The Benefits and Costs of Donor Advised Funds*

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Abstract

Donor Advised Funds (DAFs) are now a major source of charitable donations in the US, responsible for 1 in 10 dollars donated to charity in 2015. In 2016, Fidelity Charitable, whose only mission is to provide DAFS, became the largest charity in the US. Paradoxically, most people have never heard of DAFs or Fidelity Charitable. This leads us to ask, who uses DAFs and why, what is the impact of government tax policy toward DAFs, and could the extra fiscal cost of subsidizing DAFs be balanced out by an extra public gain of new charity resulting from tax policy toward DAFs?

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1 Introduction

The largest charity in America in 2016 is one that a vast share of the American population has never heard of. The charity is called Fidelity Charitable Gift Fund, and its mission is to manage Donor Advised Funds.[1] Remarkably, Fidelity Investments, the parent company to Fidelity Charitable, conducted a survey of their investment clients who could benefit financially from a Donor Advised Fund and discovered that 64% of those surveyed had "no idea" about Donor Advised Funds. Yet, in 2015, 10% of all charitable donations claimed on tax returns were made to Donor Advised Funds. How can they be so popular and important to charities everywhere, yet so widely unknown to potential donors?

In this article, I will, introduce readers to Donor Advised Funds (or DAFs) and the tax policy toward them. I will explain how the sponsors of DAFs, such as Fidelity Charitable, act as financial intermediaries in the market for charitable giving in order to help donors save more tax dollars as they give money to charity. I will also show how the data can reveal how DAFs can be so dominant in charitable giving and yet so unknown. More importantly, I will argue that DAFs are consequential to all Americans for their impact on government tax revenues and on the number of dollars going to charity. [2] Gathering these components together brings us to the the primary purpose of this article: to evaluate DAFs according to standard concepts of benefit-cost analysis. In particular, the analysis will ask what would need to be true for the policy to create more new charitable giving than it costs the government in forgone tax revenues.

As we will see, a foundational reason for a giver to use a DAF is to save additional taxes on a household's current giving–no increase in giving is required to claim the extra tax savings of DAFs. If they are used this way, they may create no benefits for society, but add significantly to the tax costs to the US Treasury. On the other hand, if DAF donors are motivated to dedicate all of their additional tax savings to their charitable giving, then DAFs would break even as a policy. If donors give beyond this, or create other socially valuable returns, DAFs will be a net benefit as a tax policy.

Although they have become popular only recently, DAFs have been with us since the 1930s, shortly after the introduction of the charitable deduction.[3] Had they been introduced

[1] See the Chronicle of Philanthropy, https://www.philanthropy.com/article/Fidelity-Charitable-Knocks/238167.

[2] See also Sherlock and Gravelle (2012) for a comprehensive view of DAFs and an assessment of payout rates. These authors cite great heterogeneity across individuals and across sponsoring organizations, a fact I will return to.

[3] The income tax was introduced in the US with the Revenue Act of 1913, after ratification of the 16th amendment to the constitution. The War Revenue Act of 1917 revised the income tax code to include a charitable deduction.

as new legislation this year, the Congressional Budget Office would be required to "score" the legislation to estimate whether the social value of the proposal out-weighs the shared costs, and would make conjectures about the incidence or distributional aspects of DAFs. Unfortunately, the legal rules surrounding DAFs protect the individual DAF accounts from public scrutiny. But, as I hope to convince you, we can learn quite a bit about the flows of benefits and costs of DAFs to make meaningful comparisons of the two.

As we continue, it is important to keep in mind that the objective of this exercise is to look at things from the point of view of a disinterested taxpayer. That is, we should not concern ourselves with how this institution of Donor Advised Funds affects our own giving, tax bill, social esteem, fundraising goals, prestige, or self-image. Our job is to learn whether our country as a whole has made a good bargain when extending extra tax preferences to those who give through Donor Advised Funds, or whether DAFs reduce the efficiency of the current system of subsidies to giving.

The next section will review charitable tax policy, including DAFs. Section 3 will discuss how DAFs save tax payments and loosen constraints set by other tax policies toward giving. Sections 4 and 5 will discuss the concepts of benefit-cost analysis and derive the parameters for our analysis. The benefit-cost calculation will be presented in section 6 and discussed in section 7. Section 8 is a conclusion.

2 What is a Donor Advised Fund?

Before talking about DAFs, it will help to first discuss standard tax policy toward charitable giving. We can then contrast that with how DAFs expand the possibilities for giving and tax savings.

2.1 Tax Policy Toward Giving without DAFs

In US tax law, a qualified charity must gain an IRS tax classification as a 501(c)(3) organization. Individual tax-filers who itemize deductions can deduct their donations to 501(c)(3) organizations from their taxable incomes. If one is facing a marginal tax rate on income of, say 35%, then a $1000 donation will reduce a donor's tax bill by $350, resulting in a net cost of $650 for each $1000 given. Most states with income taxes also allow a deduction, further lowering the price of giving.

In addition to cash, one can also give appreciated assets, such as equities, artworks, and real estate. Imagine giving something easily valued, such as stock in a publicly traded company. If the asset were to be liquidated before giving, the owner would pay capital gains

tax of as much as 23.8% on long terms gains (assets held for a year or more). Thus, stocks worth $1000 that had been purchased for $400 would first generate $143 in capital gains tax (that is, 23.8% of the gain of $600), leaving the donor with $857. Giving this net amount to charity then earns a tax deduction, which reduces income taxes by $339 (that is, $857 times the marginal tax rate of 0.35). In sum, the $1000 asset yields $857 for charity and a net tax savings of $197. However, if one gives the asset directly, then the charity gets the full $1000, the $143 tax on capital gains is forgiven, and the full $1000 face value of the asset can be deducted from income. Given this way, the $1000 asset yields $1000 for the charity, earns a tax deduction on the full $1000 (now worth $350) and a swing in the donor's bank account of $493 (= $143 + $350).

Clearly, giving the asset directly is more advantageous for tax purposes. But the difference between giving most assets and giving cash is only a technical one. The irony in giving assets is that most charities follow a policy of liquidating any non-cash gifts, like equities, as soon as possible upon receipt.[4] So any difference between the donor or the recipient liquidating the asset is of little practical consequence, yet the consequences are very real for the donors' tax payments and, potentially, for the charities' receipts.

Two seldom discussed constraints on giving are potentially quite important for DAFs. First, gifts of non-cash assets that do not have any easily identified "fair market value," such as real estate, works of art, or shares in closely held corporations, are required to have professionally conducted appraisals if their values are of any significance.[5] Second, there are limits on the fraction of income that can be claimed as a charitable deduction each year. Donors who are giving cash can deduct up to 50% of Adjusted Gross Income (AGI, which can be thought of as income net of standard adjustments, such as subtracting IRA contributions and adding in unemployment benefits and IRA distributions). If appreciated property is given, the limit is 30% of AGI.[6] Deductions that exceed these caps can, however, be carried forward up to five years.

Finally, it should be noted that only those who itemize deductions on their tax returns

[4]There are several compelling reasons for this. One is to avoid any apparent conflicts of interest. Second, this protects the charity from being a victim of any insider trading–giving away a stock that is about to decline substantially in value could be a very shrewd move for someone with an informational advantage.

[5]People claiming donations of assets above $5000 must seek professional appraisals of the assets and submit form 8283 with their taxes. For property worth $500,000, they also need to include a written "qualified appraisal." For things worth less than $5000, the IRS basically trusts donors to be truthful. See IRS tax code, sections 170(f)(11)(C) and 170(f)(11)(D). Interestingly, Colinvaux (2013) notes that, for historical reasons, the valuation method for deducting assets has been set at the "fair market value" to the donor rather than the more appropriate notion of value to the charity.

[6]This limit applies to "capital gains property," but there are a complicated set of exceptions. For a full description, see https://www.irs.gov/charities-non-profits/charitable-organizations/charitablecontribution-deductions.

can claim a charitable deduction. This means those with lower incomes who live in states with small or non-existent state income taxes, or pay no home mortgage interest cannot benefit from even the charitable deduction, to say nothing of the DAFs.

2.2 Tax Policy Toward Donor Advised Funds

Imagine a donor wishing to give $100 to a small local charity, say a food bank. Coincidentally, the donor owns shares with substantial capital gains selling for $100 per share. Ideally the donor would like to give one share of stock to the food bank in order to get the maximum tax savings. Unfortunately, the cost transferring and liquidating the single share of stock would be so high that food bank would likely refuse the gift of the non-cash asset. Wouldn't it be convenient, therefore, if the donor could give a the shares easily to another charity who can accept them, and for a small fee, send the food bank a check for $100? This is what Donor Advised Funds do.

DAFs are brokerage-like accounts that are sponsored by qualified 501(c)(3) charities. These charities accept the donors' funds into the sponsored account. The sponsor legally owns the money donated, but acts only as an intermediary by a allowing the DAF donor two important "advising" rights. The donor can advise the sponsor on how to invest the donation and when funds in the account should be liquidated and sent to another 501(c)(3) charity, or used for other charitable purposes. While the sponsor, who is the legal owner of the fund, can stipulate its own time spending and investment limits, such constraints would be voluntary—none are required by the law.

Giving money to charity through a DAF is very much like giving money directly from a brokerage account, with three important differences. First is *timing.* The tax consequences of a charitable deduction are absorbed when money goes into the DAF rather than when it is granted out of the DAF to a traditional charity. Once in the DAF, however, there are no tax consequences of trading or reinvesting funds, and all gains and losses accrue to the eventual charitable recipients.

Second is *convenience.* It is easy to avoid capital gains taxation by donating securities, artwork, or real estate to a DAF before liquidating them, whereas this could be impossible for some smaller donations without a DAF.

Third is *commitment.* Once in the DAF, any funds account can only be withdrawn in the form of grants to charitable organizations.[7]

[7] An interesting observation from the Fidelity Charitable annual Giving Reports, is that among the top 10 or 20 recipients of DAF grants each year is the Church of Jesus Christ of Latter Day Saints. Mormons, as they are otherwise called, are required by their faith to donate 10% of their income and gains annually. Thus commitment is provided by their faith, not by the legalities of DAF. This may explain why Mormons find DAFs attractive–they gather the benefits without adding a constraint.

How DAFs differ from trusts or private foundations? First, the typical foundation is much larger. In 2015, private foundations averaged about $9.5 million in assets, while individual DAFs averaged $292,000. However, DAFs can be opened and ready to operate in a matter of a few hours, and at low cost. Private foundations, by contrast, can take months or years to establish, involving great expense. As a result, in 2015 there existed around 82,000 private foundations, but nearly 270,000 DAFs. Importantly, foundations do much more than grant money to other organizations, and often pursue agendas of their own, employing staff and affording allowances to trustees. DAFs primarily make grants existing charities, although they can pay management fees to the sponsors of the DAFs.

A contentious difference between DAFs and foundations is the "five percent payout rule". The rule states that private foundations must distribute at least 5% of their assets annually as either grants or as "eligible administrative expenses." When adopted, the point of this rule was to guarantee taxpayers a fair rate of return on money subsidized when donated to the foundations, while at the same time not bleeding so much money from foundations that it would force them to eventually disappear. In debating the law, the Treasury argued that a 5% was justifiable because carefully invested endowments would on average yeild 6.75%.[8] In principle, since DAFs allow the advising rights to be given away or bequeathed upon death, DAFs can legally live forever. Just how long money lingers in a DAF will be an important feature to be explored here.

2.3 How Important are DAFs and DAF Tax Policy?

Do DAFs involve enough money for policy makers to really worry about? Perhaps surprisingly, the answer is a resounding yes.

Figure 1 illustrates recent trends in DAFs. From 2007 to 2015, contributions to DAFs

[8]See the discussion of this debate writte by Eugene Steurele for The Commission on Private Philanthropy and Public Needs," published by the US Treasury in 1977, pages 1663–1666. Interestingly, Fidelity Charitable has voluntarily adopted payout rules for DAFs. In their *Fidelity Charitable Policy Guide*, page 18, is a section entitled "Minimum Giving Account" in which they state that after three years without giving from an account, "Fidelity Charitable will make every effort to contact the Account Holder to encourage grant recommendation(s) from the Giving Account. For every year thereafter in which no grants are recommended by an Account Holder, Fidelity Charitable will make grants from the Giving Account to IRS-qualified public charities approved by the Trustees of Fidelity Charitable." While vague about how much will be forcibly given from the account, they are clear about DAFs with longer times of inactivity, stating, "If a Giving Account has entered its seventh year of inactivity (i.e., no grants recommended by an Account Holder), Fidelity Charitable will consider the Giving Account to be abandoned and will grant the entire balance of the Giving Account to one or more IRS-qualified public charities approved by the Trustees of Fidelity Charitable." If an investor holds another DAF at, for instance, Vanguard Charitable, and gave their entire DAF holding at Fidelity to a DAF at Vanguard before the seven year limit, however, such a rule would be easily avoided. In fact, there has been evidence that some foundations are meeting the letter of the 5% rule by giving to DAFs rather that granting directly to charities, although it would not appear consistent with the intention of the rule.

rose by 240% to a total of $22.26 billion per year. Grants from DAFs to charities rose by a similar percent, to $14.5 billion. Year-end-assets—the unspent contributions—climbed to $78.64 billion, a 255% increase. Over the same period, the number of DAF accounts grew as well, but at a relatively slower pace of 178% to almost 270,000 accounts.

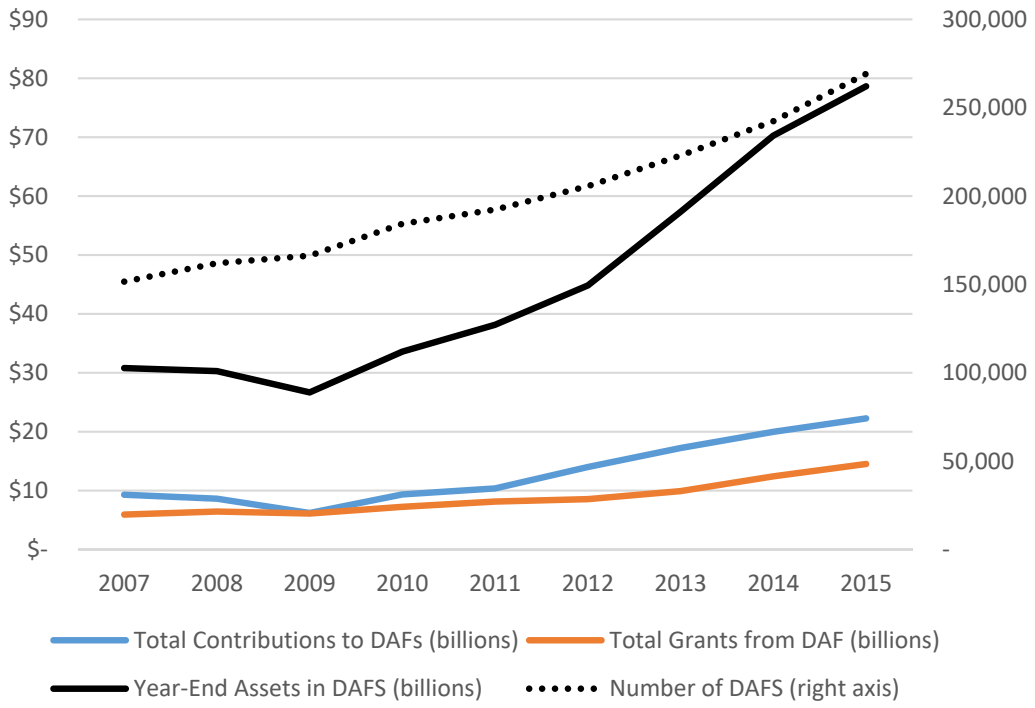


Figure 1: Increasing Contributions to and Assets Held in Donor Advised Funds. (Source: National Philanthropic Trust, *Donor Advised Fund Report*, 2011-16.)

How does an average DAF account holder compare to the average donor? Since no individual level data is available on DAF accounts, I use the IRS Statistics of Income to see what, on average, Americans claim as charitable contributions on their itemized tax returns. Figure 2 provides the comparison. In 2014, for example, looking at only tax returns that took a charitable deduction, the average charitable deduction was $6,089. In that same year, the average DAF account received contributions of $82,429, while making grants that averaged $51,240 per account. If, to be conservative, I assume that no one has more than one DAF account, an assumption I know to be false, then depending on whether you choose grants or contributions as the more appropriate comparison, the average DAF account donor is giving between 8 and 14 times the average amount given by those who deduct the gifts on their taxes.[9]

[9]The 2017 Fidelity Giving Report says that only 54% of donors have just one giving account. 30% have 2 to 4 accounts, 9% have 5 to 9, 4% have 10 to 19, and 3% have over 20. Tallying these up at the low end of each category indicates 2.6 accounts per donor. If Fidelity's pattern holds true among other organizations

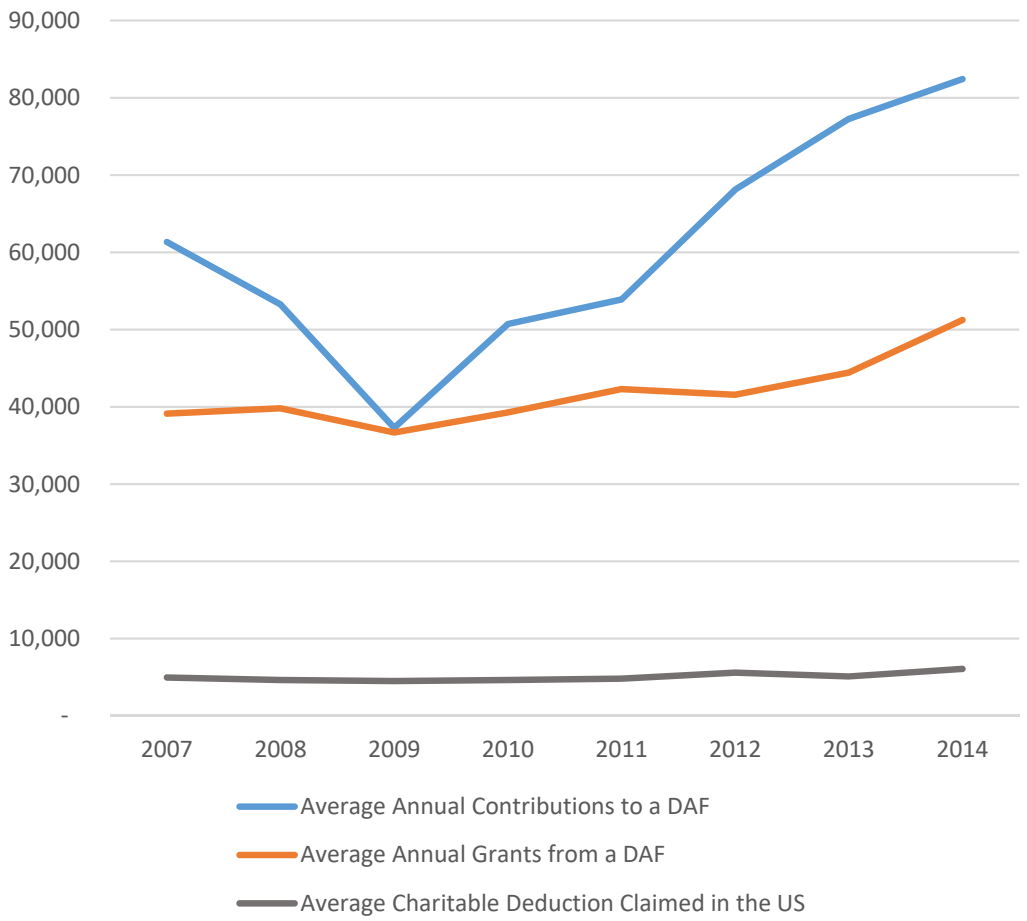


Figure 2: Annual Contributions and Grants per DAF Account, Compared to Average Charitable Deduction of all Taxable Returns with Charitable Deductions. (Source: National Philanthropic Trust, *Donor Advised Fund Report*, 2011-16; and IRS Statistics of Income reports in individual income tax returns)

Using the Statistics of Income to infer what income level is most likely to be associated with these amounts of giving, I find that the gift of $6,089 is best predicted by an income of $187,726.[10] Using grants as the appropriate comparison to SOI deductions, our methods suggest the average DAF donor has an income of $1,361,651 per year, while using contributions as the appropriate number would project an average income of $2,159,230 per year. Both of these figures could be much bigger if taxpayers have more than one DAF account (Fidelity reports that their donors average over 2.5 accounts each, for instance). All this underscores the main point: Donor Advised Funds are clearly a financial instrument that, when measured by dollars that pass through them, are used primarily by people at the very

that provide DAFs, I would have to multiply the figures here by 2 or 3 for more accurate amounts.

[10]Using the average total income and the average total charitable deduction from the 2014 SOI, I fit a quadratic regression of income on donations and use this to predict the unknown variable.

tops of the wealth and income distributions.

Table 1: The Size and Scope of Donor Advised Funds from 2007 to 2015, in 1000's of Nominal US dollars

	2007	2008	2009	2010	2011	2012	2013	2014
Average per DAF (Thousands)								
Year-End Balance	203.2	187.0	160.4	182.2	198.4	218.0	257.2	290.0
Annual Contributions to	61.3	53.2	37.3	50.7	53.9	68.1	77.3	82.4
Annual Grants from	39.1	39.8	36.7	39.3	42.3	41.6	44.4	51.2
Average per IRS Return with Taxable Charitable Deduction:								
Charitable Deduction	5.0	4.6	4.5	4.6	4.8	5.6	5.1	6.1
All DAF Contributions and Grants as a percent of total IRS Contributions:								
Contributions to DAFs	5.11%	5.45%	4.41%	6.14%	6.45%	7.48%	9.46%	10.03%
Grants from DAFs	3.26%	4.08%	4.34%	4.75%	5.06%	4.57%	5.44%	6.23%
Accelerated Deductions	1.85%	1.38%	0.07%	1.39%	1.39%	2.92%	4.02%	3.79%

Sources: National Philanthropic Trust, *Donor Advised Fund Report*, 2011-2016; IRS Statistic of Income, Table 2.1, 2007-2014; and author's calculations.

This point is illustrated clearly in Table 1. Here I show that the year-end balance in DAF accounts averages $290,000 in 2014. Recently the US Census Bureau released its estimates of the mean and median household wealth in the US. Looking only at liquid assets, that is, those that can easily be transported to a DAF, the median value is $39,000, while the mean is $195,000.[11]These are both swamped by the average balance in the giving accounts, which again shows that the population selecting DAFs is heavily skewed toward the wealthy.

A final and striking presentation of this fact is shown in Figure 3. This plots the annual DAF contributions as a percent of all charitable deductions reported to the IRS. The first surprising result is that this has grown from around 5% to just over 10% of all deductions claimed for charitable giving. The relatively flat line in this figure shows DAF donors as a percent of all those tax filers who claim a charitable deduction. This number has stayed below 1% for the entire sample period. In 2014, DAF donors made up 0.74% of all those claiming a contributions deduction, yet were responsible for 10.02% of all charitable deductions. Moreover, these same people have already received tax deductions for another $269 billion that is yet to be productively employed in the charitable sector.

[11]The report refers to 2013 balances. Three elements of the report were summed: Total assets at financial institutions, Other interest earning assets, and Stocks and mutual fund shares. Left off were things like equity in a business, automobile, home, other real estate, and preferred retirement savings accounts. Also not counted were annuities, trusts, and life insurance.

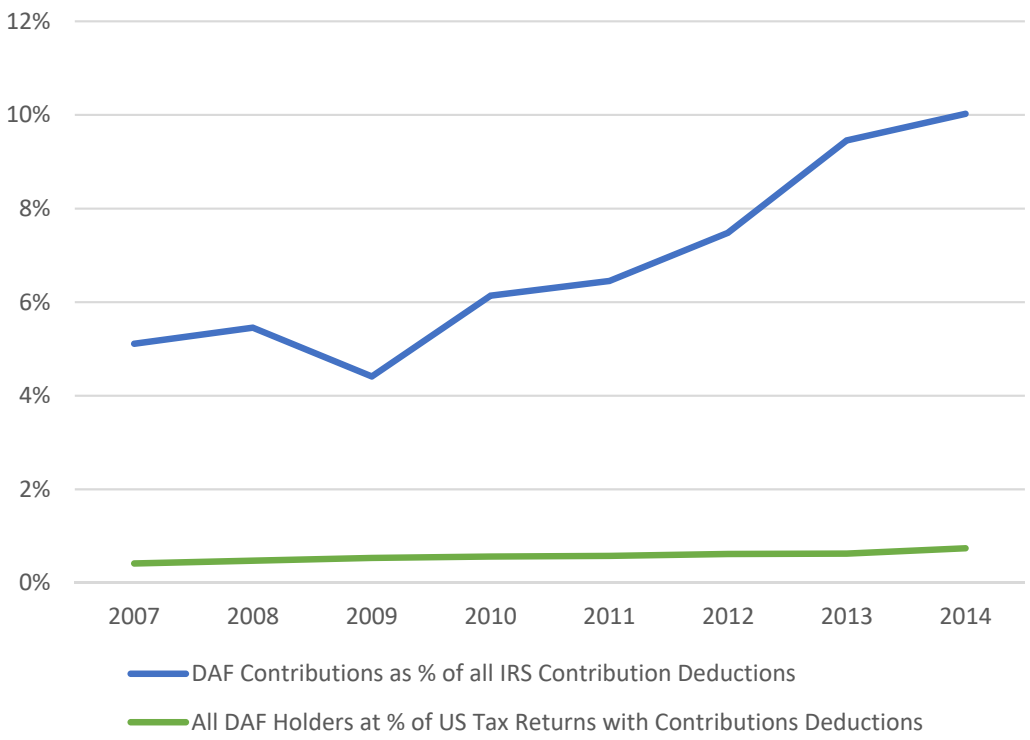


Figure 3: DAF Account Holders are Taking a Bigger Share of Charitable Deduction Dollars. (Sources: National Philanthropic Trust, *Donor Advised Fund Report*, 2011-16; and IRS Statistics of Income reports in individual income tax returns)

2.4 Why are DAFs Predominantly Used by the Wealthy?

A quick look at the tax incentives to giving can indicate why DAFs are so much more popular among extremely high income individuals. Table 2 shows the marginal income tax rates and capital gains tax rates for income brackets stated in terms of 2013 incomes, which is near the center of those years reported on below. Saving capital gains taxation, as has been shown, is perhaps the main financial reason for using a DAF. Those who have no capital gains to give, whose financial assets are tied up in IRAs or 401(k) savings, or who simply have AGI too low to owe any capital gains taxes, will have much weaker reasons for a DAF.

According to Table 2, a married couple would need over $72,500 in AGI to save taxes by giving through a DAF, and that's only true if they have capital-gains assets to donate. The median household income in 2013 was $52,250 and the households with incomes up to $80,000 have little or no financial assets. This means there is no opportunity to benefit financially from DAFs for well over half of the US taxpaying population.

The picture is complicated further when considering the fees and minimum deposit requirements for DAFs. One can open a DAF at Fidelity Charitable for a minimum initial deposit of $5,000, which will carry annual fees of about $126. If this minimum deposit rep-

resents about 5 years of giving, as it would for a household with income of $80,000 per year, then the fees can reduce her giving by over 11%. By contrast, a person opening a DAF with $500,000 which they grant out over five years will pay total fees of about 3.1%. This again is greater discouragement to middle income households.

Finally, suppose two families both give the same asset to charity. The asset has a 50% capital gain. A household with AGI of $120,000 who gives $1000 will save $355, while the household with a $450,000 AGI or above will save $510 with the same gift, a difference of $190. Thus, among even those who could possibly afford a DAF, the incentives to both give and use the DAF are much greater the richer people are.

Table 2: Federal Margin Income Tax Rate (MTR), Long Term Capital Gains (LTCG) and Net Investment Income Tax (NIIT) Rates, 2007-2015. Rates apply if taxable income exceeds $250,000 for married couples and includes net investment income, such as realized capital gains or passive business income.

Example of corresponding AGI brackets for 2013. For other years these are adjusted for inflation.*			MTR		LTCG				
			2007 -2012	2013 on	2007 -2011	2012	2013- LTCG	2013- NIIT	2013- Total
0	to	17,845	10%	10%	5%	0%	0%	0%	0%
17,845	to	72,500	15%	15%	5%	0%	0%	0%	0%
72,500	to	146,400	25%	25%	15%	15%	15%	0%	15%
146,400	to	223,050	28%	28%	15%	15%	15%	0%	15%
223,050	to	398,350	33%	33%	15%	15%	15%	3.8%**	18.8%
398,350	&	above	35%		15%	15%	15%	3.8%	18.8%
398,350	to	450,000		35%	15%	15%	15%	3.8%	18.8%
450,000	&	above		39.6%	50%	15%	20%	3.8%	23.8%

Source: IRS Tax Topic 409–Capital Gains and Losses, and Topic 559–Net Investment Income Tax

* This tax bracket is for Married Couples Filing Jointly. For single filers the NIIT trigger is at $200,000.

** Applies to incomes that exceed $250,000 within this bracket.

Now that we know what DAFs are and have a picture of who uses them, I next ask why and how they use them. Recall the defining feature of DAFs: Timing, convenience, and commitment. I will explore how each of these affect those using DAFs.

3 How Donors Use Donor Advised Funds

This discussion is separated by the two main distinctions. Subsections 3.1 to 3.3 discuss the uses of the special rules of DAFs to alter either one's giving or finances in constructive ways. The final subsection, 3.4, looks at how DAFs can be used for the sole purpose of reducing one's tax bill.

3.1 Giving Non-Cash Assets more Easily

In this subsection I provide more detailed explanations of how DAFs facilitate gifts of non-cash assets.

What and When to Contribute to a DAF?

If a donor wishes to use a non-cash asset for a gift to charity, which asset should the donor use, and when should be given DAF relative to the intended date of transfer of the funds to the charity?

In most cases, the donor wishing to maximize tax savings should give the stock she owns with the highest fraction of capital gains.[12] After the DAF contribution she can adjust her investment and DAF portfolios to restore diversification, even repurchasing the stock she contributed.

When during the tax year should she fund the DAF? If she expects her portfolio to be growing in value, she will gain the most tax savings if she makes the contribution as late as possible. For example, imagine she owns a share that is sure to go up by 10% in value. Funding the DAF with shares worth $1000 in January and granting them to charity in December means that the charity gets $1100 and she gets a deduction of $1000. Had she waited until December to fund the DAF at $1100, then everything would be the same, but now she can claim an extra $100 tax deduction.

By the same logic, if she feels confident that the stock she wants to donate will go down in value, then she should fund the DAF today rather than wait. Since, in theory, stock prices are unpredictable and, in general, rise in value, tax-minimizing would suggest making and funding this year's donation as close to the time of the donation to charity will allow for the most tax-effective giving. [13]

3.2 Smoothing

It is commonly assumed that consumption varies less than income. Here I describe how DAFs can smooth charitable giving in the presence of variable incomes or tax rates.

[12]The exception is when she might have realized capital losses, for which she may want to match with some realized gains so as to avoid carrying a loss forward.

[13]If assets have taxable distributions as well as capital gains, the picture becomes a bit more complicated. However, if one follows the same advice as above but immediately donates any distributions directly to the DAF when received, but donates the asset itself as late as possible, the tax consequences will be nearly the same as if the asset retained earnings and built capital gains. The reason is that dividends and capital gains are taxed at the same rate.

Variable Income

Many taxpayers, such as the self-employed, have incomes that often vary widely from year to year. As a result, their marginal tax rates can also vary. These people would generally like their spending to fluctuate less than their incomes, and this includes their giving. Despite the desire for smoothing donations, it makes sense to claim more donations in years when their marginal tax rates are higher and claim smaller deductions when tax rates are lower. Without DAFs, these people face a trade-off between smooth giving and maximum tax savings. DAFs eliminate the dilemma. Contributions into DAFs can fluctuate with income, but grants out of DAFs can remain relatively steady. We have already seen evidence of this effect. Figure 2 shows a line representing average annual contributions to DAFs taking a dip in 2009 in the midst of the Great Recession, while average grants from DAFs kept nearly constant from 2007 to 2012.

Pre-paying

When people enter retirement, they often switch from drawing a high salary to drawing down capital investments to finance their living expenses. As a result, they can find themselves in a lower tax bracket in retirement. People in this situation can gain by "pre-paying" their expected contributions in retirement before they retire. As we saw above, if they want to do this, the best time to do it is as late as they can, thus bunching up as many years of pre-paid giving during their final years of work as possible.

The IRS limits deductions to DAFs to 50% of adjusted gross income for gifts of cash but only up to 30% of AGI for gifts of non-cash assets. This means that giving the maximum for two or three years may be necessary to fully pre-pay one's donations.[14]

Pre-pay or Carry Forward?

Another reason to pre-pay donations would be if a donor wishes to make a single large donation in one year. This is common in today's fund-raising world when charities are competing for donors by offering legacy gifts that will carry the donor's name, such as a wing of a hospital, or a museum to house the donor's massive art collection.

Such large gifts will often surpass the IRS annual limit on the charitable deduction. Standard tax law allows the excess to be carried forward for up to five years. But this means delaying the full tax savings or, even worse, exceeding the deduction limits and failing to

[14]Imagine a person with AGI of $500,000 who gives away $20,000 each year, is planning to maintain this level of giving for 25 years in retirement. Assuming a 7% annual return, then she needs a balance of $233,000 in her DAF upon retirement. Her deduction limit, however, is $150,000/year, which means she needs at least two years of savings to reach her goal.

maximize tax savings. A DAF can solve all of these problems. By front-loading the DAF for several years before the big donation, the DAF will obtain the tax savings before, rather than after, the gift, and will reduce the need to carry forward excess deductions.

Anticipating Statutory Tax Changes

As described in section 2.4 and Table 2, there were important tax changes that took effect in 2013. These changes were part of the Affordable Care Act, which was signed into law by President Obama on March 23, 2010. Thus, for the years leading up to 2013, individuals with DAF savings should have spent that down and replenished it after 2013, when the deduction will be more valuable. Thus, we could expect to see contributions fall and account balances decline (at least relative to a trend) from 2010 to 2012 as a means of shifting charitable deductions to take advantage of the greater savings under the higher marginal rates. Given the anticipated increase in capital gains tax as well, the 2010 law might focus attention on the benefits now and in the future from giving appreciated assets, which may lead to an increase in DAF usage. However, while the increase in marginal rates will lower the cost of giving, they will also lower after-tax income of the potential donors. Which effect will dominate is unclear. Saez (2017) explores this question, but finds little evidence of anticipatory changes in giving. I will revisit this question later.

3.3 Forced Sales, Lumpy Assets, and other Large Capital Gains

Mergers, take-overs, initial public offers, and other punctuated events often give shareholders an anticipated but unavoidable realization of very large capital gains without the hope of reducing these gains by matching them with realized losses.[15] A potentially attractive option is to give some of these shares to a DAF before the sale. Rather than face millions of dollars in capital gains tax, a person could instead fund a lifetime of charitable giving. Indeed, given our conversation on the value in delaying funding of DAFs, it is surprising to look at an annual giving report from Fidelity Charitable, for example, and learn that 8% percent of DAF accounts carry balances over $250,000. This balance in a DAF is hard to imagine without inferring these belong to people who are avoiding capital gains tax that, in the absence of DAFs would be more difficult to avoid.

Other assets can also bring large capital gains, such as non-publicly traded shares in

[15]Many shareholder agreements allow for either votes from the board of directors or from shareholders themselves to force the sale of a fraction of shares from each shareholder at a fixed price. Typically this follows a bid for a merger or takeover of the company and can involve the purchase of up to 100% of the shares of the target firm. However, it is also typical that the forced sale price is a premium over the recent market price of the firms, thus all shareholders stand to make a gain from the sale.

closely held corporations, original artwork or collectibles, real estate, and even homes.[16] While some donations of such large properties clearly end up with significant public benefit, others appear more motivated by tax considerations than by civic-mindedness.[17]

3.4 Tax Arbitrage

Tax arbitrage is the practice of shifting assets within one's portfolio without appreciably altering the real value of that portfolio, but nonetheless producing a savings in taxes. Tax arbitrage is an issue with nearly every tax, but is especially problematic with taxation of physical and financial assets. The rules around Donor Advised Funds are no exception.

Estate Giving

Since 2011, estates worth under $5 million have been exempt from estate taxes, a limit that is indexed for inflation (in 2017 the limit stands at $5.49 million). A donor who wants to include a gift in his estate, whether he will owe estate tax or not, can save money by giving the donation to a DAF before dying. Either way the gift will avoid estate taxes, but if it is put in a DAF while alive, the donor can also collect a reduction in income taxes while alive, and advise the DAF to make the donation upon death.

Washing Out the Wash-Sale Rule

Suppose someone has an asset with a large capital gain and wants to avoid paying tax on it. A way to do this is to realize the capital gain along with an equal capital loss to offset the gains for tax purposes. After liquidating the two shares to neutralize the gains, the person could simply buy both shares again and wash the taxable gain out of the portfolio.

[16]The IRS forgives tax on up to $500,000 in capital gains on homes for married couples, as long as the home is a primary residence. Gifts of artworks are also increasingly popular. For example, Audrey Irmas recently donated artwork by Cy Twombly to a Foundation carrying her name, but it could have just as easily been donated to a DAF. She originally paid $3.85 million for the painting, which was appraised before auction at Sotheby's for $70.5 million, giving her a deduction against income of $70.5 million and saving her tax on a long term gain of $66 million (or $13 million per year for five years). Had she allowed the painting to pass in her estate, she would have paid nearly $27 million in tax, or had she sold it as an individual she would have owed almost $16 million in capital gains tax (See "How do you tell the difference between philanthropy and a tax write-off?" by Jori Finkel, *New York Times*, November 4, 2015.)

[17]Ms Irmas' donation of the Twombly painting was sold within days of when it was officially donated, with the proceeds fulfilling several pledges she had made to charitable organizations. She, nonetheless, made the donation in the most tax advantaged way she could, and it is not clear whether she would have been more or less generous without the federal subsidy. For more socially questionable gifts, see the discussion of "private museums" that house a donor's art collection, but which are difficult to access by the public in the *New York Times* "Writing Off the Warhol Next Door: Art Collectors Gain Tax Benefits From Private Museums," by Patricia Cohen, Jan. 10, 2015, https://nyti.ms/1BZKYMf .

This operation, however, is prohibited by the Internal Revenue Service under the "wash-sale rule." This rule states that an investor who sells a share for a loss cannot repurchase the same or substantially similar shares for at least one month. The point is to curb investors engaging in tax arbitrage.

DAFs can help wash away capital gains tax as well, but in a way that does not violate the wash-sale rule. Moreover, there is no need to balance the capital gain with a capital loss. Imagine a person who every year gives $10,000 in cash to charity. Suppose this year he decides to open a DAF. Rather than giving cash as he had planned, he opens his DAF with a deposit of $10,000 worth of shares with the highest capital gain in his portfolio. He then uses the cash to buy back the same shares. Inside the DAF, he advises the sponsor to sell the shares and makes the donations. But notice, after he contributed the shares they are technically the property of the sponsor of the DAF. In addition, the DAFs eliminate the need to find a capital loss. Thus the DAF can accomplish the work of a wash-sale without violating the wash-sale rule.

Appraisals of Hard-to-Value Assets

Gifts of non-cash assets that are not publicly traded—such shares in closely held corporations—must be formally appraised. Only if one is claiming a "fair market value" of more than $500,000 does one need a "qualified appraisal" of the asset, meaning a licensed or certified appraiser giving an opinion as to the asset's fair market value.

The IRS has uncovered numerous cases of overblown appraisals for gifts that do not include DAFs. Although many brokerages are specializing in accepting such illiquid assets into DAFs and encouraging such contributions, there is no evidence of any changes or increase in over-valuations attributable to DAFs. It is also the case, however, that reporting requirements from DAF providers can make it difficult to detect any abuses (see Colinvaux (2013, 2017) for discussion of these issues). As a consequence, this potential will not be explored here.

4 Benefits and Costs: Conceptual Issues

The logic behind a benefit-cost analysis of any tax policy is to ask how well the policy meets its objectives, and did the benefits of reaching those objectives exceed the cost of doing so. Importantly, however, the policy must also pass a second test, which is to ask whether we could have achieved the same policy objectives at a lower cost through the best of the alternative policies. In our case, the alternative policy may be not having DAFs at all, or

perhaps more simply just letting the government use the money it would have spent on tax breaks for DAFs for direct contributions to charity.

Benefit-cost analysis requires that we look at the world from a distance. When we have discretion, we also conduct calculations from options that we think are either too low or too high, so as to capture the truth within upper and lower bounds.

Before I can compare benefits and costs, each must be defined and explained. I do this next.

4.1 What is a Benefit of Donor Advised Funds?

The obvious objective of DAFs is to encourage people to give more to charity. Indeed, surveys done by Fidelity Charitable of their DAF clients suggest that people are increasingly likely to think of DAFs as a means for giving more to charity, with 73% agreeing that this is a consequence of DAFs. These additional contributions comprise the main benefit of the DAF program.

Givers report other benefits, such as the convenience of using a DAF to order payments to charities and for budget purposes. Most of these same services can be provided by one's own bank, however, as well as from many brokerage houses. Thus, the service of simply going online to send payments to charities is actually not, on net, a benefit as it largely reproduces services already available without DAFs.

The unique service DAFs do provide is, first, ease in allowing a tax deduction of appreciated stock when making donations of all sizes, and second, the ability to save contributions made today to fund donations in the future. Thus, the benefit of DAFs is the *additional* charitable giving that is received because of the DAF.

I can illustrate with four examples.

Example 1: Imagine a married couple frames their giving decisions this way: Before discovering DAFs, this family had decided to give $20,000 per year to charity and will do so at the least tax cost possible. DAFs helped them discover new ways to save tax payments, but they did not revise their giving plan. Here we would say the DAF program got no benefits from this household. They simply kept with the same giving plan, and were not induced to give more.

Example 2: This family has separated their assets into two accounts. One account will determine what they spend on themselves, and the other account will go to charity. Any tax savings from DAFs go right back into the charitable account. Thus, each year the present value of the benefits of DAFs exactly equals the tax savings of the gift.

Example 3: Because of a sale of a company, the family earned a $2 million capital gain this year. They decided to set it aside so that they could save up for a $4 million dollar gift to their alma mater to fund a new biology lab, which they expect to have achieved in 5 years. However, when they learned about DAFs, they gave their business interest to a DAF before the shares were sold, saving them $476,000 in capital gains tax while reducing their state and federal income taxes by $992,000. So a year later they find themselves with about $1.5 million more than they expected, meaning they have about 3.5 of the $4 million goal and can make the gift in two years rather than five. This earlier receipt of the gift is a clear benefit of the DAF.

Example 4: Suppose the family in the prior example learned that there was actually an opportunity to give a $5 million endowment to an economics lab at their alma mater that would support behavioral economics (the future of dismal science). Because the DAF allowed them to save so much on the sale of their business, they decide to pay about an extra $300,000 net of taxes to fund the $5 million lab on the original schedule. Thus, the charity now gets money at the same time but, because of the DAF, gets $1 million extra. This $1 million extra is the benefit of DAFs.

In sum, DAFs can have no benefits if all the taxpayer does is shift assets in order to save taxes and gives no more to charity. The DAF can have benefits if *i*) donors give more money on the dates they planned, *ii*) give what they planned but give it sooner, *iii*) give more in present value terms than they had planned, or *iv*) any combination of the above.[18]

4.2 What are the Costs of Donor Advised Funds?

Notice that in the prior subsection, I did not list the reduction in taxes as a benefit of DAFs. Recall that in this analysis we are not to take the position of the donor but of a citizen at large. A tax policy generates $\$X$ of new giving to charity while paying out $\$Y$ in tax breaks is surely better than a policy that gets the same $\$X$ in charity but pays out $\$Y \times 2$. Thus, the more taxes an individual taxpayer saves under the new program, the greater the cost to society overall.

The next source of cost is a bit more subtle, but very important. If a person puts $1000 in a DAF and doesn't give it out for a year, the money in the DAF will grow at a rate r. Suppose $r = 0.07$, the long run rate of return in the stock market. So money in the DAF could be thought of as having a return on investment, or ROI, of 7% per year. But charitable giving also has features of an investment. Consider some examples.

Example 1. Economist James Heckman has estimated that money spent on early childhood

[18]This assumes, of course, stable tax rates over the relevant period.

development programs for poor households has a social rate of return of return of 10%. He notes that other similar programs have measured returns as high as 17%.[19]

Example 2. Donating $15 to the Nature Conservancy can fund an offset for 1 metric ton of carbon. The Environmental Protection Agency estimates that this saves the economy about $62 in present value of the costs of pollution.[20]

Example 3. GiveDirectly is a charitable organization that is changing the way we help poor people around the world. They use donors' gifts to provide unconditional cash grants to poor African families. The charity was founded by economists so, naturally, they commissioned an independent, fully randomized, and rigorous evaluation of the return on investment of these grants. What they found surprised many. People used the money to invest in things that give long run returns—a new roof, a scooter to drive to work in the city, or a dowry for a wife. They found a return on investment over 30%.[21]

Example 4. Often gifts to charities can have greater returns the more people give to them. Vaccines are an excellent example. Vaccinating only one person will not stop an epidemic. But, depending on how quickly a virus can spread, vaccinating between 85 to 90% of the population (called the herd immunity threshold), can spare virtually the whole society. So the return on investment to the first vaccine is nearly zero, but the return on investment of the final vaccine that crosses the heard immunity threshold is, well, priceless.

The point of these examples is to show that giving to charity has a return on investment as well. While not all charities are high performing, those that survive in the competition for donations are more likely to generate an ROI that is *no less than* that of the average for-profit investment. In particular, if donors are rational, and the ROI on charities is below the ROI on investments, the donor can do the most for charity by saving now to give later when their investments aren't growing so fast. In addition, most donors are likely to suffer from the "free rider problem," that is, not only will the direct recipients of the charity be better off, but others who also care for the same cause will also be better off because of the donation.[22] These and other arguments suggest another potential cost of DAFs. If a donor accepts a tax benefit from the government but then invests that in assets that yield an inferior return to that which the government could have gotten by giving the same amount directly to charity, then this should be reflected in the cost. I will return to this point in

[19]See "Investment in early childhood development: Reduce deficits, strengthen the economy," posted on The Heckman Equation, www.heckmanequation.org

[20]See https://www3.epa.gov/climatechange/EPAactivities/economics/scc.html for EPA estimates.

[21]See Haushofer and Shapiro (2016).

[22]See Andreoni (1998) for a discussion of increasing returns and the market for charitable giving. See also Andreoni (2006) and Andreoni and Payne (2013) for reviews of the literature on charitable giving.

subsection 5.2 on discount rates.

To summarize, DAFs will have costs if they reduce the revenues of the Treasury, or add time between allowing the tax benefits and receiving the investment in charity.

4.3 Combining Benefits and Costs

If DAF policy is to be successful, it must encourage more in new donations than it costs in new amounts of lost tax revenue and delayed investment in charity.

I can broadly organize the effects of DAFs into three categories. Importantly, people can be influenced by all three effects. The first I will call *tax minimizing*. DAF users who are tax minimizing are concerned with reaching their giving goals with the greatest tax savings they can uncover.

Second is *DAF saving*. This is the use of DAFs to smooth giving, pre-pay before retirement, or to stockpile future giving in years when one experiences a large capital gain. All of these create a gap in time between when contributions claim a tax deduction and when the contribution is put to work by some charity. There is typically a bigger social cost the bigger this gap becomes.[23]

The third kind of effect, which we can call *inspiring generosity* is that the increase subsidies available to DAFs inspires people to give more. In the analysis, the average person I will be modeling will have some of all three motives. Whether DAFs are an improvement over the policy without DAFs will depend on the relative sizes of tax minimizing, DAF saving, and those inspired to give more because of DAFs.

5 DAF Benefit Cost Analysis

Here I document how I select all of the variables needed to conduct the analysis. In doing so, there is one essential thing to keep in mind; the analysis is to be created for the average dollar donated, not the donations of the average donor. That is, the actions of a person with a large accounts will be weighed much more than a small DAF giver. The easiest way to do this is to look at the aggregate data as if it were generated by a single person with a single DAF account, a single representative income tax rate, and a single representative capital gains tax rate. This person makes the aggregate donation and waits the average amount of

[23] To see this, imagine that the DAF policy creates \$100 in new charity but only \$90 more in lost tax revenue. If both occur this year, then the policy is a net benefit: $100-90 = 10 > 0$. But suppose it delays the giving by a year, but not the tax deduction. With a discount rate of 7%, the margin between benefits and costs shrinks: $PV(1) = 100/(1.07) - 90 = 3.46$. If the delay is two years, then $PV(2) = 100/(1.07)^2 - 90 = -2.65 < 0$, a loss.

time to start granting it out to charity, and grants it all out to charity at the average rate. Thus we are modeling a mythical donor whose patterns of DAF transactions match those of DAF tranactions in general.

5.1 The DAF Data

The primary data was obtained from the Chronicle of Philanthropy, which provided a list of over 80 DAF sponsors from 2009 to 2014. This data lists the number of DAF funds under management, annual contribution to DAFs, grants from DAFs, and total year-end balance in all accounts. For each DAF provider, the data is in aggregate and is drawn directly from each organization's 990 forms.[24]

The National Philanthropic Trust conveniently has the very same data, and has published the aggregates for years 2007-2015. There are also publicly available reports from Fidelity Charitable through their giving reports and donor/investor guides. They also publish the results of periodic surveys of their account holders, both in Fidelity Investments and Fidelity Charitable, which have been very informative.

Some of our analysis will be concerned with a precise value for contributions of non-cash assets. Unfortunately, community foundations collect contributions for DAFs and for the community foundation directly, and do not treat gifts of non-cash assets consistently across community foundations. For this reason, much of the analysis focuses on a subset of DAF-only organizations, such as Fidelity Charitable, Vanguard Charitable, and the like. This was augmented to include information from the 2015 IRS form 990 filings of each organization. Of the 15 such organizations, sound financial statements were verified for 13 of them from 2008-2015.[25] The means of relevant variables are reported in Table 3. While this represents a large reduction in the number of organizations, going from 85 to 13, these 13 organizations nonetheless represent nearly 60% of the total value of all organizations provided in the Chronicle of Philanthropy data.

A further source of information is the US Treasury's annual tables that summarize the tax returns of citizens. Line items are aggregated across returns and reported by category of Adjusted Gross Income, as well as total income. This information is very helpful in constructing our much needed counter-factual—what do people do generally, without the benefits of DAFs?

[24]IRS 990 forms are the tax returns that 501(c)(3) charities must file annually with the IRS, including issuers of DAFs.

[25]Due to inconsistencies in financial statements that could not be reconciled, I dropped Goldman Charitable Gift Fund and Greater Horizons.

Table 3: Means for 13 organizations whose sole mission is to provide Donor Advised Funds.

	Mean Values							
	2008	2009	2010	2011	2012	2013	2014	2015
Grants From DAFs($mil)	181.5	205.8	218.5	235.1	289.9	369.1	475.7	536.2
Contributions to DAFs	209.0	261.6	322.1	456.6	640.0	664.8	874.7	812.6
Non-Cash Contributions	85.7	156.8	177.4	299.0	344.5	443.1	533.0	518.4
Publicly Traded Securities	80.2	152.6	167.5	285.1	309.0	258.0	371.7	198.8
Other Non-Cash	1.5	4.3	9.9	13.9	27.5	45.5	17.3	47.3
Cash Contributions	123.3	104.8	144.7	157.6	295.5	221.	341.7	294.1
End-of-Year Assets	739.4	851.3	1084.1	1305.8	1800.9	2326.0	2769.6	3032.9
Average Account Size	0.263	0.249	0.267	0.270	0.303	0.334	0.381	0.359
Number of Accounts	6280	6478	6777	7195	8154	9201	10752	12606
Contributions/BYA		0.299	0.387	0.355	0.465	0.376	0.482	0.358
NonCash/BYA		0.149	0.204	0.191	0.252	0.233	0.277	0.198

5.2 Choosing a Discount Rate

As we saw above, DAFs allow donors to separate the time of a tax deduction from the time of a gift to charity. In order to compare benefits and costs that come at different times, we need to put them in comparable units. This typically means posing the different flows in present value by discounting future gains and losses at a common annual rate δ. The value of δ used is critically important in determining the net costs or benefits of DAFs, so it is worth taking a moment to discuss how δ is chosen.

When the federal government calculates present value it often suggests the analyst consider three values for δ, 3%, 7%, and 10%.[26] They are naturally referred to as the consumption discount rate, the financial discount rate, and the externality discount rate. Why does the government use these three? The intuition can be seen by using the logic of opportunity cost.

In asking whether a particular investment is a good idea, the investor must first ask how well he would do by investing in the best available alternative. It is the rate of return on the next best alternative that determines the appropriate rate at which both the new investment and the alternative should be discounted when deciding which is better.

The government faces a similar task. To find the net benefit of DAFs, it has to ask what it would do with the taxes it devotes to DAFs if it didn't allow DAFs. One thing is to return the money to taxpayers, which will add to their stream of consumption. Since long run real economic growth is about 3%, this thinking could justify the consumption discount rate.

[26]See the Office of Management and Budget Circular A-94, Whitehouse Circular A-4, and chapter six of Guidelines for Preparing Economic Analysis prepared by the Environmental Protection Agency, downloadable at https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses.

However, DAF policy will encourage people to put money into financial investments for 3 to 4 years and then give it to charity. The alternative may be instead be to keep the money invested in the stock market longer. This would justify using the financial discount rate of 7%. This is the historical long run real return on new capital investment.

What's the rationale for δ of 10%? Some investments have both private returns and "external returns," that is, benefits to society that the investor cannot capture. Examples could be investing in a clean power plant that makes a fair profit but also pollutes less and saves lives. Or perhaps, the investment results in new medical research that cures a chronic illness. Maybe the investment is in preschool training to poor children that raises their lifetime earnings by over 17%, which in turn reduces their odds of being on public assistance or put in jail, which then has positive repercussions for their children and grandchildren. These are investments that have very high benefits to those who are the objects of investment, but also to society at large. These externalities, or public goods aspects of charitable giving, can push its investment returns well above market rates of return, as I already discussed in section 5.2. If the policy objective is to get at least as much new charity as it spends in tax dollars on DAFs, the best alternative to DAFs could be to just give money directly to charity, in which case the rate of return on charitable investments is the appropriate rate to use for discounting DAFs. Since these returns are hard to measure, 10% is suggested as a realistic and not tremendously outrageous discount rate.

I will consider all three discount rates. Since the discount rates are in real terms, I must also adjust our DAF balances for inflation. Using the past 25 years of annual data from the Consumer Price Index, I estimate inflation to be about 2.4% annually, but only 1.8% over our sample period.[27] To compromise, I take inflation to be 2% in our analysis. This is typically what the government assumes long run inflation is as well.

Assumption 1: *Analysis using three real discount rates, 3%, 7%, and 10%, will be compared. Although 10% as most realistic but, to be conservative in support of DAFs, favor 7%.*

Assumption 2: *Inflation is assumed to be 2% annual.*

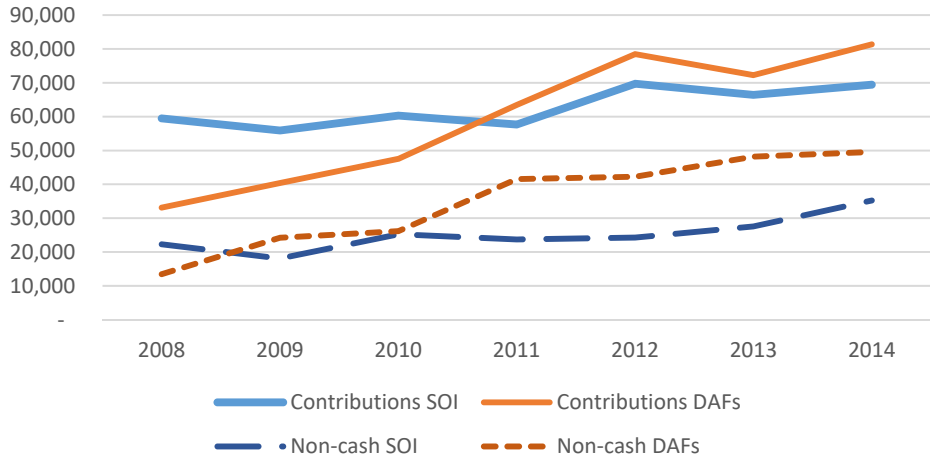
5.3 Shifting Contributions to Include more Non-cash Assets

An important aspect of DAFs is that they make it easier to use non-cash assets for everyday giving. A common policy among charities, for instance, it to accept only non-cash gifts of equities if the value exceeds a minimum set by the charity, often several thousand dollars. So gifts over this would be unaffected by DAFs, while smaller gifts could be funded with

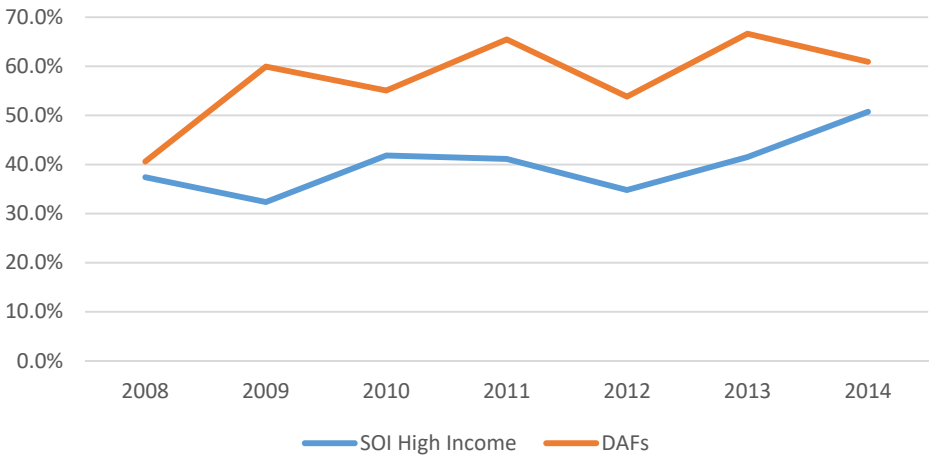
[27]Regressing the log of the CPI on year yields a coefficient of 0.02432 (s.e. 0.00038), suggesting 2.4% inflation for 1992-2015, and 0.017897 (s.e. 0.00165) for 2008-2014.

appreciated assets using DAFs, but not without. So the task here is to see how much additional non-cash giving is done through DAFs.

Our DAF data include the value of both cash and non-cash contributions. Lacking, however, is knowledge of what mix of cash and non-cash contributions the DAF holders would have contributed in the absence of DAFs.



(a) Average Total and Non-cash Contributions for SOI High Incomes vs. DAFs



(b) Percent Non-cash Contributions SOI High Incomes vs. DAFs

Figure 4: How DAFs shift Non-cash Contributions. All Contributions and non-cash contributions of DAF holders compared to a sample from the Statistics of Income of all tax filers with incomes (current dollars) of $500,000 and above who also make itemized charitable deductions.

Figure 4 shows data gather from the Statistics of Income on tax filers with high incomes, defined as AGI of $500k/year or more, for years 2008-2014. Let's call these the SOI High Income donors. I will come back to this comparison group often. The top panel shows that the average contributions of DAF holders and SOI High Income donors track fairly closely,

especially in the later years of the sample. One can also see that the level of non-cash donations is clearly higher for DAF donors. The bottom panel confirms this. It shows the percent of all contributions that are non-cash. A more detailed look at these data show that the best prediction of non-cash gifts as a percent of all contributions to DAFs is just over 65%, while the best estimate for the SOI data is that donations are less than 50% non-cash.[28] So the first assumption will be that DAFs shift more giving to appreciated assets:

Assumption 3: *The behavioral consequence of DAFs is to shift giving from 50% non-cash assets to 65%.*

5.4 Fraction of Asset Value that is Capital Gains

Although the data list non-cash contributions, there is no way of knowing the basis for these assets. There are, however, pieces of information that will help us. Knowing investors' full portfolios is not essential, but just knowing highest gains-to-value of any asset in their portfolio is enough, as this is the asset tax-minimizing donors will contribute. Second, it is reported in the annual Giving Reports from Fidelity Charitable that a typical DAF donor in 2017 is about 60 years old. An investor this age has likely been investing for 30 years. Holding the S&P 500 index fund for 30 years would today be 88% capital gains. If at age 40, in 1997, the person acquired Berkshire Hathaway, today those shares would be 86% capital gains. Betting on Apple stock when at age 45 in 2002 would today mean holding a 98% capital gain, and if he purchased Apple, Amazon, or Facebook even 10 years ago, the shares would be 81 to 96% capital gains. And then there are investors who got in the ground floor on start-ups with successful IPOs.[29] Add to this the effects of people self-selecting into DAFs and it is likely that high income people 60 years old are holding some shares with significant capital gains.

Another resource is a survey that Fidelity conducted of its investments customers. Looking at their accounts, Fidelity could tell what shares they have that could most benefit the client as sources for a DAF contributions for tax savings. They then ranked these savings and reported the potential savings by decile—the largest 10% of potential gainers to the lowest 10%. Fidelity goes on to report of potential DAF clients, only 3% in 2007 actually

[28] More precisely, consider a simple regression $y_t = \beta_0 + \beta_1 t$ where y_t is the log of the percent of contributions that are non-cash in year t (letting $t = 1$ for 2008). For DAFs, the coefficients are $\hat{\beta}_0 = -0.766 (s.e. = 0.119)$ and $\hat{\beta}_1 = 0.050 (s.e. = 0.027)$ which for 2014 predicts 66.1% non-cash assets in DAFs. So as not to overstate the cost of DAFs, round this down to 65%. The Statistics of Income data is limited to all tax-filers with incomes of $500,000 and above over the same years as our DAF sample. The regression coefficient estimate for this group are $\hat{\beta}_0 = -1.102 (s.e. = 0.104)$ and $\hat{\beta}_1 = 0.0438 (s.e. = 0.023)$ which for 2014 predicts 45.2% non-cash assets in DAFs. To give more benefit to DAFs, round this up to 50%.

[29] See https://www.fool.com/investing/2017/07/01/best-ipos-of-all-time.aspx for a fascinating list of both high and low profile IPOs that have created tremendous capital gains for early investors.

held DAFs.

So of all the potential DAF holders that Fidelity identified, which of the deciles will the elite 3% likely come from? It is natural to expect that those with the most to gain from a DAF are the ones most likely to open one. So let's focus on the top three deciles. These groups have assets with 85%, 62%, and 47% capital gains respectively. An extreme assumption is that all DAF adopters come from the top decile, giving us a high estimate. A conservative assumption is they all come from the third group. A compromise is to form a weighted average of the three groups relative to their possible gains, which results in approximately 75% of value being capital gains. This will be the favored value of capital gains available for both DAF non-DAF donors. For balance, this will be paired with a conservative estimate of 50% gain-to-value, which is more favorable to DAFs.

Assumption 4: *Non-cash assets contributed contributed to DAFs and non-DAFS contain 75% capital gains in our favored assumption, and 50% capital gains in our conservative assumption.*

5.5 The Rate of Return on Assets Invested in DAFs

Let A_t be the assets held by a DAF at the end of year t. Contributions to and Grants from the DAF to charity in period t are written C_t and G_t. It would be appropriate here to weight C_t and G_t to reflect possibly different timing of flows into and out of the DAF over the course of the year. This, however, is impossible with the data the public is allowed to see. As an alternative, instead make the simplifying assumption that all contribution and grants take place at the end of the year. Since this is done for both contributions and grants, this should create little or no systematic bias, but it does allow us to easily calculate how assets on deposit in DAFs grow. Since A_t includes both contributions and grants, in calculating returns these must be reversed:

$$A_t + G_t - C_t - A_{t-1} = rA_{t-1} - r\phi_G G_t + r\phi_C C_t$$

Dividing both sides by A_{t-1}, we see

$$\frac{A_t + G_t - C_t - A_{t-1}}{A_{t-1}} = r\frac{A_{t-1} - \phi_G G_t + \phi_C C_t}{A_{t-1}} \equiv \hat{r}$$

where we define $\hat{r}$ as the effective rate of return. For each year, construct $\hat{r}$ and apply this to all assets in the DAF that year.

Table 4 reports the calculations derived above. In the final three columns are separate calculations. The first is an ordinary mean across the values of $\hat{r}$ estimated for each year

Table 4: Rate of Return on Assets in DAFs

	Billions of US Dollars				Implied Return, $\hat{r}$		
	End of Year Assets	Contrib's	Grants	Gains	Current Year	Weighted by Assets	Last Half
2008	9.712	2.733	2.383				
2009	11.479	3.818	2.785	0.734	0.076	0.005	
2010	14.568	4.459	3.061	1.690	0.147	0.012	
2011	17.372	6.010	3.209	0.003	0.000	0.000	
2012	23.831	8.486	3.924	1.897	0.109	0.015	0.109
2013	30.639	8.784	4.973	2.997	0.126	0.022	0.126
2014	36.419	11.531	6.326	0.575	0.019	0.004	0.019
2015	39.341	10.790	7.221	−0.647	−0.018	−0.004	−0.018
Average	24.807	7.697	4.500		0.066 high	0.054 low	0.059 medium

in our sample. This gives an average return of $\hat{r} = 0.066$. Weighting the annual returns by assets yields and estimate of $\hat{r} = 0.054$. Finally, avoiding the unusual years surrounding the 2008 financial crisis, the last column give an estimate of $\hat{r} = 0.059$. Which is the best rate? For instance, looking at the rate of return on the S&P 500 index over the past 25 years, I estimate nominal growth rate of 5.7%, which is most similar to the 5.9% found above, suggesting this as the most representative growth rate to adopt.[30]

Assumption 5: *Assets retained in a DAF account will experience a nominal increase in value of 5.9% annually.*

5.6 Finding the Shelf-life of a DAF Contribution.

In their annual giving reports, Fidelity boasts that over 95% of of individual deposits into DAF accounts are fully paid out within 10 years. While not unimportant, individual accounts may be the wrong place to focus when determining benefits and costs of DAFs as tax policy.

A better approach for policy purposes is to take the view that, as taxpayers and consumers of charity, the dollars subsidized for charitable giving do, in some sense, belong to the public. As a result, we should all think of ourselves as holding all DAF accounts together as if they collectively belonged to the public. From this point of view, it makes most sense to envision an *inventory* of donations the way an accountant might. We would then measure the flows of cash in DAFs in a First-In-First-Out (FIFO) inventory accounting method. We can envision this application to DAFs this way: This year's contributions to DAFs go into an investment

[30]In the analysis to follow, it turns out to make little to no difference to our results which of these we choose, so to adopt the central value of 5.9% will not be misleading

account named "2017." It sits alongside other accounts named "2016," "2015," and so on. Each investment account holds different numbers of shares of the same mutual fund. At the end of each year, all grants to charity are paid by starting at the oldest account. If an account reaches a zero balance, the account is closed and we move to the oldest remaining account, and so on. Perhaps years from now, we will start to dip into the 2017 account, which we hope has grown with the stock market. Eventually, after a bit more than a year of grant making, the 2017 account will be closed.

Continuing with this analogy, we need to find these pieces of information: For the account opened in 2017, at what year do we begin making grants from this account? How many grant dollars go out of the account each year? When is the account closed? And what is the 2017 present value of the donations from this account?

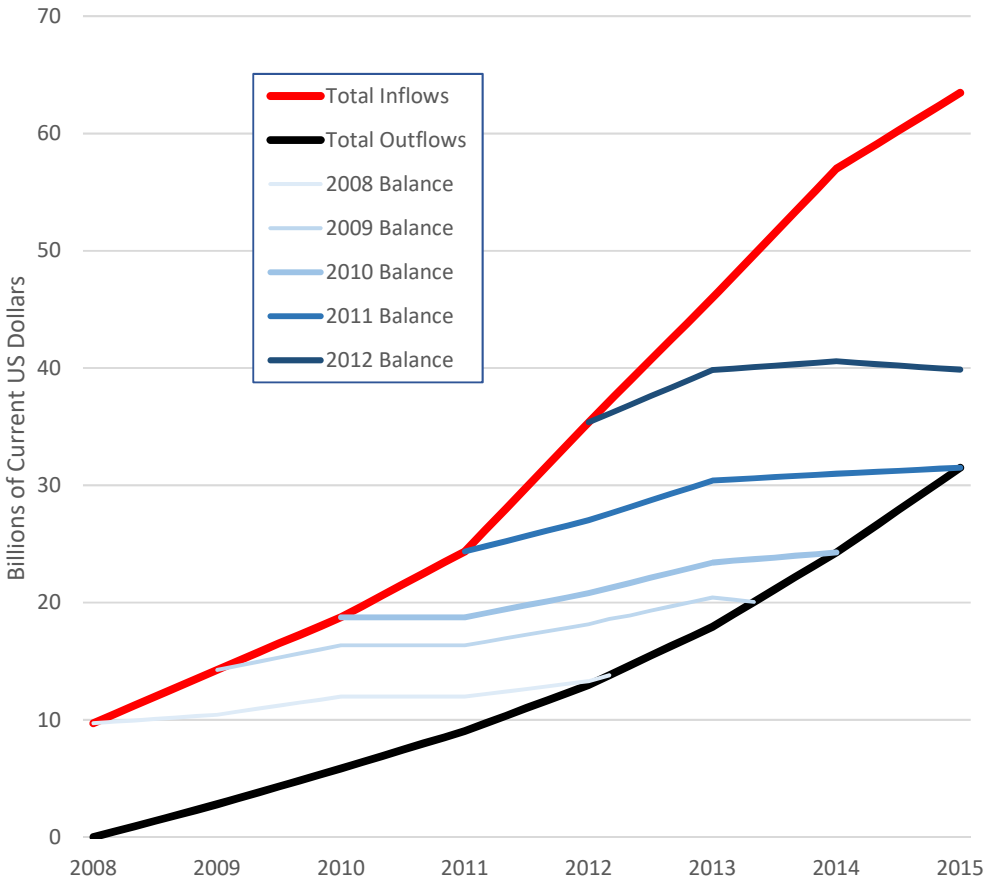


Figure 5: Inventory of DAF Dollars paid out on a FIFO basis. Inventory of DAF Dollars paid out on a FIFO basis. When a Blue line goes from the Red Line (total contributions to DAFs) to the Black Line (total grants from DAFs) that year's contributions are fully out of the inventory of DAF funds.

The answer to these questions are shown graphically in Figure 5. This figure uses the data from our 13 DAF-only organizations. The red line indicates all the money in DAF accounts

that, as seen through the lens of tax policy, is owed to charity. Each year this grows for two reasons. First, are the new contributions to DAFs, and second, are the investment returns earned on the DAF holdings. Begin at the year-end of 2008. The height of the red line at 2008 is its year-end balance. This is the total amount of money (plus investment returns) that needs to be given away before any contributions from 2009 will be eligible to be given away. Isolate this money from any new donations, and affix to it a growth rate as described in the prior subsection. This means that as we move out to 2009, 2010 and so on, the light blue line that starts in 2008 tells us how much money needs to be granted out of DAFs before all the money on hand at the end of 2008, including any earnings, is fully paid out. The black line keeps track of the total money granted out as donations. Thus, when the blue line from 2008 touches the black line, all of 2008 is "off the shelf," and we begin spending the 2009 contributions. Now our attention can turn to the slightly darker blue line originating in 2009. When this line hits the black line, the 2009 money is fully spent, and spending begins coming from 2010 contributions, and so on.

Table 5: FIFO inventory accounting for contribution to DAFs and eventual granting from DAFs.

		Year of Contribution*			
		2009	2010	2011	Average
a. All DAFs					
Year 0	Contributions	3.818	4.459	6.010	4.762
Year 3	Grants	1.130	0.360	1.020	0.837
Year 4	Grants	4.613	5.306	6.511	5.476
PV of grants	7% discount	3.765	4.342	5.800	4.636
Year 3 grants as a percent of Year 0 contribution		30%	8%	17%	18%

* 2008 not included since beginning of year assets are not known.

We can see from the above figure, it takes about 4 years for the new additions to the DAF inventory to fully make it out to charities.

Table 5 shows the start and end dates for payments of each year's contribution, as well as the first payout as a fraction of the nominal initial contribution, performed for the DAF-only organizations. As can be seen, the average DAF pays out most of its contributions in year 4. Measured as a percent of the initial contribution, the average is about 18% in the first year and the remainder in the fourth year.[31] This gives us the next assumption:

[31] A separate calculation done for Fidelity Charitable shows that they actually get contributions out of inventory more quickly than the average, with about half of the initial dollars contributed paid out in year

Assumption 6: *Any contribution to a DAF will begin coming out of inventory in the third and fourth years. In the third year after the contribution, 20% of the contributed amount will be paid as a grant, with the remaining balance paid in the fourth year.*

6 The Benefit-Cost Calculation

We now have nearly all of the pieces in place to ask how easily a DAF might meet benefit-cost standards for tax policy. Assumptions 1 through 6 were derived in the prior sections, and are summarized in Table 6. We also add two additional assumptions. It is important to keep in mind that these assumptions were derived to describe the average dollar contributed to and granted from DAFs. It averages the behavior of both big and small investors, but weights the choices of the big investors more heavily.

For ease of exposition, assumption 7 states the analysis will concern $1000 contribution to a DAF. Since the average dollar in DAFs surely comes from high income households, assumption 8 states our representative DAF holder pays the top marginal tax rates for both earned income and capital gains. While these may not be the average tax rates that apply to DAF accounts, when I average tax rates by the dollars subject to each statutory tax rate, the analysis indicates they are likely to be very close to the maximum tax rates.

In addition to the economic parameters assumed in panel (a) of the Table, panel (b) describes the two polar counterfactuals cases. For ease of exposition, I refer to the comparison policy of no DAF as having Homemade DAFs. Imagine a segregated (if only in one's imagination) brokerage account that is invested like the DAF and is used to fund the non-cash portion of non-DAF donations at the identical timing and total amount as DAF grants.

Since there are no direct measures on the behavioral responses to DAFs, I follow standard practice by setting benchmarks by which to evaluate the likely benefits and costs. *Case 1* first sets a pessimistic benchmark by assuming the only behavioral effect of DAFs is to rearrange financing to save taxes. DAFs, in other words, produce no benefits over Homemade DAFs giving, only costs. Note that this pessimistic case is not the worst case for DAFs as it is conceivable, but highly unlikely, that DAFs could result in less giving overall, but an assumption of no net increase in giving is a useful and realistic benchmark.

Case 2 in Table 6 sets a minimum best-case benchmark. For DAFs to pass the benefit-cost test they must be motivating people to give more than they would have without DAFs. As we will see, Case 1 illustrates how simply altering the composition of giving to contain more non-cash assets will automatically create a substantial cost of DAFs before donors have a chance to decide if they would like to increase their donations. The analysis in case

3.

Table 6: Benefit-Cost Assumptions.

a. Economic Parameters

1. Real discount rates will be 3%, 7%, and 10%. Preferred is 7%.
2. Inflation is 2% per year.
3. Non-DAFs gifts are 50% non-cash, and DAFs are 65% non-cash.
4. Non-cash assets contributed contributed to DAFs and non-DAFS contain 75% capital gains in our favored assumption, and 50% capital gains in our conservative assumption.
5. Assets in DAFs will increase in value by 5.9% annually.
6. DAFs will have a "shelf life" of 4 years. 20% of the initial contribution. is paid in year 3, and the rest in year 4.
7. $1000 is Contributed to a DAF at the end of Year 0. This represents the average dollar donated rather than the dollars of the average donor.
8. Marginal income tax rate is 39.6%. Capital gains tax rate is 23.8%.

b. Counterfactuals

Case 1: Assume DAFs do not increase giving. This assumes DAFs only allow prior granting plans to be carried out while generating no new giving. This case sets a likely maximum loss due to the DAF policy.

Case 2: Here we presume DAFs do have a net benefit by creating new charitable giving, and ask how much of the DAF contributions we see must represent new giving in order to meet benefit-cost criteria.

2 assumes that DAF grants do indeed increase and ask how much the increase would need to be for the new donations to exceed the new costs generated by using a DAF. That is, what is the *minimum* portion of the observed DAF grants that must be "new giving" that would be allow observed DAF giving to have benefits that exceed costs.[32] We can then ask ourselves whether we think the extra tax savings awarded to DAFs can generate the required response.

It should be mentioned that some things are left out of our eventual cost-benefit computations. Primary among these are costs associated with escaping the estate tax. To the extent that DAF giving is new giving over the lifetime of the taxpayer, it represents money that, in all likelihood, will now result in a smaller estate upon death. The problem for analysis is that we don't know how much smaller the estate will be, how much it will be taxed, if at all, and when those taxes will be paid. While the effects could be significant if our DAF donors are older, there is not sufficient evidence to attach an extra cost for estate taxation. We must keep in mind, therefore, that the estimates presented understated costs by some unknown amount.

The analysis also does not include the potential value of some hard-to-calculate benefits. For instance, those with variable incomes who use DAFs to contribute when their tax rates are high but smooth their giving, are practicing a kind of leveling of their tax burden across the ups and downs of income. This leveling used to be explicitly allowed though a policy of four-year income averaging. Although economists think this kind of policy is more equitable, it was eliminated in 1986 to simplify the tax code. There are other benefits that many DAF holders also feel, such as the ease of online giving or the joy of bringing families together to decide on giving, which we explicitly do not include. The reason is that these benefits are not unique to the tax status of DAF giving and are easily be reproduced with existing technologies, such as automatic bill paying by banks, and by new phone applications that search for charities, and record charitable giving, and keep receipts for tax time. Others claim anonymous giving is a benefit of DAFs. While this is surely true, according to the Fidelity Giving Report 2016 (page 17) only 3% of DAF donors choose to give anonymously.

With these caveats, the benefit-cost analysis is presented in Table 7. Here we simulate a contribution of $1000 to a DAF that follows all the assumptions enumerated in Table 6. As can be seen, there are very different conclusions depending on the discount factors used. Under the assumptions most favorable to DAFs–column (1)—they have virtually no economic impact, while at the assumptions that are the least favorable—column (6), the

[32]In particular, let D stand for the present value of DAF grants, H stand for the present value of homemade DAF grants, and N stand for the new donations caused by DAFs: $D = H + N$. Likewise, let η_d and η_h stand for the net benefits of each dollar invested at time 0 in DAFs and homemade DAFs respectively. Then the net benefits of DAFs is positive if $D\eta_d - H\eta_h > 0$. Rearrange this to find that this holds if $N/H > (\eta_h - \eta_d)/\eta_d$.

Table 7: Benefit-Cost Analysis. Favored Assumptions in Column (4).

	(1)	(2)	(3)	(4)	(5)	(6)
Discount rate	3%	3%	7%	7%	10%	10%
Capital Gain/Value	50%	75%	50%	75%	50%	75%
Case 1: No New Giving with DAFs						
A. DAF: $1000 Contribution today to DAF:						
PV of Grants	1031	1031	891	891	802	802
Tax Cost	473	512	473	512	473	512
Net Benefit per Dollar	0.558	0.519	0.418	0.379	0.329	0.290
B. Homemade DAF: $1000 Invested today:†						
PV of Donation	1031	1031	891	891	802	802
Tax Cost	470	500	406	432	365	389
Net Benefits per Dollar	0.561	0.531	0.485	0.459	0.437	0.413
C. DAFs vs. Homemade DAFs						
Increase in cost per $1000	4	12	67	80	108	123
Percent cost increase	0.8%	2.4%	16.6%	18.4%	29.6%	31.6%
Case 2: New Giving with DAFs & Benefit = Cost						
Percent Increase in Giving Caused by DAFs	0.7%	2.3%	16.1%	21.0%	32.9%	42.3%

† A Homemade DAF is a imagined non-DAF account invested identically to DAFs and used for the non-cash portions of non-DAF donations.

costs are quite high. Under the favored parameters in column (4), case 1 shows that a $1000 gift to DAFs would cost the government $80 more in lost taxes. If DAFs produce no new giving, it is as if 8% of all investment through DAFs are burned up along the way. Another way to interpret this number is that, compared to giving with no DAF, DAFs raise the costs by 18.4% before any increase in giving has a chance to start moving benefits above costs.

The bottom row of Table 7, case 2, tells us just how big that increase has to be before the benefits of DAFs start exceeding the costs. Again under column 4, the challenge seems fairly steep. DAFs giving would need to include 21% new donations that can be credited directly to tax policy toward DAFs. In other words, for each $1000 contribution made through a homemade DAF, without the compositional shift from 50% to 65% non-cash assets, a donor to a DAF must contribute $1210.

One may fairly ask, why are the costs in columns (1) and (2) so much smaller, and why don't I favor a 3% discount rate? Letting r stand for the real rate of return on investments in DAF accounts, and let δ be the discount rate. Imagine, to simplify the argument, that the $1000 is invested for four years then given to charity in its entirety. Since tax deduction is taken immediately, its present value does not depend on either r or δ, but the present value of the benefits do. In four years, the contribution to the DAF will have grown to $\$1000(1+r)^4$. Converting this to present value means adjusting the benefits to $\$1000(1+r)^4/(1+\delta)^4 = \$1000[(1+r)/(1+\delta)]^4$. When $r > \delta$, as it is in columns 1 and 2, the benefit grows as it is delayed (see the top row of the table, showing the $1000 contribution has a present value of grants that is greater than $1000). This then helps explain why I interpret the GAO and OMB guidelines as favoring a discount rate tied to financial investing rather than consumer purchases, as discussed in section 5.2. In short, DAFs revolve around returns to investments in financial markets, so opportunity costs are best measured by this return on investment.

To sum up, under the favored conditions, DAFs would need to increase the present value of lifetime giving by between 16% and 21% (columns 3 and 4) over giving without DAFs. Depending on how strongly one feels that returns to charitable investing exceed the returns to private investing, the fraction of representing new dollars would need to be 30% or more (columns 5 and 6) in order to meet cost-benefit benchmarks. This leads to the natural question, how do we know what is a reasonable estimate of new giving caused by DAFs?

Lacking access to individual DAF account data, there will never be a precise answer to this question. Nonetheless, there are insights into how DAFs might inspire giving as opposed to pure tax-minimizing behavior by examining periods when tax laws affecting DAFs change.[33]

[33]For more complete discussions and analyses of how tax changes can be used to identify policy effects, especially as related to DAFs, see Randolph (1995), Auten, Sieg, and Clotfelter (2002), Auten and Clotfelter (1982), and Auten, Clotfelter, and Schmalbeck (2000)

Fortunately, a change in tax policy over our sample period may help may provide important clues on how people use DAFs. I examine this next.

7 Tax Policy Changes over the Sample Period

As we recall from Table 2, a tax change was passed into law in 2010 and took effect in 2013 that had direct consequences on charitable giving in general, but especially for giving through a Donor Advised Fund (see Saez (2017) for a similar analysis). First, the top marginal income tax rate moved from 35% to 39.6%. Second, the top tax rate on long term capital gains went from 15% to 23.8%. These increases in tax rates will have both income and substitution effects. Because people are paying more tax, they feel they have less to give to charity. At the same time, since their marginal tax savings from giving is higher, the cost of giving to charity relative to other spending has gone down, which should encourage more giving. The capital gains tax increase has a particular role to play in DAFs. This should encourage donors who have unrealized capital gains to choose DAFs in order to mitigate the higher rate. This means we could see a shift in demand for DAFs as well as an increase in the fraction of giving in the form of non-cash assets. Because of the opposite pressures of income and substitution effects, however, it is unclear whether these tax changes will encourage or discourage giving overall.[34]

Since changes to both the income and capital gains tax rates took place in the same year, it will be impossible to separate the two effects. For this reason, focus attention to the years before and after the 2013 tax change to look for patterns in the data that may indicate an impact on DAF giving relative to non-DAF giving.

First, consider Figure 6. This shows year-over-year changes to the real values of three key policy variables. First, consider the change in the contributions to DAFs, the orange bars. If increasing the tax subsidy to giving is anticipated, giving should shift from before 2013 to after it, as people will want to give more when the price is lower. Those with DAF savings can do this easily with less impact on their annual grants to charity. Looking to the Figure, we see the effect is the opposite. If anything, giving appears to remain robust *before* the tax increase and to fall after it. In fact, the three smallest percentage changes in giving happen in the three years of our sample that include the higher tax rates.

Next, look at the blue bars in Figure 6. These show year-over-year percent increases in the number of DAF accounts. These show a clear pattern; in 2012, the year before the new tax rates, the the rate of growth of DAF accounts rose sharply and stayed high through

[34]See Bakija and Heim (2011) for a general analysis of taxes on giving, Goolsbee (2000) for a discussion of taxing high income earners, and Auerbach and Poterba (1988) for a discussion of capital gains taxation.

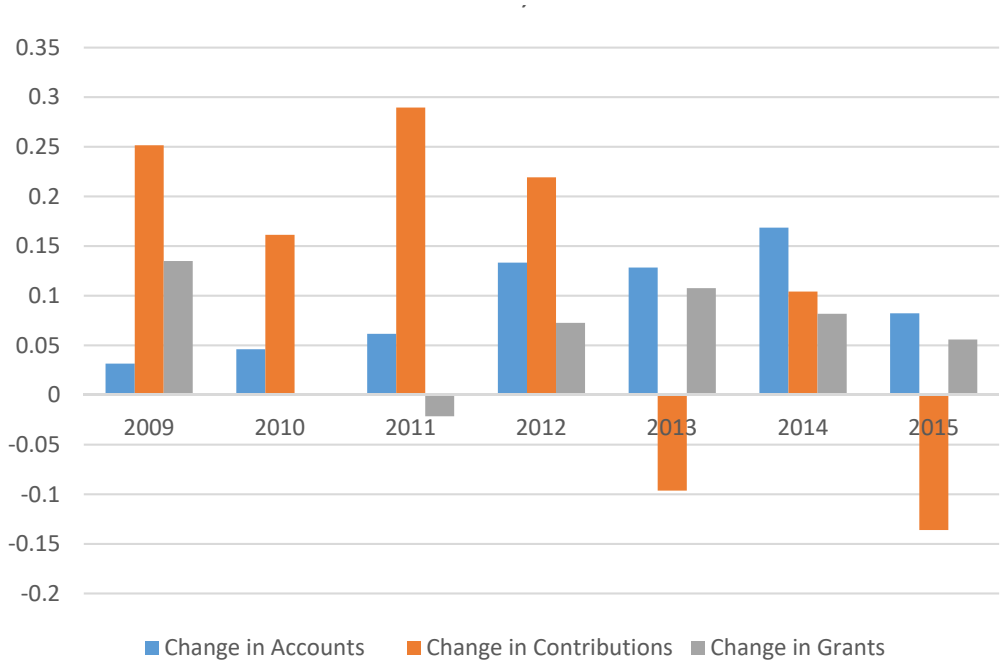


Figure 6: Percent Changes in Number of DAF Accounts, Contributions per accounts, and Grants per account, before and after 2013 tax change.

2015. In fact, the three years with the lowest growth rates of DAFs appear in 2009, 2010, and 2011, all years before the tax changes took effect.

Finally the gray bars in Figure 6 show percent changes in DAF grants. These numbers are relatively consistent across the years. One can interpret the difference between DAF contributions and DAF grants similarly to how one compares income to consumption. Income will tend to respond to external conditions more extremely than consumption. Consumption, therefore, evens out the ups and downs and therefore becomes a more reliable measure of true or anticipated income than income itself. The same could be true about contributions to DAFs, which respond to opportunistic moments for tax minimizing, and grants from DAFs which present a better picture of one's expectations for stable giving into the future.

In this vein, consider Figure 7. The two highest lines of this figure are the real (in 2015 dollars) contributions of the SOI High Income donors with incomes over $500,000 (in blue) and the average contribution to DAFs across all DAF accounts in our data (in orange). The solid gray line below this is the average grants per DAF account. As can easily be seen, while total contributions to DAFs have been going up steadily, the granting from DAFs have been going up much more slowly. Let's imagine that a DAF donor in 2008 was a typical SOI High Income donor and had made the same donation in 2008 as he would have without the DAF. Assuming year-to-year fluctuations in giving that follow those of the average SOI donor captured in the blue line in this same figure, then it follows that the average DAF

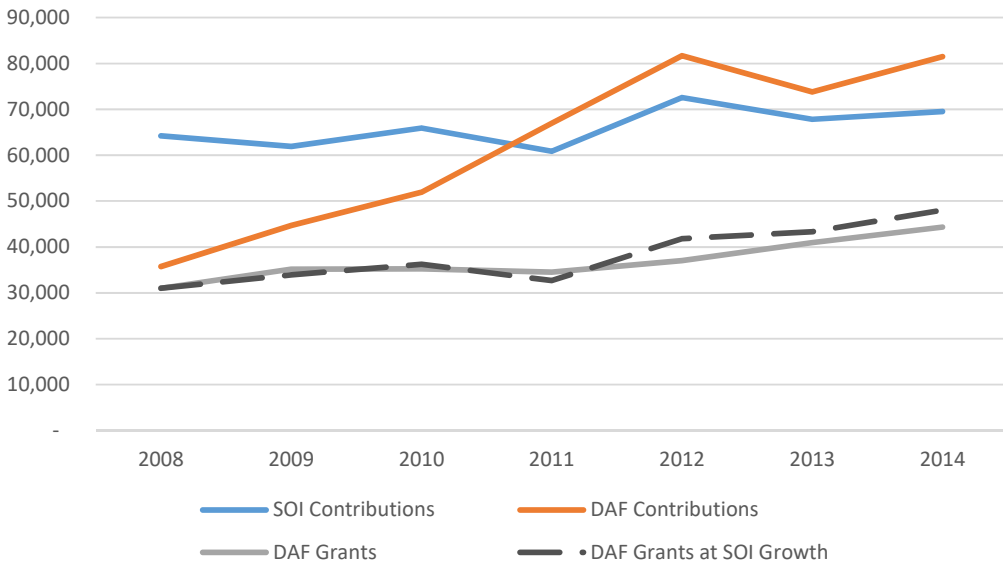


Figure 7: Average DAF Contributions and Grants vs. SOI High Income Charitable Deductions.

donor would continue giving according to the black dashed line that seen lying nearly on top of the gray line. This, of course, indicates that the SOI pattern of *changes* in giving without a DAF nearly perfectly predicts changes in actual charitable giving with a DAF. This suggests that, while taxes may indeed affect the timing of the contributions to DAFs and the amount of future donations saved in DAFs, DAFs may not have much, if any, effect on the actual donations eventually given to charity by the average DAF account holder.

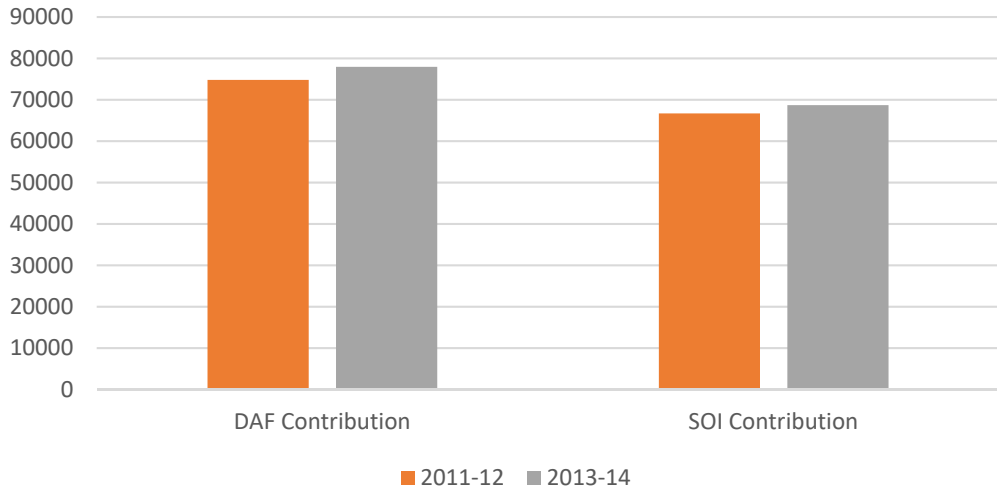


Figure 8: 2013 Tax changes and Levels of Giving: DAFs vs SOI.

What matters, of course, is not simply the absolute performance of DAFs, but how they change relative to non-DAF donors. Since the SOI High Income data are available until

2014, it is possible to compare giving in the two years that include the new tax changes, 2013 and 2014, to the prior two years where the new taxes were anticipated but not yet enacted. Those motivated to save taxes would shift giving to years of higher tax rates, thus suppressing contributions in 2011 and 2012 and raising them in 2013 and 2014. Figure 8 shows the DAF and SOI giving both before (the orange bars) and after (gray bars) the tax change. This shows that in proximity of the tax increase, giving was actually up in DAFs by 4.1% and in SOI gifts by 2.9%, a 1.3 point difference favoring DAFs.

Figure 9 looks at the change in relative costs. This show the percent of contributions that are non-cash contributions and are thus escaping capital gains taxation. This percentage goes up in DAFs by 4.7 percentage points, while for SOI donors it actually goes down by 3.8 percentage points, thus widening the gap by 8.5 percentage points. Assuming SOI contributions are 50% capital gains, this shift to more non-cash giving raises the cost of DAF giving by about 1% of the initial contributed amount.[35] In addition, the 1.3 percentage point differential increase in giving through DAFs is also generating a higher cost of lost income tax revenue of 0.5%.[36] In sum, DAFs gain 1.3 percentage points in new giving at a cost of 1 point in capital gains and 0.5 points in income tax losses, netting an economic loss of 0.2 percentage points.

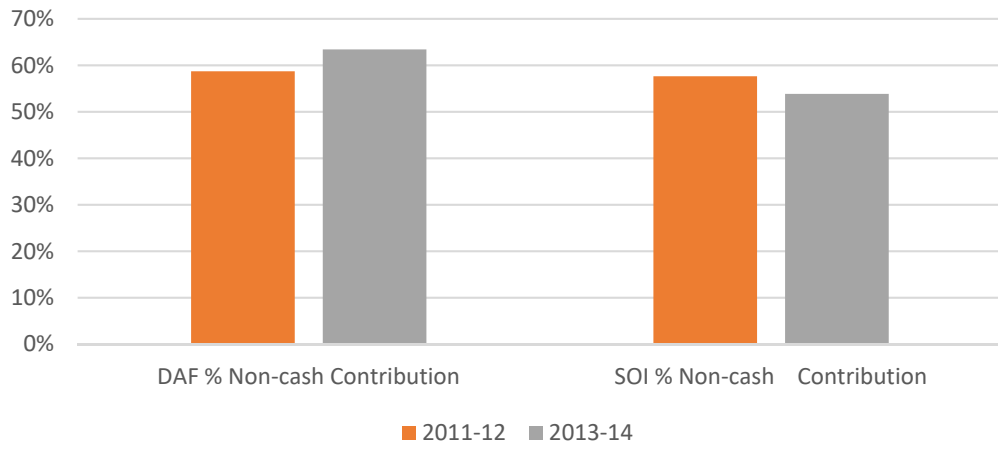


Figure 9: 2013 Tax changes and Percent of Contributions that are Non-cash: DAFs vs SOI.

What this section shows is that we there is little evidence that DAFs are encouraging significantly more giving over a policy of no DAFs. Instead, the data seems to have the fingerprints of donors whose charitable giving is largely unresponsive to the subsidy implied by the charitable deduction, or the avoidance of capital gains tax. In fact, in the 2013 tax

[35] On every $1000 contributed, $85 more are non-cash, of which $42.5 are capital gains. This now escapes 23.8% capital gains tax, which comes to $10, or 1% of the DAF contribution.

[36] The deduction saves 39.6% of 1.3% or 0.5%.

change the price of giving fell by a minimum of 7%, yet giving rose by at most 4%. By contrast, there is clear evidence of a surge of demand for DAF accounts when there is a greater value to escaping capital gains taxation. While the data is lacking the detail to state these observations with precision, the general observation is that the representative donor (who, recall, is modeled to capture the aggregate patterns) is using DAFs more heavily for tax arbitrage than as a means for behaving more charitably, although both behaviors are likely present. Further, if DAFs indeed contain 16% to 21% new giving, there is no hint of such a positive response to the recent tax changes.

8 Conclusion

In this paper I discussed tax policy toward charitable giving in general, and described how Donor Advised Funds fits into this policy landscape. I discussed how DAFs allow convenience to givers who would like to use capital-gains assets to make their everyday charitable gifts. I also discussed how tax arbitrage is an enticing use of this donation innovation.

Examining the data, I determined the return we can expect DAF accounts to earn, and that the the average DAF dollar remains in "inventory" for about 4 years before it is paid out.

I also discovered a compositional effect of DAFs. Since DAFs make it easier to avoid capital gains taxes, DAF givers contribute about 15% more capital gains assets relative to non-DAF givers. For the same gift, this creates a bigger tax loss for the government. When we then ask how much would DAFs need to stimulate new giving, this compositional effect on This "infra-marginal" cost of DAFs can help explain why the, thus stacking the deck against a satisfyingly positive policy determination on Donor Advised Funds.

These elements of the costs and benefits of DAFs are combined by constructing an imaginary DAF account that represents all the qualities of DAFs on average. The account earns a tax benefit immediately and accumulates investment income for 3 to 4 years before the balance of money in the account is taken from inventory and invested in a charity. The exercise is then to bound the costs and benefits by considering optimistic and pessimistic cases. We can think of the bounds as considering the two effects of DAFs separately. First, on the cost side, we focus solely the compositional effect of giving the same amount as without DAFs, but doing so with more non-cash gifts. This bounds the potential loss from DAFs. Second, we focus solely on the benefits side by assuming that policy does indeed stimulate more giving when people switch to using DAFs. We then bound the gains by finding the level of giving that DAFs would need to inspire in order for the new giving to exceed the new tax costs (on both the original level of giving and the policy-induced new giving).

This exercise showed that, at a preferred discount rate of 7%, every $1000 dollars given through DAFs cost the government about $80 more in lost tax revenue, an 18.4% increase over non-DAF giving. If the discount rate is adjusted to 10% to account for the likely case that charitable investments have greater social returns than average capital investments, the estimated added costs of DAFs rises to $123, a nearly 32% increase. Turning to the minimum bound on the benefits of DAFs, under the 7% discount rate, the analysis indicates a 16% to 21% increase in giving would be required by DAF donors for the benefits of increased giving to exceed the cost of foregone tax revenues.

To get a sense of how attainable these changes in giving might be, I explored how DAF giving responded to the 2013 tax changes. Did it show a considerable increase in dollars donated, or did it encourage more use of DAFs for minimizing taxes? The data indicate that the level of giving was only mildly affected by the tax change. By contrast, there was a significant shift toward more non-cash giving among DAF account holders. This was compounded by a doubling or tripling of the rate at which new DAF accounts were opened. These point to tax minimizing rather than increasing giving as the primary consequence of the usage of Donor Advised Funds.

The predominance of the evidence, therefore, suggests that Donor Advised Funds are unlikely to stimulate more new giving than they cost in foregone tax revenues. Policies that might increase the net benefits of DAFs include limiting the tax advantage of giving of non-cash assets, requiring non-cash contributions to DAFs be paired with additional cash contributions, and decreasing the shelf-life of DAF donations.

References

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

Andreoni, J. (2006). Philanthropy. *Handbook of the Economics of Giving, Altruism and Reciprocity*, *2*, 1201–1269.

Andreoni, J., & Payne, A. A. (2013). Charitable giving. *Handbook of Public Economics*, *5*, 1–50.

Auerbach, A. J., & Poterba, J. (1988). Capital gains taxation in the united states: Realizations, revenue, and rhetoric. *Brookings Papers on Economic Activity*, *1988*(2), 595–637.

Auerbach, A. J., & Slemrod, J. (1997). The economic effects of the tax reform act of 1986. *Journal of Economic Literature*, *35*(2), 589–632.

Auten, G. E., & Clotfelter, C. T. (1982). Permanent versus transitory tax effects and the realization of capital gains. *The Quarterly Journal of Economics*, *97*(4), 613–632.

Auten, G. E., Clotfelter, C. T., & Schmalbeck, R. L. (2000). Taxes and philanthropy among the wealthy. *Does atlas shrug*, 392–424.

Auten, G. E., Sieg, H., & Clotfelter, C. T. (2002). Charitable giving, income, and taxes: An analysis of panel data. *The American Economic Review*, *92*(1), 371–382.

Bakija, J., & Heim, B. T. (2011). How does charitable giving respond to incentives and income? new estimates from panel data. *National Tax Journal*, *64*(2), 615.

Clotfelter, C. T. (1985). *Federal tax policy and charitable giving.* Chicago: University of Chicago Press.

Colinvaux, R. (2013). Charitable contributions of property: A broken system reimagined. *Harv. J. on Legis.*, *50*, 263–329.

Colinvaux, R. (2017). Donor advised funds: Charitable spending vehicles for 21st century philanthropy. *Wash. L. Rev.*, *92*, 39.

Goolsbee, A. (2000). What happens when you tax the rich? evidence from executive compensation. *Journal of Political Economy*, *108*(2), 352–378.

Gruber, J., & Saez, E. (2002). The elasticity of taxable income: evidence and implications. *Journal of public Economics*, *84*(1), 1–32.

Haushofer, J., & Shapiro, J. (2016). The short-term impact of unconditional cash transfers to the poor: Experimental evidence from kenya. *The Quarterly Journal of Economics*, *131*(4), 1973–2042.

Perez Cavazos, G., & Silva, A. M. (2015). Tax-minded executives and corporate tax strategies: evidence from the 2013 tax hikes. *Harvard Business School Working Paper, No.*

16-034.

Randolph, W. C. (1995). Dynamic income, progressive taxes, and the timing of charitable contributions. *Journal of Political Economy*, *103*(4), 709–738.

Saez, E. (2017). Taxing the rich more: Preliminary evidence from the 2013 tax increase. *Tax Policy and the Economy*, *31*(1), 71–120.

Sherlock, M. F., & Gravelle, J. G. (2012). An analysis of charitable giving and donor advised funds. *Congressional Research Service*, *July 11*(R4259).