171)	(0.0598)
Contributions	0.345***	0.356***	0.485**	0.315***
	(0.0324)	(0.0433)	(0.156)	(0.0427)
Number of Accounts	0.398***	0.485***	0.487*	0.373***
	(0.0618)	(0.0975)	(0.195)	(0.0767)
Constant	0.558	-1.438*	4.693*	2.465**
	(0.539)	(0.704)	(1.819)	(0.758)
Observations	7866	4855	372	2639
Adjusted R^2	0.592	0.663	0.679	0.488

Note: Organization-years with all zeros or missing values are not included in the table. DAF variables inflation-adjusted to 2012 dollars. Robust standard errors clustered at the EIN level. All continuous variables transformed using the inverse hyperbolic sine (IHS) function.

Table 5. Regression of Grants on Other DAF Variables, by Sponsor Size

	DV: Grants			
	(1) All	(2) Assets< $5.56M$	(3) $5.56M <=$ Assets $< $1B$	(4) Assets>= $1B$
Assets	0.415***	0.343***	0.509***	0.103
	(0.0494)	(0.0829)	(0.0776)	(0.133)
Contributions	0.345***	0.319***	0.346***	0.448***
	(0.0324)	(0.0405)	(0.0519)	(0.0634)
Number of Accounts	0.398***	0.414***	0.200*	0.223*
	(0.0618)	(0.0909)	(0.0775)	(0.0712)
Constant	0.558	1.789	0.0455	6.787**
	(0.539)	(1.134)	(0.933)	(1.984)
Observations	7866	3536	3908	99
Adjusted R^2	0.592	0.310	0.591	0.865

Note: Organization-years with all zeros or missing values are not included in the table. DAF variables inflation-adjusted to 2012 dollars. All continuous variables transformed using the inverse hyperbolic sine (IHS) function. Robust standard errors clustered at the EIN level. $5.56 million is approximately the median amount of assets in the data set in 2014.

2 Figures

Figure 1. Three Basic Donor-Advised Fund Activities
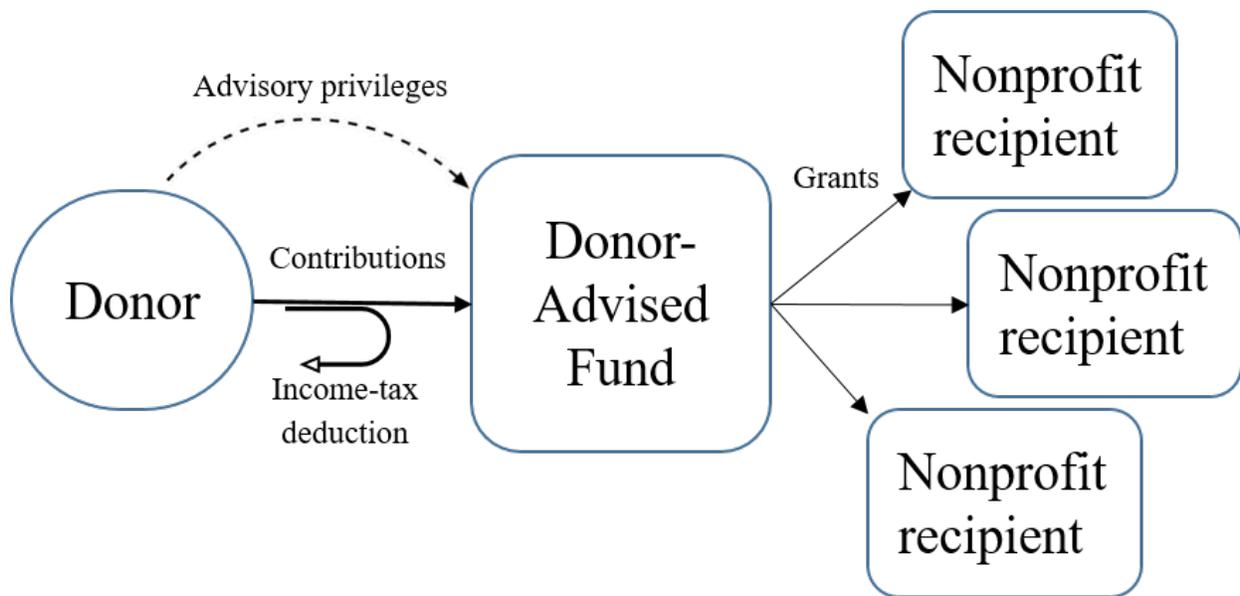
1. Donor makes a tax-deductible contribution into a donor-advised fund account.

2. DAF sponsor holds and manages assets.

3. Donor "advises" grants out of DAF account to other nonprofit recipients.

Figure 2. Relationship Between Grants and Other DAF Variables

(a) Assets vs. Grants
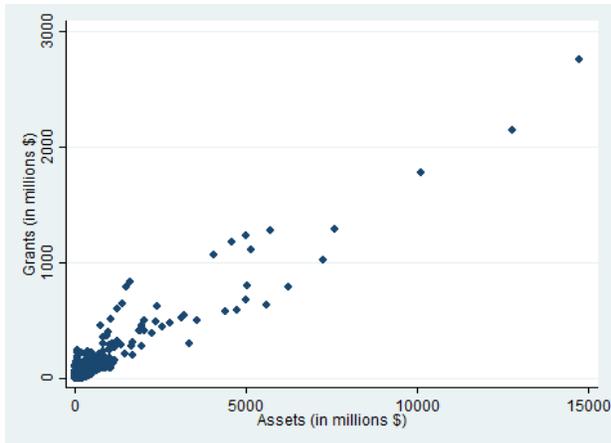
(b) Contributions vs. Grants
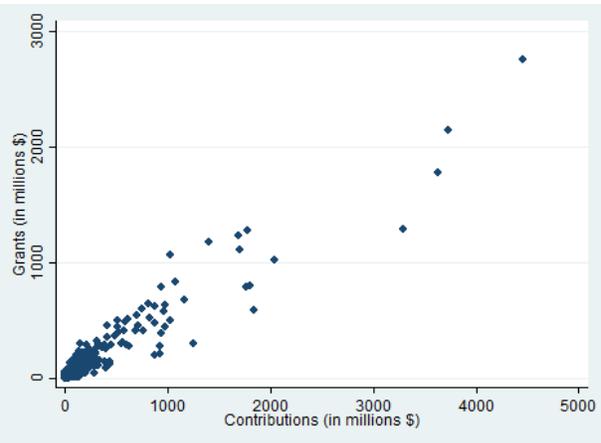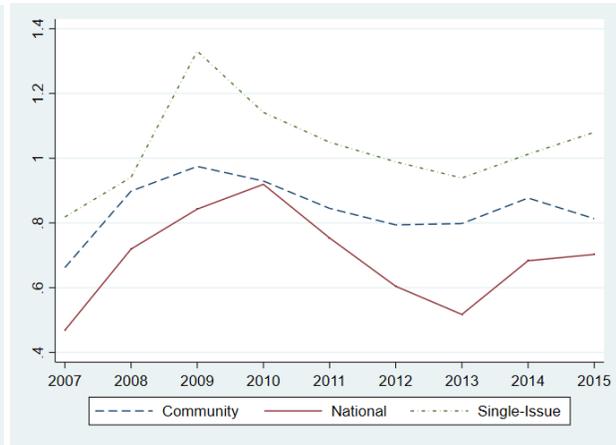

(c) Number of Accounts vs. Grants
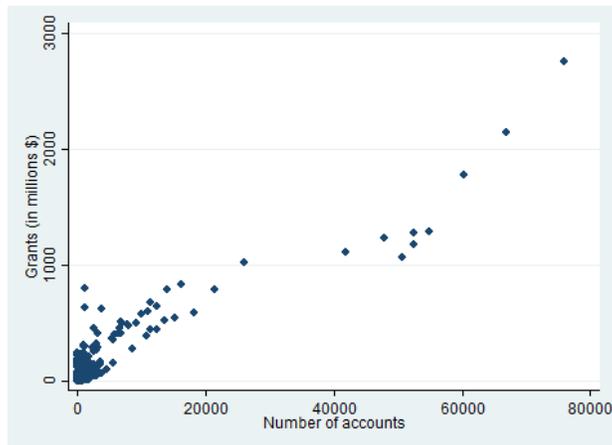
Note: Each point represents one DAF sponsor organization in one year. Organization-years with all zeros or missing values are not included in the figure. 2016 not included. DAF data inflation-adjusted to 2012 dollars.

Figure 3. Median DAF Metrics Over Time

(a) Payout Rate by Type
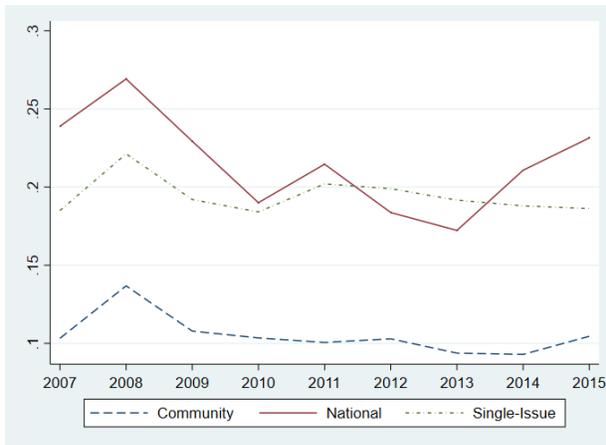
(b) Flow Rate by Type

(c) Payout Rate by Size
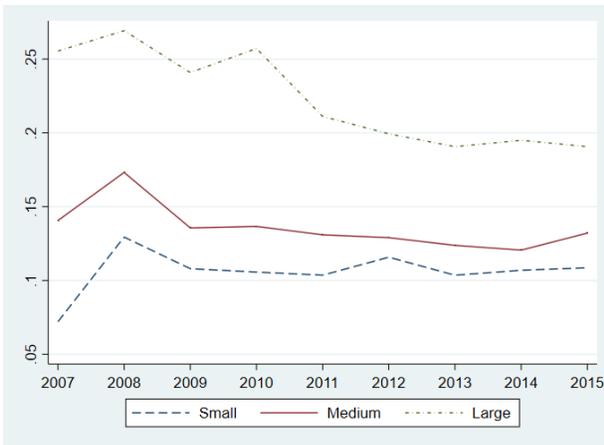
(d) Flow Rate by Size
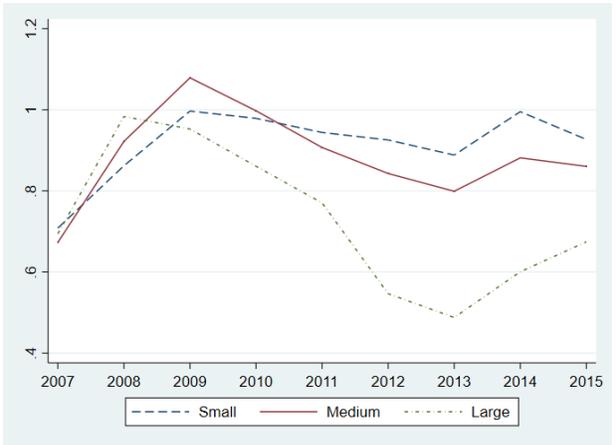
Note: Only organizations with DAF metrics in each year included in the data set (balanced panel). Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). Small organizations have assets less than $5.56M in 2014. Medium organizations have assets between $5.56M and $1B in 2014. Large organizations have assets more than $1B in 2014. 2016 not included.

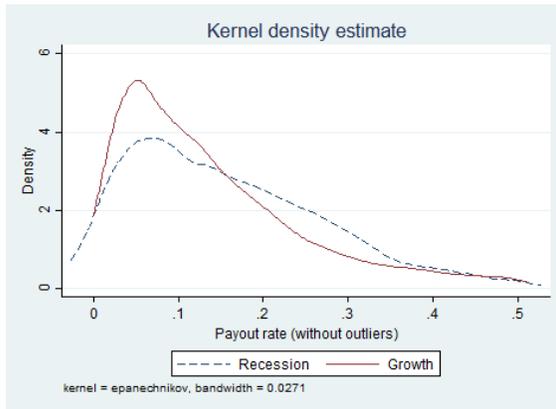Figure 4. Distribution of DAF Metrics During Economic Growth and Recession
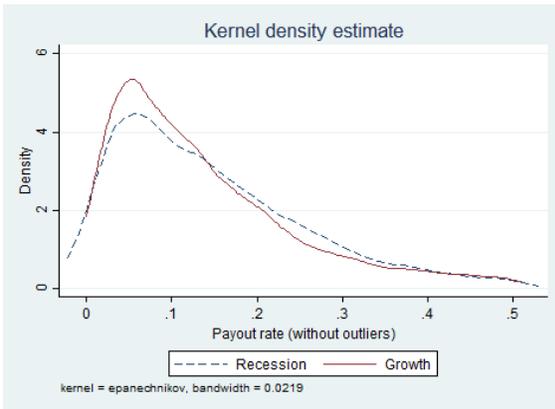
(a) Percent Change Grants, GDP Recession
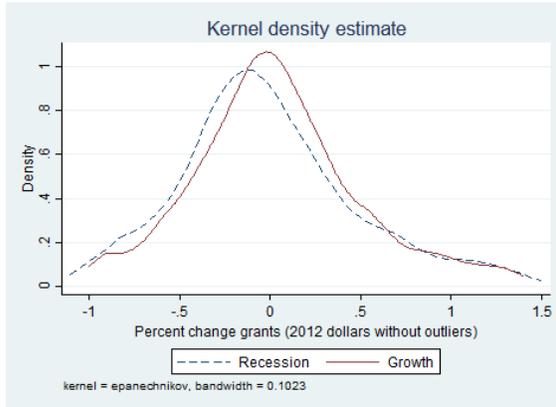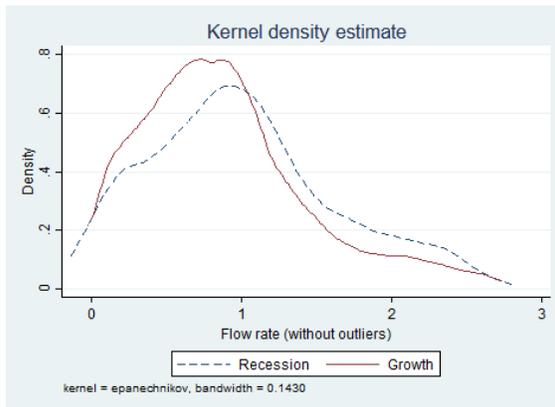
(b) Percent Change Grants, S&P Recession
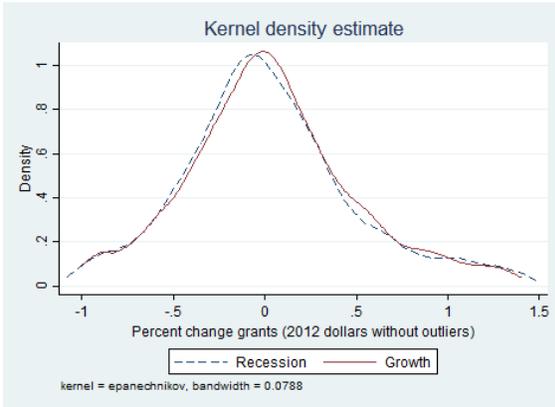
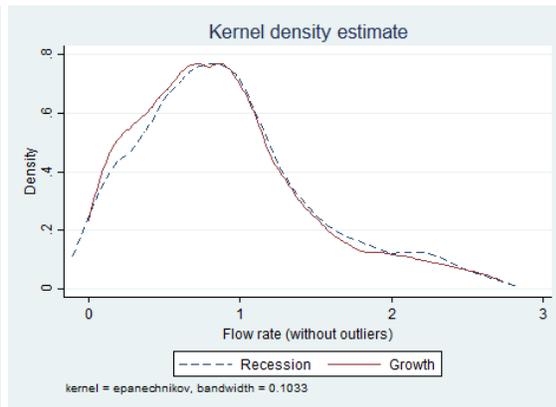(c) Payout Rate, GDP Recession

(d) Payout Rate, S&P Recession

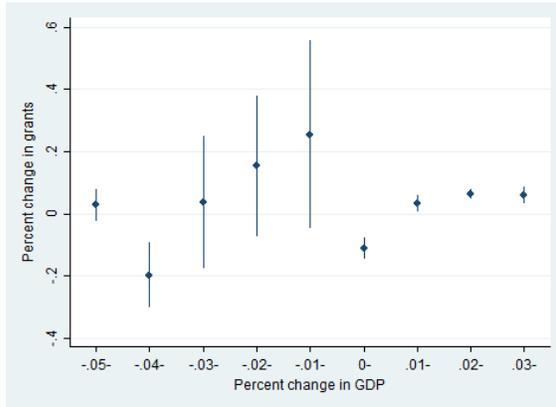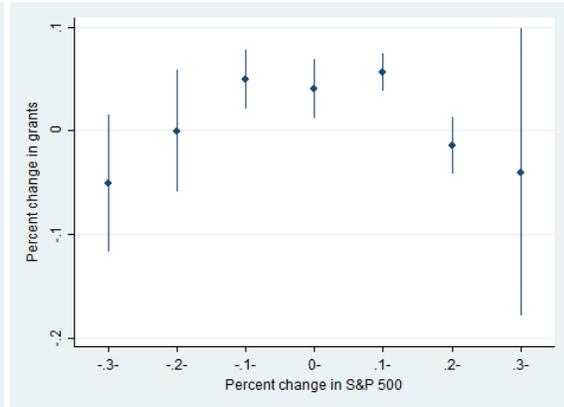(e) Flow Rate, GDP Recession

(f) Flow Rate, S&P Recession

Note: To calculate percent change, organizations must have values in both years. Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). Outliers more than 1.5 times the interquartile range are excluded from the analysis. Organizations with zeros in the rate denominator not included for that specific DAF metric. Data cleaned to exclude organization-years with anomalous rate values. Grants, S&P 500, and GDP inflation-adjusted to 2012 dollars.

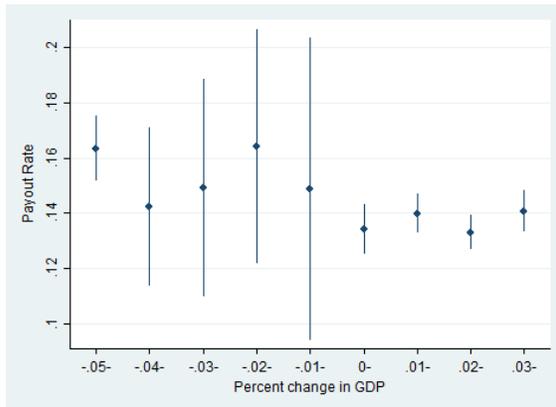Figure 5. Changes in DAF Metrics for Levels of GDP and S&P Changes
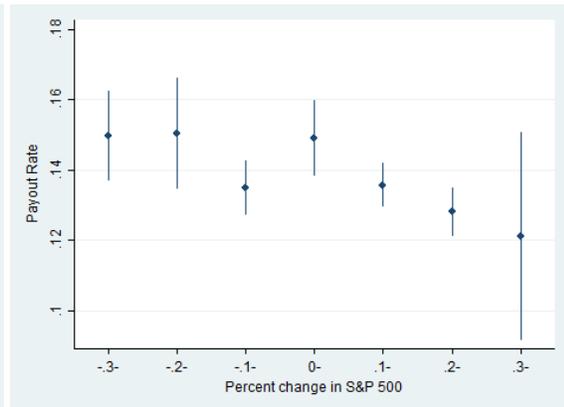
(a) Grants vs. GDP

(b) Grants vs. S&P 500

(c) Payout Rate vs. GDP

(d) Payout Rate vs. S&P 500

(e) Flow Rate vs. GDP
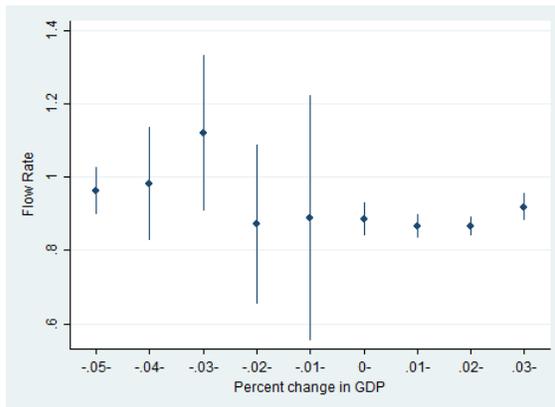
(f) Flow Rate vs. S&P 500
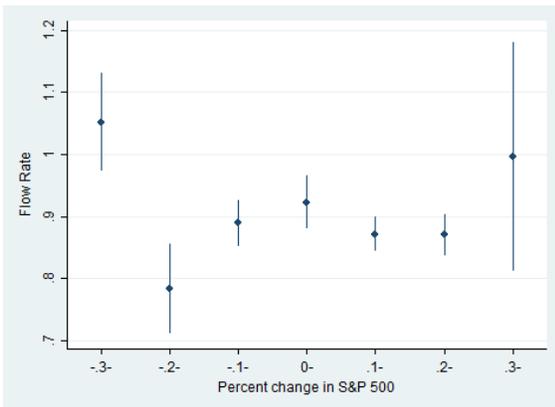
Note: Estimates are the result of a non-parametric regression with robust errors clustered at the EIN level. Whiskers represent 95% confidence intervals. Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). To calculate percent change, organizations must have values in both years. Outliers more than 1.5 times the interquartile range are excluded from the analysis. Organizations with zeros in the rate denominator not included for that specific DAF metric. Data cleaned to exclude organization-years with anomalous rate values. Grants, S&P 500, and GDP inflation-adjusted to 2012 dollars.

A Appendix

Table A 1. Quantile (Median) Regression of Payout and Flow Rates, by Sponsor Type

	(1) Payout Rate, Q(50)	(2) Flow Rate, Q(50)
Community	-0.0992***	0.126***
	(0.00795)	(0.0347)
Single-issue	-0.0148	0.312***
	(0.00935)	(0.0347)
Constant	0.201***	0.691***
	(0.00779)	(0.0331)
Observations	7828	7607
Adjusted R^2		

Note: Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). National sponsors act as the reference group for these analyses. Organization-years with all zeros or missing values are not included in the table. Robust standard errors in parentheses. Data cleaned to exclude organization-years with anomalous rate values.

Table A 2. Quantile (Median) Regression of Payout and Flow Rates, by Sponsor Size

	(1) Payout Rate, Q(50)	(2) Flow Rate, Q(50)
Medium	0.0322***	-0.0488**
	(0.00383)	(0.0188)
Large	0.118***	-0.182***
	(0.0106)	(0.0314)
Constant	0.102***	0.912***
	(0.00324)	(0.0157)
Observations	7510	7303
Adjusted R^2		

Note: Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). Small sponsors act as the reference group for these analyses. Organization-years with all zeros or missing values are not included in the table. Robust standard errors in parentheses. Data cleaned to exclude organization-years with anomalous rate values.

Table A 3. Correlation Matrix of Percent Change in DAF and Economic Variables using Aggregate Data

	Assets	Grants	Contrib	NumAccts	GDP	LagGDP	S&P	LagS&P	CCI	LagCCI	Unemp	LagUnemp
Assets	1											
Grants	0.914**	1										
Contributions	0.825*	0.658	1									
Number of Accounts	0.827*	0.872**	0.547	1								
GDP	0.523	0.495	0.794*	0.195	1							
Lag GDP	-0.00463	0.0395	-0.0692	-0.223	0.236	1						
S&P 500	0.801*	0.606	0.684	0.371	0.455	0.0698	1					
Lag S&P 500	0.446	0.516	0.488	0.126	0.788*	0.714*	0.409	1				
CCI	0.255	0.209	0.0233	0.471	-0.215	-0.579	0.0871	-0.410	1			
Lag CCI	0.168	0.182	0.400	-0.257	0.778*	0.507	0.379	0.760*	-0.616	1		
Unemployment	-0.424	-0.404	-0.582	-0.0101	-0.869**	-0.663	-0.479	-0.958***	0.453	-0.862**	1	
Lag Unemployment	-0.0714	-0.117	0.0500	0.0796	-0.255	-0.921**	-0.0523	-0.704	0.241	-0.347	0.624	1

Note: DAF variables, S&P 500 (SPX), and GDP inflation-adjusted to 2012 dollars. Aggregate DAF data summed at the year level. Economic data is the mean of the economic variables experienced by each sponsor organization in the data set, excluding those with all zeros or all missing values in a particular year.

Table A 4. Comparison Between Recession and Growth Years, GDP recessions

	GDP Growth	GDP Recession	Difference, T-test
All			
Percent change grants	0.03	-0.01	-0.05*
Payout rate	0.14	0.16	0.02***
Flow rate	0.88	1.00	0.12***
Community			
Percent change grants	0.05	-0.01	-0.05*
Payout rate	0.12	0.15	0.03***
Flow rate	0.84	0.98	0.14***
National			
Percent change grants	0.13	0.11	-0.02
Payout rate	0.20	0.21	0.01
Flow rate	0.75	0.88	0.13
Single-issue			
Percent change grants	-0.00	-0.04	-0.03
Payout rate	0.16	0.17	0.01
Flow rate	0.98	1.05	0.08
Small (Assets $< \$5.56M$)			
Percent change grants	0.00	-0.06	-0.06
Payout rate	0.12	0.13	0.01
Flow rate	0.86	0.88	0.01
Medium ($\$5.56M <=$ Assets $< \$1B$)			
Percent change grants	0.07	0.03	-0.04
Payout rate	0.15	0.17	0.03***
Flow rate	0.90	1.08	0.19***
Large (Assets $>= \$1B$)			
Percent change grants	0.14	0.05	-0.08
Payout rate	0.21	0.26	0.04
Flow rate	0.75	1.26	0.50***

Note: DAF variables and GDP inflation-adjusted to 2012 dollars. Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). Excluding rate problems and those with all zeros or all missing values in a particular year. Results also exclude observations with values more than 1.5 times the interquartile range from the 25th and 75th percentiles.

Table A 5. Comparison Between Recession and Growth Years, S&P 500 recessions

	S&P500 Growth	S&P500 Recession	Difference, T-test
All			
Percent change grants	0.03	0.02	-0.01
Payout rate	0.14	0.14	0.01**
Flow rate	0.88	0.92	0.03*
Community			
Percent change grants	0.05	0.03	-0.02
Payout rate	0.12	0.13	0.01***
Flow rate	0.84	0.89	0.06**
National			
Percent change grants	0.11	0.18	0.07
Payout rate	0.20	0.21	0.00
Flow rate	0.73	0.83	0.10
Single-issue			
Percent change grants	-0.00	-0.02	-0.02
Payout rate	0.16	0.17	0.01
Flow rate	0.99	0.98	-0.01
Small (Assets $< \$5.56M$)			
Percent change grants	0.00	-0.01	-0.02
Payout rate	0.12	0.13	0.00
Flow rate	0.87	0.85	-0.03
Medium ($\$5.56M <=$ Assets $< \$1B$)			
Percent change grants	0.06	0.06	-0.00
Payout rate	0.14	0.16	0.01***
Flow rate	0.90	0.97	0.07***
Large (Assets $>= \$1B$)			
Percent change grants	0.16	0.03	-0.13
Payout rate	0.21	0.23	0.02
Flow rate	0.73	1.03	0.30**

Note: DAF financials and S&P 500 inflation-adjusted to 2012 dollars. Flow Rate calculated as Grants/Contributions. Payout rate calculated as Grants / (Assets+Grants-Contributions). Excluding rate problems and those with all zeros or all missing values in a particular year. Results also exclude observations with values more than 1.5 times the interquartile range from the 25th and 75th percentiles.