How Tax Policy Affects Charitable Giving

LITERATURE REVIEW AND META-ANALYSIS ON THE TAX ELASTICITY OF CHARITABLE DONATIONS

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ABSTRACT

Are donors to charities sensitive to changes in tax policy? This literature review and meta-analysis delves into fifty-two empirical studies spanning 1975 to 2023, exploring the intricate relationship between fiscal policy and the charitable impulse to give. Employing a diverse range of methodologies, datasets, surveys, and taxpayer income levels, we paint a comprehensive picture of how charitable giving responds to changes in its "price" – the tax benefit associated with donations. The pooled results of this analysis reveal a significant positive effect: for every $1 increase in the tax benefit, charitable donations rise by a statistically significant $1.30. This finding reinforces the long-held consensus that tax exemptions for charitable contributions are "treasury efficient,"[1] as charities receive more donations than potential revenues forgone.

1 Martin Feldstein (1975) defined treasury efficient as: "the "efficiency" of the current tax treatment as a stimulus to charitable deductions, i.e., the amount of additional contributions received by charities per dollar of potential tax revenue forgone by the Treasury."

Introduction

Philanthropy, or voluntary action for the public good, forms the bedrock of a vibrant civil society. From health care and education to environmental protection and artistic expression, countless causes and organizations rely on the generosity of individuals and institutions. Roughly half of American households donate generously to charity every year (Osili et al., 2021), with over $300 billion donated annually by individuals and over $100 billion donated by private foundations in recent years (Giving USA, 2023).

Yet, within this altruistic landscape lies a crucial economic reality: charitable giving is not immune to the economic impact and behavioral incentives of tax policy. Indeed, a fundamental question resonates – to what extent does the cost of giving, as influenced by tax incentives, sway the magnitude of charitable donations? This intricate relationship between tax policy and charitable behavior lies at the heart of the concept of tax elasticity of charitable giving.

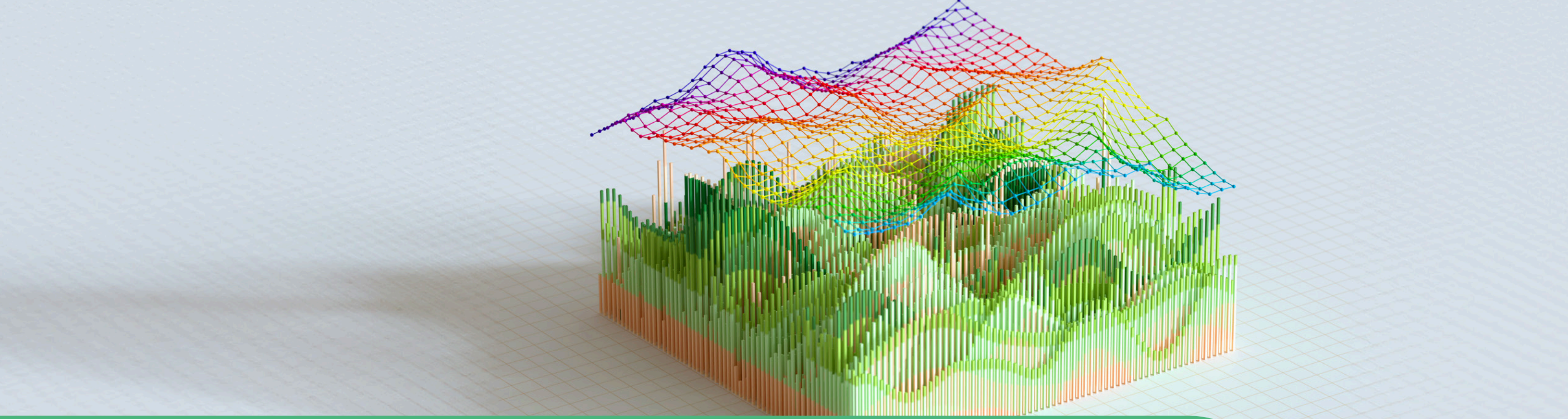
The debate surrounding the impact of tax policy on charitable giving underscores the need for a rigorous and systematic analysis of the existing literature. By leveraging meta-analytic tools, we aim to explore overarching patterns in the literature, explore heterogeneity in the existing literature, and provide a more nuanced and statistically robust understanding of the interplay between tax policy and charitable giving. This literature review and meta-analysis embarks on a comprehensive exploration of this enigmatic relationship. We delve into the vast corpus of research investigating how changes in the "price" of giving, often in the form of a tax deduction, impacts the value of donations. Through critical analysis of empirical studies, economic models, and policy debates, we aim to unveil the nuanced and multifaceted nature of this intricate relationship.

The paper is organized as follows. First, we define what is meant by tax price elasticity as it relates to charitable giving and why it matters. Next, we conduct a survey of economic literature spanning almost five decades of research, with a sample of fifty-two empirical studies. Finally, we employ meta-analysis techniques using different estimators and weighing studies based on precision measures to estimate a pooled elasticity estimate of the existing literature.

The charitable deduction plays a dual role. It fosters donor generosity, ultimately leading to a greater flow of resources to worthy causes. But equally important, it fosters a vibrant nonprofit sector with a degree of autonomy from government control.

While this paper focuses primarily on the tax incentives of charitable donations, the charitable deduction has another significant consequence: fostering a robust nonprofit sector with a degree of independence from government control. By providing an alternative funding stream, the charitable deduction allows charities to operate with a degree of independence from government control. Unlike government-funded programs, charities reliant on donations are not subject to the same level of political bureaucracy and budgetary constraints.

This allows them to be more agile, responding quickly to emerging needs and pursuing innovative solutions without waiting for legislative approval. Additionally, charities can prioritize causes that may not be politically popular but are still vital for society, such as advocacy or research into controversial topics. In other words, the charitable deduction plays a dual role. It fosters donor generosity, ultimately leading to a greater flow of resources to worthy causes. But equally important, it fosters a vibrant nonprofit sector with a degree of autonomy from government control.



Understanding Tax Price Elasticity and Why It Matters

At the heart of the intricate relationship between philanthropy and public finance lies a vital concept – the tax price elasticity of charitable giving. The tax price elasticity of charitable giving measures the quantitative response of individual donors to changes in the "cost" of their contributions, as influenced primarily by tax policies. Understanding this elasticity holds profound significance, as it offers invaluable insights for policymakers, philanthropic organizations, and scholars alike.

The cornerstone of many tax incentive programs, deductions, allow individuals to subtract the value of their charitable contributions from their taxable income, effectively lowering their tax burden. For instance, if someone donates $10,000 in a 25% marginal tax bracket, their donation translates to a $2,500 tax saving, reducing the "cost" of their generosity to $7,500.

Tax price elasticity, simply put, measures the percentage change in charitable donations in response to a 1% change in this "price." A negative elasticity indicates donations increase as the cost of giving decreases, a phenomenon consistent with the logic of tax incentives making charity more attractive. However, the size of a negative elasticity also matters—the closer to zero, the less efficient the tax-exemption. An elasticity of -1 means the tax deduction is treasury efficient, as each dollar in potential revenues forgone results in one dollar received by public charities. Elasticities greater than -1 (i.e. -1.1 or -1.2) suggest charities receive more in donations than the treasury forgoes in potential revenues. It also shows donors are particularly sensitive to changes in tax policy. The table below explains how different elasticities impact 1) donations, 2) treasury efficiency, and 3) demonstrate the sensitivity of donors to changes in tax policy.

Elasticity	Effect on Donations	Efficiency of Exemption	Sensitivity of Donors to Changes in Tax
> -1	Donations increase by less than forgone revenue	Less than treasury efficient	Donors are less sensitive to changes in tax policy
≤ -1	Donations increase by same as or more than forgone revenue	Treasury efficient	Donors are sensitive to changes in tax policy

Understanding the sensitivity of donors to price changes informs ongoing policy debates surrounding the optimal design of tax incentives for charitable giving. The debate over efficiency has been a longstanding feature of charitable tax policy, dating to the very origins of the tax-exempt status of the charitable sector. The concept and application of charitable tax exemption is far older than the federal tax code itself. Roman Emperor Constantine granted tax exempt status to churches, clergy, and church owned lands in the 4th century Roman Empire (Elliott, 1978).

The modern tax-exempt status of the nonprofit sector is rooted in Elizabethan laws dating to the 1601 Statute of Charitable Uses. The Crown exempted charitable support from taxation to encourage private contributions deemed to be of public benefit (Fishman, 2005). Nonprofit organizations in the United States have been "unofficially" tax exempt since the nation's founding, receiving official tax-exempt status in 1894. The Revenue Act of 1913 further solidified the tax-exempt legal status of charities, while the charitable deduction was first introduced in 1917. The charitable deduction was raised to 50 percent of adjusted gross income in the 1969 Tax Reform Act. Following this tax reform, policymakers and academics began debating the treasury efficiency of the charitable deduction. It was this debate, sparked in the 1970s, that led to the emergence of economic literature attempting to measure the tax elasticity of charitable giving.

By quantifying the sensitivity of giving among donors to changes in the tax price, we can better understand the potential impact of a cap on overall charitable giving levels. Adding further urgency to the matter is the 2025 expiration of many provisions in the Tax Cuts and Jobs Act (TCJA).

The debate surrounding the efficiency of the charitable deduction came up again in the 1980s and more recently in the early 2010s. For example, in 2010 the Simpson-Bowles commission recommended eliminating the charitable deduction and replacing it with a small tax credit. In 2012 the Romney presidential campaign advocated capping the total annual deduction amount within the range of $17,000 to $50,000, depending on income levels. And in 2013 President Obama, in his FY 2014 budget, recommended limiting the deduction to the 28 percent tax rate and ending deduction tax benefits for the highest earners.

Empirical exploration and analysis in this area matters as much today as it did in the past. In recent years we have experienced a burgeoning effort among policymakers to impose new taxes, particularly on wealthier taxpayers. For example, in 2021 Senator Elizabeth Warren (D-MA) introduced the Ultra-Millionaire Tax with plans to tax the unrealized assets of wealthy Americans, including plans to impose a recurring tax on the funds of private charitable foundations (Library of Congress, 2021). Accurately estimating the tax price elasticity among large donors becomes paramount in predicting whether imposing such taxes will significantly decrease charitable donations.

In a similar vein, the progressive Institute for Policy Studies (IPS) has proposed applying a lifetime cap on the charitable deduction for wealthy philanthropists (Flannery et al. 2023). Again, the need for elasticity research becomes evident. By quantifying the sensitivity of giving among donors to changes in the tax price, we can better understand the potential impact of a cap on overall charitable giving levels. Adding further urgency to the matter is the 2025 expiration of many provisions in the Tax Cuts and Jobs Act (TCJA).

Predicting the economic consequences of these expiries demands reliable insights into the tax price elasticity of the average American donor. The next section of the paper delves into the empirical literature dating to the 1970s. This survey of studies should offer valuable insight into the approaches, methods, and findings of academic efforts to measure the tax price sensitivity of charitable donors.

Acknowledging the Income Channel

While the impact of tax policy on charitable giving, or the tax price elasticity, is a well-studied subject, it is also important to acknowledge how changes in income impact charitable giving. In the context of raising the tax burden, the "income elasticity" is an important factor to consider when observing the broad effects of tax policy on philanthropic generosity. Income elasticity measures how sensitive charitable donations are to changes in income. As the tax burden rises, donors (and potential donors) have less disposable income to contribute to charitable causes. Most of the economic literature finds the income elasticity of charitable giving lies between 0.4 and 0.9 (Clotfelter, 1985; Auten et al., 2002; Bajika and Heim, 2008), with most studies finding estimates crowding around 0.7.

For every 10 percent increase/decrease in income, a donor increases/decreases their charitable giving by 7 percent. From a higher level, the broader economic impact of higher taxes means a reduced capital stock, lower productivity, and subsequently less overall economic growth.

In other words, for every 10 percent increase/decrease in income, a donor increases/decreases their charitable giving by 7 percent. From a higher level, the broader economic impact of higher taxes means a reduced capital stock, lower productivity, and subsequently less overall economic growth. As charitable giving typically amounts to about 2 percent of national income—a trend that has been consistent for several decades—any changes in economic activity are consequential for trends in charitable giving. So, while this paper focuses primarily on the tax elasticity of giving, readers should also keep in mind the income channel through which increases in the tax burden can negatively impact philanthropic generosity.

Survey of Economic Literature

The abundance of economic literature reviewing the relationship between tax policy and charitable giving truly emerged in the 1970s. For this reason, we use 1975 as a starting point in our search for empirical studies, coinciding with the emergence of a significant body of research on the tax elasticity of charitable giving, and most notably the pioneering work of economists Martin Feldstein and Charles Clotfelter. Although there were a small number of studies published prior to this date, the design and limitations of those studies make it difficult to provide an accurate value for the elasticity estimate (Taussig, 1967; Schwartz, 1970).

The survey sample was obtained using search terms in Google Scholar such as "charitable tax elasticity," "tax elasticity and charitable contributions," and "tax elasticity of donations." Additional studies were added to the survey sample upon reviewing the references, citations, and existing literature reviews of initial studies in the sample. Studies that deviated from the main question at hand were not selected for this survey sample. For example, studies focused on corporate tax elasticity or on tax enforcement and charitable contributions, were not included.

The vast majority of studies in this survey (46 out of 52) are published in peer-reviewed academic journals, while the few studies not published in peer-reviewed journals are either empirical studies published within books or publications by reputable institutions such as the Brookings Institution or National Bureau of Economic Research (NBER). The studies in this survey employ various identification strategies in their empirical analysis, with most studies in the sample employing cross-sectional observations, while other studies use panel data across time.

Most of the studies (30 out of 52) use taxfiler data to estimate elasticities of giving, while other studies (18 out of 52) use survey data. The remaining studies use alternative data sources (i.e. land trust data or data pooled from other studies). In addition, various regression methods are adopted across the pool of studies, including ordinary least squares (OLS), Two-Stage least square (2SLS), Tobit regression models, fixed effect (FE) models, and instrumental variable (IV) estimates.

Survey Sample Results

In the interest of streamlining the main body of this paper and ensuring a focused discussion on tax elasticity estimates, the extensive literature review has been relocated to an appendix. Readers interested in a comprehensive review of relevant literature are encouraged to refer to Appendix A for a detailed exploration of the research landscape. The table below summarizes the general findings of the literature, with elasticity estimates (ranges), study design, and data type employed.

Study	Elasticity (Range)	Design	Data
Feldstein, 1975	-1.25	Cross-sectional	Taxfiler
Boskin, 1976	-1.2	Cross-sectional	Taxfiler
Feldstein and Clotfelter, 1976	-1.15	Cross-sectional	Survey
Feldstein and Taylor, 1976	-1.25	Cross-sectional	Taxfiler
Boskin and Feldstein, 1977	-2.54	Cross-sectional	Survey
Abrams and Schitz, 1978	-1.36	Cross-sectional	Taxfiler
Reece, 1979	-1.19	Cross-sectional	Survey
Clotfelter, 1980	-1.4	Panel Data	Taxfiler
Clotfelter and Steuerle, 1981	-1.27	Cross-sectional	Combination/Both
Feenberg, 1982	-1.23	Cross-sectional	Taxfiler
Abrams and Schitz, 1984	-1.44	Cross-sectional	Taxfiler
Clotfelter, 1985	-1.2 (-1.1, -1.3)	Panel Data	Taxfiler
Feenberg, 1987	-1.34	Cross-sectional	Taxfiler
Christian et al., 1990	-1.28 (-0.99, -1.56)	Panel Data	Taxfiler
Kitchen and Dalton, 1990	-1.07	Cross-sectional	Survey
Barrett, 1991	-1.09	Panel Data	Taxfiler
Kitchen, 1992	-2.29	Cross-sectional	Survey
Brown and Lankford, 1992	-1.98	Cross-sectional	Survey
Choe and Jeong, 1993	-1.35 (-1.35, -2.5)	Cross-sectional	Taxfiler
Dunbar and Phillips, 1994	-3.36	Cross-sectional	Taxfiler
Ribar and Wilhelm, 1995	-1.28 (-0.94, -2)	Cross-sectional	Taxfiler
Auten and Joulfaian, 1996	-1.27 (-1.1, -2.5)	Cross-sectional	Taxfiler
Frischmann, 1997	-1.65	Cross-sectional	Taxfiler
Duquette, 1999	-1	Cross-sectional	Taxfiler
Tiehen, 2001	-1	Cross-sectional	Survey
Auten et al., 2002	-1.16 (-0.79, -1.26)	Panel Data	Taxfiler

Study	Elasticity (Range)	Design	Data
Bakija et al., 2003	-1.62 (-1.62, -2.14)	Cross-sectional	Taxfiler
Apinunmahakul and Devlin, 2004	-1.3	Cross-sectional	Survey
Joulfaian and Rider, 2004	-1.21 (-1.21, -1.32)	Cross-sectional	Taxfiler
Bradley, 2005	-0.78	Cross-sectional	Survey
Peloza and Steel, 2005	-1.11 (-1.11, -1.44)	Meta-analysis	Combination
Brooks, 2007	-2.68	Panel Data	Survey
Auer and Kalusche, 2010	-1.1	Cross-sectional	Taxfiler
Bakija and Heim, 2011	-0.99	Panel Data	Taxfiler
Hossain and Lamb, 2012	-1.68	Cross-sectional	Survey
Lin and Lo, 2012	-1.22	Cross-sectional	Taxfiler
Yetman and Yetman, 2012	-1.03 (-1.03, -1.99)	Panel Data	Taxfiler
Bakija, 2013	-1.4	Panel Data	Taxfiler
Bonke et al., 2013	-1.12 (-1.12, -1.21)	Cross-sectional	Taxfiler
Meer, 2014	-1.24	Cross-sectional	Project Data
Bonke and Werdt, 2015	-1	Cross-sectional	Taxfiler
Galle, 2016	-1.4	Panel Data	Taxfiler
Duquette, 2016	-1.42 (-1.4, -5)	Cross-sectional	Taxfiler
Zampelli et al., 2016	-1.38	Cross-sectional	Survey
Dorrenberg et al., 2017	-0.9	Panel Data	Taxfiler
Backus and Grant, 2018	-1.24	Panel Data	Survey
Parker and Thurman, 2018	-1.89 (-1.89, -2.35)	Panel Data	Land Trust Data
Meer and Priday, 2020	-1.07	Panel Data	Survey
Adena, 2021	-1.1	Panel Data	Survey
Hickey and Minaker, 2023	-1.88	Panel Data	Survey
Kato et al., 2023	-1.56	Panel Data	Survey
Kim, 2023	-1.1 (-1.1, -4)	Panel Data	Survey

Synthesis of Themes and Findings

While the broad diversity of elasticity estimates across fifty-two studies complicates the task of providing a single, definitive figure for the tax price effect on charitable behavior, synthesizing these findings may offer some valuable insights. By identifying common themes and exploring outliers, we might better understand how different designs, data, and methodologies result in disparate elasticity estimates.

While outliers do no doubt exist within the literature, it is worth noting that most estimates (73 percent) fall within the range -1 to -1.5. Another common theme this study did not seek to explore, but future research should examine further, is the divergence in elasticity estimates dependent on the cause or sector of the charity. Additionally, a recurring limitation in a handful of studies is the presence of large standard errors, which might indicate lower precision in elasticity estimates for these studies.

STUDY DESIGN: PANEL DATA VERSUS CROSS-SECTIONAL

One topic of debate within the literature is whether the use of panel data versus cross-sectional data results in a higher or lower estimate. For example, Steinberg (1990) says studies employing panel data sets might result in less elastic estimates. Our susceptibility to short-term events over long-term trends suggests cross-sectional data, reflecting short-term snapshots, may yield higher elasticities. Conversely, panel data, encompassing a broader timeline, likely leads to lower elasticities.

Barrett (1991) highlighted three crucial advantages of using panel data for studying charitable giving:

1. Enhanced accuracy in estimating the price elasticity of giving, thanks to the ability to track individual responses over time.
2. Reduced vulnerability to biases caused by omitted variables, as panel data capture a richer set of individual characteristics.
3. Greater clarity in distinguishing the independent effects of price and income on giving decisions.

TEMPORARY VERSUS PERMANENT TAX PRICE EFFECTS

In a similar vein to the time sensitive nature of the study design debate, economists have argued about the differences in elasticity estimates between those focused on temporary (or transitory) measures of tax costs versus those based on longer-term measures and smoothed over many years. Most of the research, and especially the early research, focuses on temporary measures of tax price costs. As donors may be more likely to change their behavior in response to tax changes they perceive to be temporary, we would expect tax price elasticities using this metric to overstate the impact, while permanent effect measures could underplay the role of temporary behavior.

USE OF DATA SETS: SURVEY VERSUS TAXFILER

Another common debate among the literature is the use of survey data versus taxfiler data. The accuracy of variables like income and donations in taxfiler data compared to survey data has been heavily debated. Clotfelter (1985) suggests survey-derived elasticities might be overestimated, while Fisher and Ackerman (1998) emphasize the potential for socially desirable responses in surveys on charitable giving, leading to inflated price elasticities. These theories suggest elasticity estimates based on survey data may overstate the tax price sensitivity of charitable donors when comparing to studies based on taxfiler data.

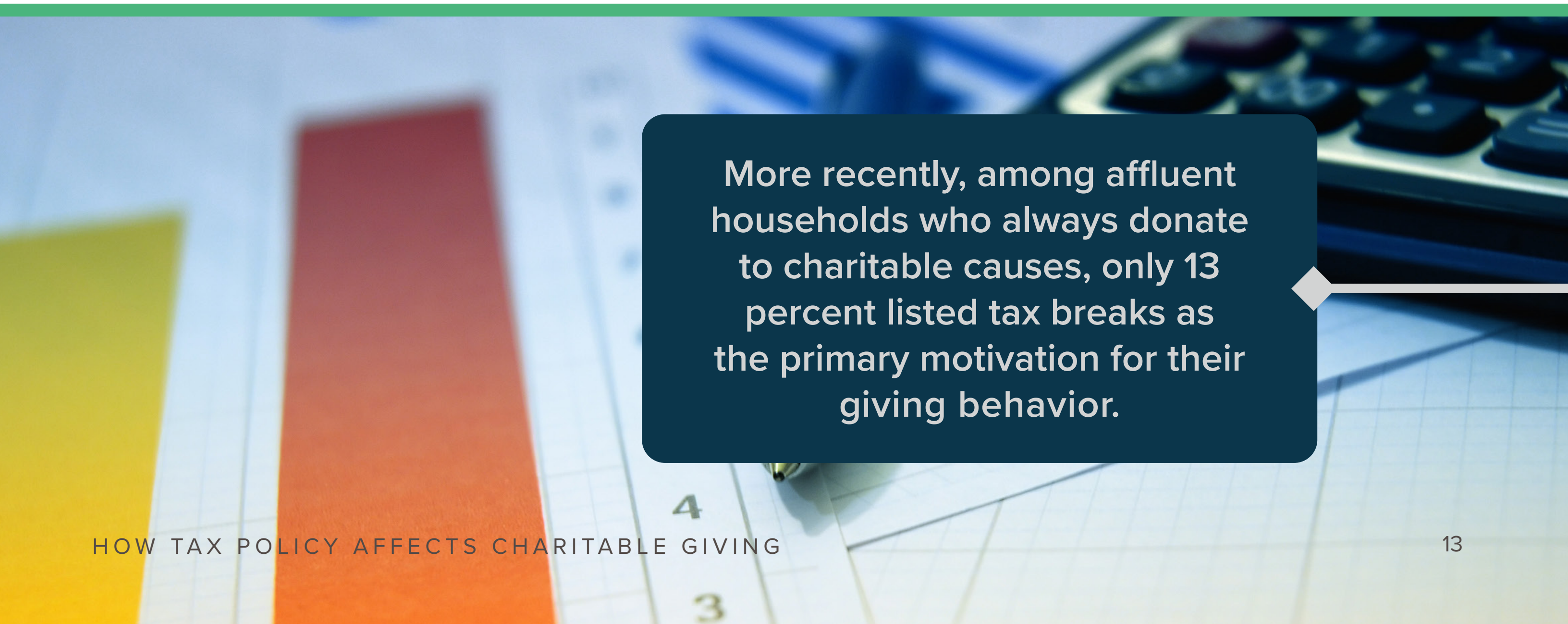
INCOME LEVELS AS A PREDICTOR OF PRICE ELASTICITY

Studies on the price elasticity of giving and income groups present a mixed picture. Many early studies (Feldstein and Clotfelter 1976; Clotfelter and Steuerle 1981) observed high price sensitivity among lower-income donors, while Feldstein (1975) found high-income earners maintained their giving despite increased tax costs. Duquette (1999) then suggested more responsiveness to tax changes among higher earners. Notably, as Clotfelter (1985) concluded, "precisely determining price elasticities for different income groups remains a challenge."

Contrary to expectations, only a quarter of high-income donors in Cermak et al.'s (1994) study cited tax advantages as their main motivation for giving among a sample of 471 affluent donors. More recently, among affluent households who always donate to charitable causes, only 13 percent listed tax breaks as the primary motivation for their giving behavior. Tax advantages weren't even listed in the top five motivations by a sample of 1,623 wealthy U.S. households (Lilly Family School of Philanthropy, 2023).

More prevalent motivators included belief in organizational mission, making a difference, personal fulfillment, giving back to the community, and remedying issues that have affected you or those close to you. Similarly, Kottasz (2004) found tax incentives were a low priority for affluent donors.

To get a rough overview of the differences in elasticity estimates based on the above criteria, we calculate the pooled mean from our survey of studies, as well as the pooled mean 95 percent confidence intervals using standard errors. While this method doesn't offer a precise estimate of elasticities, it does offer some insight into the trends that exist within the literature, especially as it relates to different findings based on study design, demographic factors, and choice of data.



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The table below highlights the differences in elasticity estimates based on study design (panel data vs. cross-sectional). A pooled mean estimate is calculated from the survey of economic literature. Contrary to popular theory (Steinberg, 1990), panel data design doesn't seem to result in smaller elasticity estimates than cross-sectional design.

While the difference in pooled elasticity estimates between the study designs is small, the narrower pooled confidence intervals for panel data studies lends some support to arguments that these designs tend to be more accurate and less prone to biases (Barrett, 1991). It also signals treasury efficiency, with 95 percent confidence that the elasticity does not overlap -1. However, it should be noted that in their prior analysis, Peloza and Steel (2005) found the differences in elasticity estimates based on study design to be statistically insignificant.

POOLED ELASTICITY ESTIMATES BASED ON STUDY DESIGN

Variable	Pooled Mean Elasticity	Pooled Mean 95% Confidence
Cross-Sectional	-1.35	-0.78; -1.91
Panel Data	-1.41	-1.06; -1.76

Comparing differences in estimates based on datasets employed (survey vs taxfiler) reveals a more pronounced difference. In this instance popular economic theory (Clotfelter, 1985) is corroborated by the pooled mean estimates. Studies employing survey data have a pooled average elasticity around -1.5, while those using taxfiler data have a pooled average elasticity closer to -1.3. Studies employing taxfiler data seem to have more precise estimates—roughly between -1 and -1.7. But importantly the pooled 95 percent confidence intervals suggest charitable giving is elastic to changes in the tax price, regardless of dataset choice.

POOLED ELASTICITY ESTIMATES BASED ON DATASET EMPLOYED

Variable	Pooled Mean Elasticity	Pooled Mean 95%Confidence
Taxfiler Data	-1.32	-0.98; -1.67
Survey Data	-1.48	-1.05; -1.92

Studies measuring the permanent effects of changes in the tax price tend to find elasticities slightly smaller than those measuring temporary effects, although both pooled averages center around -1.4. This is consistent with what we might expect as taxpayers are likely more sensitive to short-term changes in the tax price as it relates to their charitable giving behavior. The average pooled standard errors for studies measuring temporary effects are more precise and offer 95 percent confidence that donors are elastic to changes in tax price, while confidence intervals for studies measuring permanent effects are less precise.

POOLED ELASTICITY ESTIMATES BASED ON TEMPORARY/ PERMANENT EFFECTS

Variable	Pooled Mean Elasticity	Pooled Mean 95% Confidence
Permanent Effects	-1.39	-0.81; -1.98
Temporary Effects	-1.45	-1.08; -1.81

A contentious variable in the economic literature, income level, offers some interesting insights. Pooled averages suggest low-income donors are highly sensitive to changes in tax prices, high-income donors are moderately sensitive, and middle-income donors are close to unity and potentially inelastic to tax price changes. However, earlier literature seems to find notably higher estimates for lower-income taxfilers and slightly lower estimates for higher-income taxfilers. The second table below shows the results only from studies published post-1995. Both low and high-income donors among this literature have average pooled elasticities around -1.4, with pooled confidence intervals between -0.8 and -2. Whether we observe either table below, the pooled averages tend to suggest the presence of an inverted U-shape in the income distribution of tax price elasticities of giving.

POOLED ELASTICITY ESTIMATES BASED ON DONOR INCOME LEVEL

Variable	Pooled Mean Elasticity	Pooled Mean 95% Confidence
Low-Income	-1.75	-1.11; -2.39
Middle-Income	-0.9	-0.32; -1.48
High-Income	-1.3	-0.77; -1.83

POOLED ELASTICITY ESTIMATES BASED ON DONOR INCOME LEVEL (POST-1995)

Variable	Pooled Mean Elasticity	Pooled Mean 95% Confidence
Low-Income (post-1995)	-1.36	-1.04; -1.68
High-Income post-1995)	-1.40	-0.79; -2.01

Finally, as the sample of studies offers almost five decades of empirical explorations, it might be valuable to compare estimates of older studies to those of newer studies. The table below reveals pooled average elasticities from studies published pre-and post-2000. Studies published during the period 1975-1999 have pooled average elasticities close to -1.5 (CI: -1.1, -1.9), while those published since 2000 have pooled estimates closer to -1.3 (CI: -0.9, -1.8). The potential downtrend in estimates might be explained by changes in the tax structure over time, or by increased employment of methodologies (i.e. taxfiler data vs survey data) that suppress elasticity estimates.

POOLED ELASTICITY ESTIMATES BASED ON OLDER/NEWER STUDY PUBLICATION DATE

Variable	Pooled Mean Elasticity	Pooled Mean 95% Confidence
Published Before 2000	-1.47	-1.09; -1.85
Published After 2000	-1.31	-0.86; -1.76

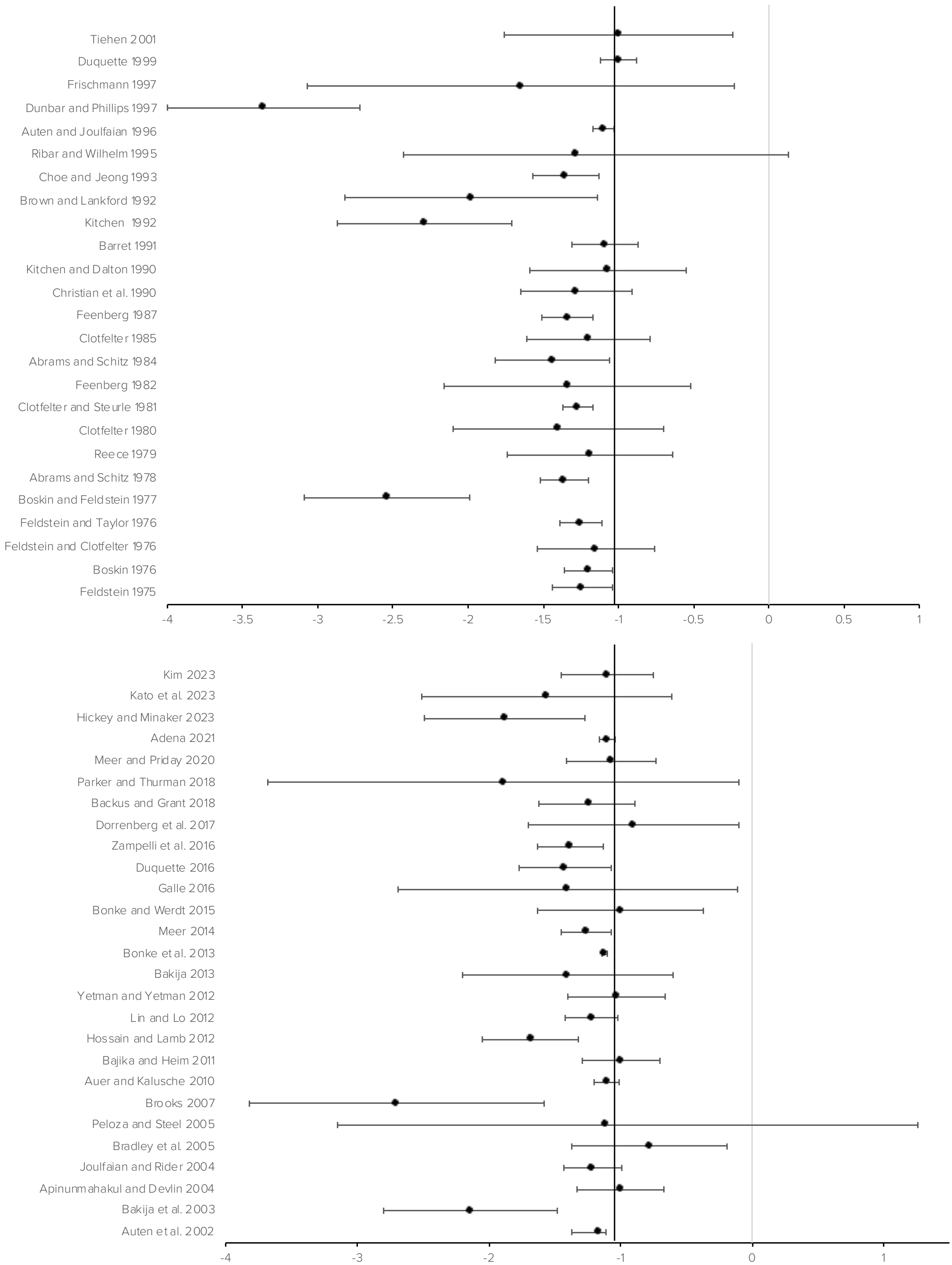
Another underexplored variable that might offer insight into discrepancies in elasticity estimates is sample size in each study. However, when we regressed elasticity estimates against sample size, we found no statistically significant relationship (0.071) between the two variables. This suggests sample size is a poor measure of variability between elasticity estimates in the economic literature.

Meta-Analysis: Seeking Precision in the Literature

A survey of economic literature offers some valuable insights into the different approaches, methodologies, and measures employed, identifying trends, and synthesizing existing research. Yet, a review of the literature also exposes the large differences in estimates between studies, with elasticity estimates ranging from less than -1 to more than -3. Employing mathematical rigor to estimate a more precise elasticity estimate from the pool of over fifty studies requires running a meta-analysis on the pool of available estimates. This involves computing the elasticity estimate and variance for each study in our sample, and then computing a weighted mean of elasticity estimates. To compute the weighted mean, we need to assign more weight to the more precise studies.

We employ weighted least squares (WLS) for our meta-analysis using our vector of corresponding standard errors. WLS assigns more weight to studies with higher precision, ensuring their estimates contribute more to the overall pooled effect, while studies with less precise estimates are assigned less weight respectively. While Peloza and Steel (2005) employed WLS based on sample size, the use of standard errors better reflect the precision of each study's estimate, whereas sample sizes might offer a less exact measure of precision. The forest plot in the next page (Fig 1.) demonstrates the range of estimates for our sample of studies, as well as the range of confidence intervals based on standard errors for each study.

FIGURE 1.
FOREST PLOT OF ELASTICITY ESTIMATES



The weighted mean of the price elasticity of charitable giving using the WLS method is -1.13. In other words, under this specification, for every $1 the treasury forgoes in potential revenues, the charitable deduction results in $1.13 making its way to public charities. This result does suggest charitable donors are tax price elastic, and the tax-exempt status of charitable donations is, therefore, treasury efficient. However, WLS may not adequately account for between-study heterogeneity by assuming a fixed intercept across studies.

	Weighted Least Squares Model
Coefficient	-1.12582
95% Confidence	-1.0911, -1.1605
Standard Error	0.01729

Employing different estimators in our meta-analysis offers a range of elasticity estimates for the pooled survey of studies. The table below presents the results of a fixed effects (FE) model, as well as random effects with different estimators. The FE model offers similar results to our WLS approach but given that our results indicate substantial heterogeneity (I^2 values: 76.75-94.01 percent), a random effects (RE) model is generally more favored over FE. Restricted Maximum Likelihood (REML) and Maximum Likelihood (ML) estimations appropriately account for heterogeneity, providing a more realistic estimate of the effect size and its uncertainty.

We also considered the DerSimonian-Laird (DL) estimator, which yielded a lower estimate of between-study heterogeneity (tau^2 = 0.0179). However, given the significant Q-test and high I^2 values, we opted for the more conservative REML and ML estimators to better account for the observed heterogeneity. For these reasons, our preferred estimate is found in column 2 using random effects with a REML estimator.

The results of our meta-analysis with a random effects estimator result in an elasticity of -1.3, with a 95 percent confidence interval between -1.2 and -1.4. The wider confidence intervals of the RE model versus the FE and WLS model reflects uncertainty due to heterogeneity. Regardless of whether we adopt the WLS model estimate, FE model estimate, or the RE estimates, the results show donors are sensitive to tax price changes, suggesting the charitable deduction is treasury efficient. All results are statistically significant.

	Fixed Effects Model	Random Effects REML Estimator	Random Effects ML Estimator	Random Effects DL Estimator
Coefficient	-1.1258	-1.2977	-1.2949	-1.2332
95% Confidence	-1.1095, -1.1422	-1.1988, -1.3965	-1.1985, -1.3912	-1.1759, -1.2905
Standard Error	0.0083	0.0504	0.0492	0.0292

Now that we have a central elasticity estimate of -1.3, we should assess the potential for bias in the elasticity estimates. It is possible the distribution of elasticity estimates is skewed toward more negative values. Peloza and Steel (2005) recommend the use of a rank correlation test to determine whether potential publication bias is present in the economic literature.

MEASURING PUBLICATION BIAS USING STANDARD ERRORS

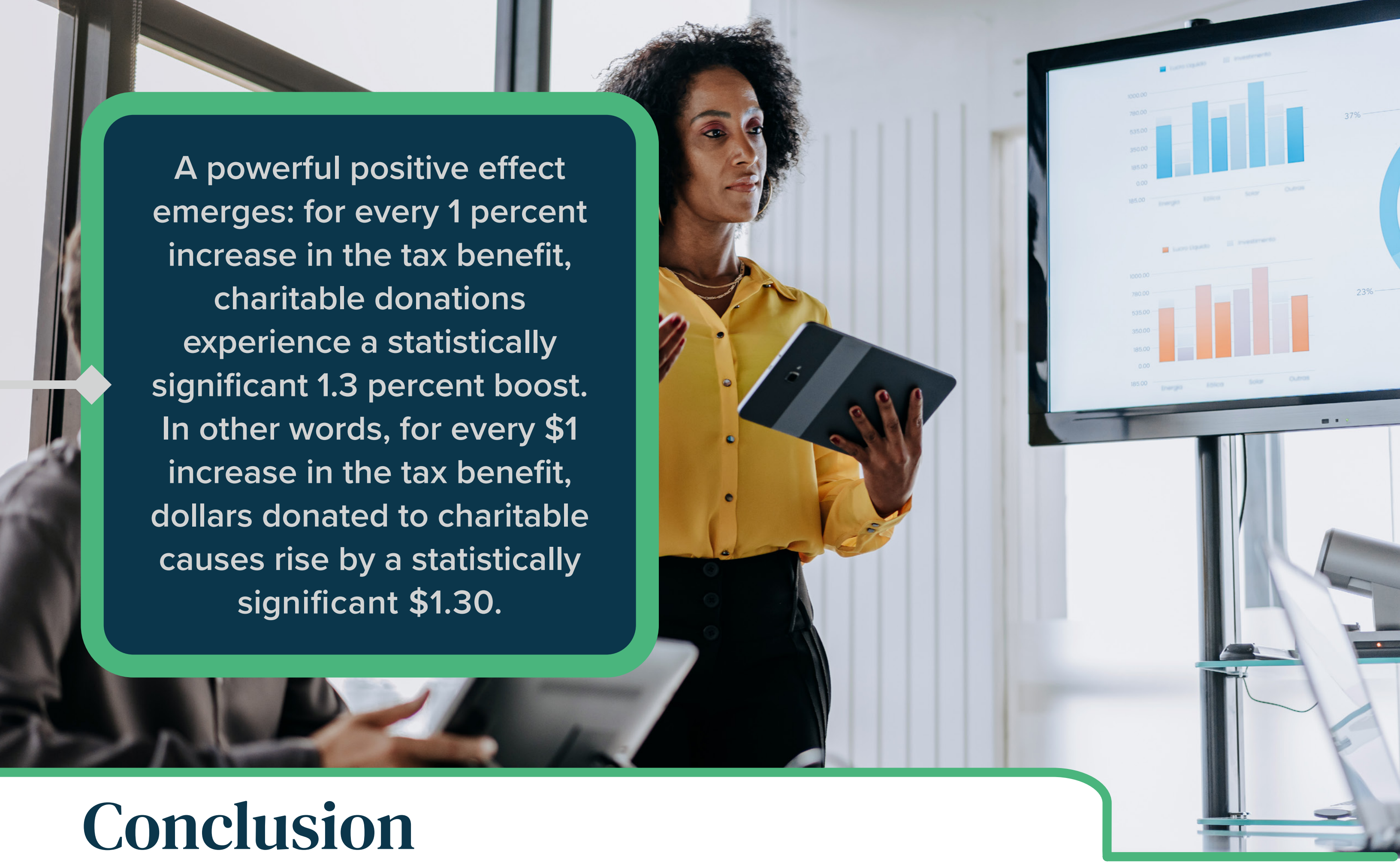
Begg et al. (1994) suggests the use of a rank correlation test, specifically Kendall's tau. Correlating standard errors with correlations generate a coefficient of 0.0083, which is not significant ($p = 0.9308$). This indicates a very weak positive correlation between the elasticity estimates and their precision. In other words, there's only a slight tendency for studies with larger effect sizes to have lower precision (and vice versa).

The p-value is not statistically significant (far above the typical threshold of 0.05). It means we cannot reject the null hypothesis that there's no correlation between effect sizes and precision. Based on Begg's test alone, there's no compelling evidence to suggest publication bias is significantly affecting meta-analysis results. The lack of a significant correlation between effect sizes and precision doesn't support a pattern of smaller studies with larger effects being preferentially published.

MEASURING PUBLICATION BIAS USING SAMPLE SIZE

Correlating sample sizes with correlations generate a coefficient of -0.1164, which is not significant ($p = 0.2368$). This indicates a weak negative correlation between the elasticity estimates and sample sizes. In other words, there's a slight tendency for studies with larger effect sizes to have smaller sample sizes (and vice versa). However, this p-value is not statistically significant (above the typical threshold of 0.05).

It means we cannot reject the null hypothesis that there's no correlation between effect sizes and sample sizes. Using sample size, the test doesn't provide strong evidence to suggest publication bias is significantly affecting meta-analysis results. The lack of a significant correlation doesn't support a pattern of smaller studies with larger effects being preferentially published.



A powerful positive effect emerges: for every 1 percent increase in the tax benefit, charitable donations experience a statistically significant 1.3 percent boost. In other words, for every $1 increase in the tax benefit, dollars donated to charitable causes rise by a statistically significant $1.30.

Conclusion

Across a broad array of charitable causes, from health care and education to environmental protection and artistic expression, countless organizations rely on the lifeblood of individual and institutional generosity. Annually, over $400 billion flows to charities, driven by the voluntary giving of these donors and foundations. Yet, for over five decades, policymakers and academic experts have pondered the question: how does the "cost of giving," shaped by tax incentives, influence the overall value of donations?

Our employment of meta-analytic methods has unearthed some overarching patterns within the existing research and explored the potential sources of heterogeneity. By pooling results and applying rigorous statistical methods, we arrived at a nuanced and robust understanding of the intricate interplay between tax policy and charitable giving. The key finding? A powerful positive effect emerges: for every 1 percent increase in the tax benefit, charitable donations experience a statistically significant 1.3 percent boost. In other words, for every $1 increase in the tax benefit, dollars donated to charitable causes rise by a statistically significant $1.30.

This reinforces the long-held notion that tax benefits for charitable contributions are beneficial to donors and the communities they support as the deduction incentivizes giving and is also "treasury efficient," as charities receive more donations than potential revenues forgone. As policymakers engage in debates over tax policy changes, these findings should resonate.

Taxpayers demonstrably respond to shifts in policy, and the benefits of the charitable deduction for individual donors and the communities they support undeniably outweigh any potential loss of revenue. These findings may prove useful in ongoing debates surrounding broader tax policy issues.

Appendix A: Detailed Literature Review

Feldstein (1975), using taxfiler data for the period 1948 to 1968, finds an elasticity estimate of -1.24. The study employs a time series of cross-sections for a sample of 187 observations. To investigate potential variation in the estimate, the authors separately estimated the elasticity for high- and low-income taxfilers. The results show that for low-income taxfilers, charitable giving is highly elastic at -1.8, while for high income earners giving is inelastic at -0.29.

Covering the period 1957-59, Boskin (1976) uses cross-sectional data to analyze the elasticity of changes in estate taxes on charitable bequests. Adopting a truncated regression model, the author finds an elasticity estimate around -1.2 (CI: -1.07, -1.33) for the sample of almost 5,000 charitable bequests. This estimate is close to the central estimate found by Feldstein. Interestingly, for the largest estates ($500,000 to $2,000,000), the tax price elasticity of charitable bequests is larger at -1.71.

Feldstein and Clotfelter (1976) adopt a log-linear equation for a survey of over 1,400 households. Their cross-sectional analysis covers the period 1963-64. They find an elasticity estimate of -1.15—slightly lower than prior estimates, but still within the broadly established range of -1 to -1.4. When breaking down elasticity estimates by income level, the results show low earners are highly elastic at -2.75, middle income earners are moderately inelastic at -0.75, and high earners are moderately elastic at -1.16. However, the standard error for the low-income group is so large it is within the 95 percent confidence of possibilities that the estimate could be as low as -1.3 for high earners.

Feldstein and Taylor (1976), using taxfiler data for a fairly large sample of more than 15,000 observations, find a central elasticity estimate close to that of prior literature, at -1.25. To see if this estimate varies by income level, the authors calculated the elasticity for low-, middle-, and high-income groups. In line with previous studies, the low-income group estimate is highly elastic at -2.26, the middle-income group has an elasticity of -1.17, and the high-income group has a slightly higher elasticity estimate of -1.27. The study used cross-sectional data focused on the years 1962 and 1970.

Utilizing a cross-sectional analysis of 1973 survey data and a log-linear equation, Boskin and Feldstein (1977) estimated the tax elasticity of low- and middle-income households. The results reveal a large elasticity estimate of -2.54. A recurring theme in the early empirical literature of the 1970's is that tax price elasticity estimates of charitable giving are clumped around -1.2. But interestingly, the elasticity of charitable giving for low-income samples is often closer to or more than -2 (but with large standard errors).

Abrams and Schitz (1978) use a cross-sectional time series for the period 1948 to 1972 to calculate the tax elasticity of charitable giving for a sample of taxfilers. The authors find a slightly larger estimate than most of the prior literature, with an elasticity estimate of -1.36 and a small standard error of 0.08.

Using a small survey sample of 537 households, Reece (1979) finds a central elasticity estimate of -1.19. The author employs a Tobit technique to calculate this estimate using a cross-section of data for the years 1972-73. Tobit techniques may better account for censored data and may be less sensitive to outliers in the income distribution than other regression techniques. At the same time, identifying the causal effect of taxes on income using Tobit can be difficult due to endogeneity and simultaneity problems.

Taking a new approach to examining the relationship between tax policy and charitable giving, Clotfelter (1980) uses panel data for the years 1968 to 1973. This is a notable deviation from previous studies, which relied on cross-sectional analysis. The study finds tax price elasticity around -1.4, but with a wide confidence interval (CI: -0.7, -2.1).

In addition, Clotfelter was one of the first economists to break down the elasticity estimate into a temporary vs. permanent estimate. Longitudinal datasets enable researchers to disentangle temporary fluctuations from lasting trends in price data, providing a more accurate picture of permanent price changes than is possible with short-term data sets. Clotfelter found a permanent price elasticity of -1.55 and a temporary elasticity of -0.94.

Clotfelter and Steuerle (1981) use a combination of consumer expenditure survey data and IRS Statistics of Income (SOI) data to calculate how taxes affect charitable contributions. Applying a cross-sectional analysis for the year 1975, the authors find an elasticity of -1.27 (CI: -1.17, -1.37). This finding is similar to much of the existing literature that looks at the giving behavior of all donors across income groups.

Using an instrumental variables (IV) estimation, Feenberg (1982) estimates the tax elasticity of giving for a cross-section of donors using 1977 taxfiler data. The IV estimation finds an elasticity of -1.23, but with a notably large standard error. The range of possible estimates within the 95 percent confidence interval is -0.41 to -2.05.

Building off their 1978 study, Abrams and Schitz (1984) run a log-linear equation to calculate the tax price of charitable contributions. Using a cross-sectional design focused on 1979 taxfiler data, the authors find an elasticity of -1.44, slightly higher than the estimate of their prior 1978 analysis (-1.36).

In a 1985 book titled “Federal Tax Policy and Charitable Giving,” Charles Clotfelter discusses the data and methodology used in econometric studies of charitable giving. Clotfelter (1985) also presents new econometric analyses and empirical data to provide an estimate for the tax elasticity of giving. The result of his analysis based on panel data reveals an elasticity estimate around -1.2, within a narrow range of estimates between -1.1 and -1.3.

Consistent with most prior studies, Feenberg (1987) finds an elasticity of -1.34 using the same IV estimation method adopted in his 1982 paper. The study includes sample data of 80,000 taxfilers and involves a cross-sectional analysis of the year 1982. The range of estimates for different tax price models falls between -1.05 and -1.63.

Using a panel data model Christian et al. (1990) interprets the econometric estimates of the tax incentive to engage in philanthropy. The study uses taxfiler data with a sample size of over 1,500. The authors find a central tax elasticity estimate of -1.28, with a range of estimates between -0.99 and -1.56.

Kitchen and Dalton (1990) find an elasticity estimate slightly above unity (-1) at -1.07. The study uses Canadian survey data with a sample size of 10,938 families. Using a cross-sectional approach for the year 1982, the authors also break down elasticity estimates for the sample into low-income and high-income families. Low-income families have a notably high elasticity of -1.65, while high income families have moderately elastic behavior at -1.22. However, both of the income-specific estimates have high standard errors, with a range of possibilities between -0.5 and -2.8.

Similar to Kitchen and Dalton (1990), Barrett (1991) finds elasticity of giving to be above unity and close to -1.1 (-1.09) for a sample of almost 6,000 taxfiler observations. The study uses panel data for the eight-year period 1979 to 1986 and adopts a fixed effects (FE) model to arrive at this estimate.

Adopting a Tobit regression technique for a cross-sectional analysis of Canadian survey data, Kitchen (1992) expanded on his previous paper to include the years 1982 to 1986. In contrast to the elasticity estimate found in the 1990 study, he finds the tax elasticity of giving to be highly elastic at -2.29.

Brown and Lankford (1992) adopt both a Tobit technique and ordinary least squares (OLS) regression to estimate the effects of tax prices on charitable giving. The study finds a high elasticity estimate of -1.98, but with a large confidence interval (CI: -1.14, -2.82). The result suggests less precision, although it also signals with 95 percent confidence that the elasticity of giving is tax price elastic. The study uses a relatively small sample of 632 households from the Florida Consumer Attitudes Survey for the years 1983-84.

Focusing on the tax price elasticity of low-and middle-income taxpayers, Choe and Jeong (1993) use a Tobit model and OLS regressions for a sample of 42,311 taxpayers. Using the Tobit model, the authors find a highly elastic estimate of -2.5. However, using the OLS regression model, the authors find an elasticity much closer to that of prior studies, at -1.35. The OLS estimate is also more precise with a standard error roughly one-third of that found in the Tobit model.

Looking specifically at the tax price behavior of nonitemizing taxpayers, Dunbar and Phillips (1994) apply both OLS and Tobit regression models to a cross-section of 1985 and 1986 taxfiler data. The study sample includes roughly 24,000 tax returns for 1985 and roughly 15,000 returns for 1986. The elasticity estimate is extremely high at -3.36. It is worth noting this period of analysis coincides with provisions in the 1981 Economic Recovery Tax Act that allowed nonitemizers to deduct up to 50 percent of their donations in 1985 and a full deduction of up to $300 in 1986.

Applying a cross-sectional analysis to the years 1989-90, Ribar and Wilhelm (1995) calculate the tax price elasticity of contributions to international relief and development. The authors adopt OLS and Random Effects models using taxfiler data for the period 1989-90. OLS regressions without controls results in an elasticity estimate of -2, with sociopolitical controls -1.28, with sociopolitical and regional controls -0.94, and random effects with controls results in an estimate of -1.71.

Auten and Joulfaian (1996) apply a cross-sectional analysis for a sample of almost 12,000 taxfilers to estimate the tax sensitivity of charitable donations and intergenerational transfers. Their analysis covers the period 1992-94 and uses the Tobit model to determine elasticity of donors. The mean estimate for the whole sample is found at -1.27, but when a wealth variable is included in the equation, the elasticity falls to -1.1. Interestingly, the estimate for charitable bequests is highly elastic at -2.5.

Following the work of Dunbar and Phillips on nonitemizing taxpayers, Frischmann (1997) applies OLS regressions to nonitemizing taxfiler data using a cross-sectional approach for the period 1984-87. The results reveal a smaller, but still highly elastic estimate of -1.65. Although it is important that the precision of this estimate is low with a standard error of 0.72.

Utilizing a large dataset of over 100,000 observations, Duquette (1999) estimates the tax elasticity of nonitemizers for the years 1985 and 1986. The study employs both Tobit and OLS models and finds an elasticity around -1. When differentiating between itemizers and nonitemizers, the results were around -1 and -0.8 respectively. In contrast to previous studies that break down elasticities by income levels, the author finds low-income taxpayers are inelastic to tax changes, with estimates around -0.6, while high-income groups are highly elastic with estimates around -2.2.

Tiehen (2001) adopts a pooled cross-sectional analysis of the tax price elasticity of charitable giving using survey data. Reviewing the years 1987 to 1995, the author finds elasticity estimates are around unity. For the full sample using a Tobit estimate, price elasticity is -1.14, while for the 1989-95 sample, the elasticity is -0.94.

Using an FE estimation, the results are -1.15 and -0.95 respectively, although the latter figure is statistically insignificant. Interestingly, those who report tax incentives to be a major motivation for charitable giving have a price elasticity of -2.21, while those who say tax incentives are a minor motivator have an elasticity of -0.79.

Conducting an analysis of panel data, Auten et al. (2002) explore the tax price elasticity of charitable giving, as well as temporary vs. permanent effects of changes in the tax price of giving. Using the tax returns of more than 20,000 individuals over the 15-year period 1979-93, the study finds that, consistent with Clotfelter (1980), persistent price elasticities are larger than temporary elasticities. The authors preferred model (nonstationary) finds a persistent estimate of -1.26 and a temporary estimate of -0.61. When applying a cross-sectional model, the elasticity is found to be -1.16.

Bakija et al. (2003) conducts a pooled cross-sectional analysis of charitable bequests and taxes on inheritances and estates. Using taxfiler data for a sample of 6,615 estate-tax returns, the analysis covers thirty-nine years for the period 1924 to 1998. Similar to Auten and Joulfaian (1996), the authors find charitable bequest elasticities are very high, although not as high as their 1996 estimate. Elasticity was found to be -1.62 with no controls specified. But with state, year, and wealth dummies added, the elasticity is -2.14.

Using Canadian survey data from the National Survey of Giving, Volunteering, and Participating, Apinunmahakul and Devlin (2004) apply a bivariate Tobit model to a 1997 cross-section of 15,422 survey respondents. The results reveal elasticity estimates for indirect giving around -1.3, while estimates for direct giving were statistically insignificant. Interestingly, the study also found secular donors might be more sensitive to changes in tax policy than religious donors.

Joulfaian and Rider (2004) use OLS and two-stage OLS (2SLS) regression methods to estimate the tax price of charitable giving, differences in elasticities among income groups, and biases in estimates. Observing a sample of over 26,000 tax returns for the year 1985, OLS and 2SLS estimates are -0.59 and -0.67 respectively. However, after correcting for income, demographic variables, and employment, elasticities are found to be -1.21 and -1.32 respectively.

The authors note “estimated income and price elasticities appear to be biased downward, in absolute value, due to measurement error.” Finally, when breaking out these estimates by income level, low-income donors are found to have smaller elasticities of -1.14, while high-income donors have very large elasticities of -2.15.

Using a cross-sectional analysis with 2SLS regressions, Bradley et al. (2005) finds a central elasticity estimate notably lower than most prior estimates and points to inelastic donor behavior. The analysis of a small data set from a rotating panel survey of 2,347 households finds elasticities between -0.7 and -1.9 when using the 2SLS method. However, approximately 40 percent of the sample do not give, so the authors instead adopt a bias-corrected semi-parametric estimate around -0.8. When looking specifically at donations to social welfare organizations, the authors find an elasticity larger than -1.3, suggesting choice of beneficiary is a significant factor in determining elasticity.

Peloza and Steel (2005) is the only meta-analysis of empirical literature on the tax price elasticity of charitable giving published to date. The authors compiled a list of studies published between 1967 and 2004 and ran a meta-regression with moderator effects using Weighted Least Squares (WLS). Their meta-analysis found a weighted average elasticity of -1.44, which is close to the upper end of most of the literature. To arrive at a second estimate that excludes studies with extremely elastic estimates, the authors removed outliers that were more than three standard deviations from the mean to get an elasticity of -1.11.

Interestingly, the authors weighed each study by sample size and not the precision of the estimates (i.e. standard errors, statistical significance etc.). Their analysis also found permanent effects tend to be smaller than temporary effects, and lower income donors tend to have smaller elasticities than high-income donors. However, both findings were not statistically significant.

Using survey panel data for a 2001 sample size of 7,406, Brooks (2007) calculates the tax price elasticity of giving based on the cause donors choose to give to. Estimates vary from as little as -0.64 for health charities to -1.43 for social welfare organizations. However, the author notes “because most people donate to more than one type of charity in a given year, the net tax price elasticity—for all types of gifts together—is greater than unity”.

The elasticity of combined charitable giving is found to be highly elastic at -2.68 for donors who give to more than one type of charity. For combination donors, the author also explores permanent versus temporary elasticity effects and finds no notable difference (-2.67 vs -2.73).

Auer and Kalusche (2010) employ a cross-sectional approach to a sample of German taxfilers for the year 1998. Applying a Tobit model regression to their dataset, the study finds an elasticity estimate around -1.1, suggesting the tax price elasticity is slightly above unity. The study further breaks down this estimate for low and high-income taxfilers to arrive at elasticities of -1.11 and -1.05 respectively.

Using a panel data design, Bakija and Heim (2011) review a large dataset of taxfiler returns for the period 1979 to 2005 to estimate how charitable giving responds to tax incentives and income levels. Adopting a 2SLS approach, the study finds an elasticity roughly at unity (-0.99). For low and middle-income donors, the study finds a slightly inelastic estimate around -0.9, while for donors with income above $1 million, elasticity is found to be close to -1.6. When comparing permanent versus temporary elasticity effects, the estimates are found to be -1.16 and -0.85, suggesting permanent elasticity effects might be larger in magnitude than temporary adjustments to tax price changes.

Hossain and Lamb (2012) apply a Heckman selection model to a Canadian survey sample of around 18,000 respondents. The cross-sectional analysis focuses on the year 2007 and attempts to estimate elasticity based on charitable sectors. The results point to an elasticity for total donations of -1.68. For different charitable sectors, the authors find estimates as low as -0.81 for religious charities to as high as -2.21 for international charities, and -1.71 for social services.

With a large dataset of over 100,000 observations from 1995, Lin and Lo (2012) employ OLS regressions using a cross-section design. The study finds an elasticity estimate of -1.22. When the estimate is calculated based on the income levels of taxfilers, the range is found to be quite broad. The lowest quintile group has an elasticity of -1.47, while the highest quintile group has an elasticity of -0.49. This low estimate for high-income groups is noteworthy because it contrasts with most of the prior literature, which often finds estimates above unity, and sometimes significantly above unity.

Another study adopting OLS regression techniques is Yetman and Yetman (2012). Using panel data for a sample of around 87,000 taxfilers over the years 1991 to 2007, the authors estimate tax price elasticities by nonprofit type (public charity vs. private foundation). The results reveal a public charity price elasticity around unity (-1.03), while for private foundations the tax price elasticity is notably more elastic at -1.99. In addition, high-income donors are found to have slightly higher elasticities than the full sample when observing donations to public charities (-1.13 vs -1.03).

Bakija et al. (2013) employs OLS model regressions for panel data covering the years 1991 to 2007. The central estimate for the tax price elasticity of charitable giving is found to be -1.4, with a 95 percent confidence interval between -1 and -1.8. Observing elasticity differences between income groups, the study finds lower income groups have an elasticity around -0.9, while high-income groups are found to be more elastic at around -1.6.

Using censored quantile regression analysis for a large cross-section of German taxpayers, Bonke et al. (2013) estimates elasticities for different points of the underlying distribution of charitable giving. The analysis covers the years 1992 to 2004. The result using an OLS estimation is -1.12, while the Tobit estimator finds an elasticity of -1.21. For taxfilers with the lowest charitable contributions, the estimate is found to be high at -1.44, taxfilers with the higher charitable contributions (top 5 percent) are above unity at -1.14, while for medium contribution tax units the estimates are typically inelastic, at or below -0.8.

Meer (2014) examines the effects of the price of giving on donative behavior. Using a large sample of charity project data, the author starts by calculating the elasticity of giving based on the nature of the donative gift. For the full set of gifts the elasticity is found to be slightly below unity. Excluding gifts from foundation and corporate partners raises the elasticity to slightly more than unity, while limiting the analysis to cash gifts only results in a highly elastic estimate around -1.71.

However, when an additional variable is included that accounts for the competition between charitable projects for donations, the log price of giving is found to be well above unity, from -1.26 for the full sample to -1.99 for cash gifts under the Tobit model.

Using German taxfiler data for the period 2001 to 2006, Bonke and Werdt (2015) adopt a pooled cross-sectional regression to estimate the tax price of charitable giving. While the central estimate is around -1, the authors further explore differences in elasticity estimates based on income levels and temporary versus permanent effects. For temporary elasticity estimates, the estimates are around -0.7 for lower income donors and around unity for high-income donors. When looking at permanent effects low-income groups are highly elastic, close to -2, high-income donors have elasticities around -1.4, and middle-income groups tend to be slightly below unity.

Galle (2016) estimates how nonprofit firms respond to changes in tax policy using pooled OLS regressions of panel data covering the period 1984 to 2008. The study reveals a tax elasticity of -1.4. However, the standard error for this estimate is particularly large, suggesting estimates could potentially lie anywhere between -0.11 and -2.69 based on the 95 percent confidence interval.

Using reported revenues from public charities from 1985 to 1988, Duquette (2016) employs a cross-sectional analysis of around 21,000 form 990s to estimate how tax incentives affect charitable contributions. Using a difference-in-difference estimation, the author finds elasticity estimates up to three times larger than most of the estimates in the literature, with a range from -3.5 to -5 for the full sample. Again, with these estimates, the standard errors are large, with the range of possibilities between -1.1 and -7.8. Using OLS quantile regression estimates results in elasticities closer to the range found in most of the literature, with half the data points falling between -1.4 and -2.6.

Zampelli et al. (2016) applies a Tobit model with instrumental variables to a survey sample of almost 7,000 households in 2009. The author seeks to measure the impact of tax changes on contributions to the needy and finds an elasticity estimate of -1.38.

Observing a panel of German taxfiler data for the period 2001-08, Dorrenberg et al. (2017) calculates the elasticity of taxable income in the presence of deduction possibilities. Applying a 2SLS regression model results in a highly significant elasticity estimate slightly below unity, centered around -0.9. When focusing on itemized deductions, the authors find estimates ranging from -0.93 to -1.08.

Backus and Grant (2018) use panel data for a survey of around 28,000 household observations to estimate the sensitivity of taxpayers to the tax price of giving. The survey covers the years 2000-12 and the study uses instrumental variables and 2SLS model regressions to calculate elasticity. The standard model reveals results of -1.24, in line with much of the literature. However, the authors find methodologies may bias results upward and for lower income groups elasticities could be estimated as low as -0.25, while for the top decile group elasticities are closer to -2. The authors conclude while top earners are sensitive to tax price changes, they do not find evidence lower income itemizers are sensitive to tax price changes.

Focusing specifically on the tax price sensitivity of donations to environmental conservation organizations/efforts, Parker and Thurman (2018) observes land trust data for the years 1987 to 2012. Employing a fixed effects model, the authors find a permanent price elasticity of -1.89 and a larger temporary price elasticity of -2.35. However, the standard errors for the coefficients are very large, with 95 percent confidence intervals between -0.1 and-3.7, and -0.7 and -4 respectively.

Meer and Priday (2020) calculate projected changes in tax prices after the passing of the 2017 Tax Cuts and Jobs Act (TCJA). The study uses a survey sample of almost 10,000 households for the period 2001 to 2017 and employs first stage regressions with fixed effects and a linear probability mode. The authors find a projected elasticity estimate slightly above unity at -1.07. When dividing the sample into those who always itemize and those who switch itemizing status, the elasticities are found to be -0.79 and -1.24.

Observing a large sample of German survey data, Adena (2021) estimates the permanent elasticity effect of changes in the tax price of giving. An instrumental variables estimation finds a tax price elasticity of -1.1 for the years 2001 to 2006. When estimating the elasticity of higher income groups, the result is a more elastic estimate of -1.4.

Hickey and Minaker (2023) use survey panel data covering the period 2001-15 to find tax price elasticity of giving for different income groups. For the overall survey sample, the authors find a central elasticity of -1.88 using instrumental variables with fixed effects. For the lowest income quintile, elasticity is found to be extremely elastic at almost three-times unity (-2.93), while for the top quintile elasticity is found to be close to unity (-0.96).

Using survey data for Korean charitable donors, Kato et al. (2023) employs instrumental variables with fixed effects to find the tax price elasticity of donations in South Korea. The result of their analysis reveals an elastic response at -1.56 for the survey data covering the years 2010-17.

Finally, Kim (2023) adopts a three-step censored quantile regression technique to calculate the price elasticity of charitable giving for a survey sample of Koreans. The data covers the period 2008-19. The author finds elasticity estimates far higher than most prior studies, but the coefficients differ when observing changes over the distribution of donation size. Interestingly, the largest donors are found to have elasticities within the -1 to -2 range, while smaller donors are found to have elasticities in excess of -2 and as high as -4.

Appendix B: Detailed Model Results

WLS MODEL COEFFICIENTS AND FIT STATISTICS

Parameter	Estimate	Std. Error	t-value	p-value	95% CI Lower	95% CI Upper
Intercept	-1.12582	0.01729	-65.1	<.01 ***	-1.160542	-1.091103

WEIGHTED RESIDUALS SUMMARY

Statistic	Value
Minimum	-6.8744
1st Quartile	-1.8231
Median	-0.6985
3rd Quartile	0.3238
Maximum	5.5349

FIXED-EFFECTS MODEL RESULTS

Parameter	Estimate	SE	z-value	p-value	95% CI Lower	95% CI Upper
Intercept	-1.1258	0.0083	-135.0105	<.01 **	-1.1422	-1.1095

Model Information:

- Fixed-Effects Model (k = 52)
- I^2 (total heterogeneity / total variability): 76.75%
- H^2 (total variability / sampling variability): 4.30
- Test for Heterogeneity: Q(df = 51) = 219.3613, p-val < .01

RANDOM-EFFECTS MODEL RESULTS (REML ESTIMATOR)

Parameter	Estimate	SE	z-value	p-value	95% CI Lower	95% CI Upper
Intercept	-1.2977	0.0504	-25.7275	< .01 **	-1.3965	-1.1988

Model Information:

- Random-Effects Model ($k = 52$; tau^2 estimator: REML)
- τ^2 (estimated amount of total heterogeneity): 0.0852 (SE = 0.0241)
- I^2 (total heterogeneity / total variability): 94.01%
- H^2 (total variability / sampling variability): 16.69
- Test for Heterogeneity: $Q(df = 51) = 219.3613$, p-val < .01

RANDOM-EFFECTS MODEL RESULTS (ML ESTIMATOR)

Parameter	Estimate	SE	z-value	p-value	95% CI Lower	95% CI Upper
Intercept	-1.2949	0.0492	-26.3407	< .01 **	-1.3912	-1.1985

Model Information:

- Random-Effects Model ($k = 52$; tau^2 estimator: ML)
- τ^2 (estimated amount of total heterogeneity): 0.0796 (SE = 0.0225)
- I^2 (total heterogeneity / total variability): 93.62%
- H^2 (total variability / sampling variability): 15.67
- Test for Heterogeneity: $Q(df = 51) = 219.3613$, p-val < .01

RANDOM-EFFECTS MODEL RESULTS (DL ESTIMATOR)

Parameter	Estimate	SE	z-value	p-value	95% CI Lower	95% CI Upper
Intercept	-1.2332	0.0292	-42.1961	< .01 **	-1.2905	-1.1759

Model Information:

- Random-Effects Model ($k = 52$; tau^2 estimator: DL)
- τ^2 (estimated amount of total heterogeneity): 0.0179 (SE = 0.0117)
- I^2 (total heterogeneity / total variability): 76.75%
- H^2 (total variability / sampling variability): 4.30
- Test for Heterogeneity: $Q(df = 51) = 219.3613$, p-val < .01

Bibliography

Abrams, Burton A., and Mark D. Schitz. "The crowding-out effect of governmental transfers on private charitable contributions." *Public Choice* 33, no. 1 (1978), 29-39.

Adena, Maja. "Tax-price elasticity of charitable donations – evidence from the German taxpayer panel." *The Routledge Handbook of Taxation and Philanthropy*, 2021, 219-235.

Apinunmahakul, Amornrat, and Rose A. Devlin. "Charitable Giving and Charitable Gambling: An Empirical Investigation." *National Tax Journal* 57, no. 1 (2004), 67-88.

Auer, Ludwig V., and Andreas Kalusche. "Steuerliche Spendenanreize: Ein Reformvorschlag." *Review of Economics* 61, no. 3 (2010), 241-261.

Auten, Gerald, and David Joulfaian. "Charitable contributions and intergenerational transfers." *Journal of Public Economics* 59, no. 1 (1996), 55-68.

Auten, Gerald E., Holger Sieg, and Charles T. Clotfelter. "Charitable Giving, Income, and Taxes: An Analysis of Panel Data." *American Economic Review* 92, no. 1 (2002), 371-382.

Backus, Peter G., and Nicky L. Grant. "How sensitive is the average taxpayer to changes in the tax-price of giving?" *International Tax and Public Finance* 26, no. 2 (2018), 317-356.

Bakija, Jon M., William G. Gale, and Joel B. Slemrod. "Charitable Bequests and Taxes on Inheritances and Estates: Aggregate Evidence from across States and Time." *American Economic Review* 93, no. 2 (2003), 366-370.

Bakija, Jon, and Bradley T. Heim. "How Does Charitable Giving Respond to Incentives and Income? New Estimates from Panel Data." *National Tax Journal* 64, no. 2.2 (2011), 615-650.

Bakija, Jon. "Tax Policy and Philanthropy: A Primer on the Empirical Evidence for the United States and Its Implications." *Social Research: An International Quarterly* 80, no. 2 (2013), 557-584.

Barrett, Kevin S. "Panel-data Estimates of Charitable Giving: A Synthesis of Techniques." *National Tax Journal* 44, no. 3 (1991), 365-381.

Begg, Colin B., and Madhuchhanda Mazumdar. "Operating Characteristics of a Rank Correlation Test for Publication Bias." *Biometrics* 50, no. 4 (1994), 1088.

Bönke, Timm, Nima Massarrat-Mashhadi, and Christian Sielaff. "Charitable giving in the German welfare state: fiscal incentives and crowding out." *Public Choice* 154, no. 1-2 (2013), 39-58.

Bönke, Timm, and Clive Werdt. "Charitable giving and its persistent and transitory reactions to changes in tax incentives: Evidence from the German taxpayer panel." Discussion Paper (*Freie Universität Berlin*), 2015.

Boskin, Michael J. "Estate taxation and charitable bequests." *Journal of Public Economics* 5, no. 1-2 (1976), 27-56.

Boskin, Michael J., and Martin Feldstein. "Effects of the Charitable Deduction on Contributions by Low Income and Middle Income Households: Evidence From the National Survey of Philanthropy." *The Review of Economics and Statistics* 59, no. 3 (1977), 351.

Bradley, Ralph, Steven Holden, and Robert McClelland. "A Robust Estimation of the Effects of Taxation on Charitable Contributions." *Contemporary Economic Policy* 23, no. 4 (2005), 545-554.

Brooks, Arthur C. "Income tax policy and charitable giving." *Journal of Policy Analysis and Management* 26, no. 3 (2007), 599-612.

Brown, Eleanor, and Hamilton Lankford. "Gifts of money and gifts of time estimating the effects of tax prices and available time." *Journal of Public Economics* 47, no. 3 (1992), 321-341.

Cermak, Dianne S., Karen M. File, and Russ A. Prince. "A benefit segmentation of the major donor market." *Journal of Business Research* 29, no. 2 (1994), 121-130.

Choe, Yong S., and Jinook Jeong. "Charitable Contributions by Low and Middle-Income Taxpayers: Further Evidence with a New Method." *National Tax Journal* 46, no. 1 (1993), 33-39.

Christian Charles, Boatsman James and Reneau J. Hal. "The Interpretation of Econometric Estimates of the Tax Incentive to Engage in Philanthropy," *Journal of the American Taxation Association*, 11, no. 1 (1990), 7–16.

Clotfelter, Charles T. "Tax incentives and charitable giving: evidence from a panel of taxpayers." *Journal of Public Economics* 13, no. 3 (1980), 319-340.

Clotfelter, Charles, and Eugene Steuerle. "Charitable Contributions: How Taxes Affect Economic Behavior." *The Brookings Institution*, 1981.

Clotfelter, C. "Federal Tax Policy and Charitable Giving." Chicago: University of Chicago Press, 1985.

Congress.gov. "S.510 - Ultra-Millionaire Tax Act of 2021." Library of Congress. https://www.congress.gov/bill/117th-congress/senate-bill/510/text.

Doerrenberg, Philipp, Andreas Peichl, and Sebastian Siegloch. "The elasticity of taxable income in the presence of deduction possibilities." *Journal of Public Economics* 151 (2017), 41-55.

Dunbar, Amy, and John Phillips. “The effect of tax policy on charitable contributions: The case of nonitemizing taxpayers.” *The Journal of American Taxation Association* 19 (1997), 1-20.

Duquette, Christopher M. “Is Charitable Giving by Nonitemizers Responsive to Tax Incentives? New Evidence.” *National Tax Journal* 52, no. 2 (1999), 195-206.

Duquette, Nicolas J. “Do tax incentives affect charitable contributions? Evidence from public charities’ reported revenues.” *Journal of Public Economics* 137 (2016), 51-69.

Elliott, T. G. “The Tax Exemptions Granted to Clerics by Constantine and Constantius II.” *Phoenix* 32, no. 4 (1978), 326.

Feenberg, Daniel. “Identification in Tax-Price Regression Models: The Case of Charitable Giving.” *National Bureau of Economic Research*, 1982.

Feenberg, Daniel. “Are Tax Models Really Identified: The Case of Charitable Giving.” *National Tax Journal* 40, no. 4 (1987), 629-633.

Feldstein, M. “The Income Tax and Charitable Contributions: Part I Aggregate and Distributional Effects.” *National Tax Journal* 28, no. 1 (1975), 81–100.

Feldstein, Martin, and Charles Clotfelter. “Tax incentives and charitable contributions in the United States.” *Journal of Public Economics* 5, no. 1-2 (1976), 1-26.

Feldstein, M. S., and C. Taylor. 1976. “The Income Tax and Charitable Contributions.” *Econometrica* 44, no. 6 (1976), 1201–22.

Fishman, James. Encouraging Charity in a Time of Crisis: The Poor Laws and the Statute of Charitable Uses of 1601. 2005.

Flannery, Helen, Chuck Collins, and Bella Devaan. “The True Cost of Billionaire Philanthropy.” *Institute for Policy Studies*, 2023.

Frischmann, Peter J. “Discussion of the effect of tax policy on charitable contributions: The case of nonitemizing taxpayers.” *The Journal of the American Taxation Association* 19 (1997), 21-26.

Galle, Brian. “How Do Nonprofit Firms Respond to Tax Policy?” *Public Finance Review* 45, no. 3 (2016), 364-394.

Giving USA. “The Annual Report on Philanthropy for the Year 2022.” *Giving USA*, 2023.

Hickey, Ross, Brad Minaker, A. A. Payne, Joanne Roberts, and Justin Smith. “The Effect of Tax Price on Donations: Evidence from Canada.” *National Tax Journal* 76, no. 2 (2023), 291-315.

Hossain, Belayet, and Laura Lamb. “Price Elasticities of Charitable Giving across Donation Sectors in Canada: Is the Tax Incentive Effective?” *ISRN Economics* 2012 (2012), 1-6.

Joulfaian, David, and Mark Rider. “Errors-In-Variables and Estimated Income and Price Elasticities of Charitable Giving.” *National Tax Journal* 57, no. 1 (2004), 25-43.

Kato, Hiroki, Tsuyoshi Goto, and Youngrok Kim. “Tax-Price Elasticities of Charitable Giving and Selection of Declaration: Panel Study of South Korea.” *Discussion Papers in Economics and Business* 23, no. 5 (2023).

Kitchen, Harry, and Richard Dalton. “Determinants of charitable donations by families in Canada: a regional analysis.” *Applied Economics* 22, no. 3 (1990), 285-299

Kitchen, Harry. “Determinants of charitable donations in Canada: a comparison over time.” *Applied Economics* 24, no. 7 (1992), 709-713.

Kottasz, Rita. “Differences in the Donor Behavior Characteristics of Young Affluent Males and Females: Empirical Evidence from Britain.” *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations* 15, no. 2 (2004), 181-203.

Lilly Family School of Philanthropy, and Bank of America. “The 2023 Bank of America Study of Philanthropy: Charitable Giving by Affluent Households.” *Lilly School of Philanthropy*, 2023.

Lin, Hsin-Yi, and Kuang-Ta Lo. “Tax Incentives and Charitable Contributions: the Evidence from Censored Quantile Regression.” *Pacific Economic Review* 17, no. 4 (2012), 535-558.

Meer, Jonathan. “Effects of the price of charitable giving: Evidence from an online crowdfunding platform.” *Journal of Economic Behavior & Organization* 103 (2014), 113-124.

Meer, Jonathan, and Benjamin A. Priday. “Tax Prices and Charitable Giving: Projected Changes in Donations under the 2017 Tax Cuts and Jobs Act.” *Tax Policy and the Economy* 34 (2020), 113-138.

Osili, Una O., Sasha Zarins, Xiao Han, Xiaonan Kou, Shivant Shrestha, Diantha Daniels, and Adriene D. Kalugyer. “The Giving Environment: Understanding Pre-Pandemic Trends in Charitable Giving.” *Lilly Family School of Philanthropy*, 2021.

Parker, Dominic P., and Walter N. Thurman. “Tax Incentives and the Price of Conservation.” *Journal of the Association of Environmental and Resource Economists* 5, no. 2 (2018), 331-369.

Peloza, J., and P. Steel. “The Price Elasticities of Charitable Contributions: A Meta-analysis.” *Journal of Public Policy and Marketing* 24, no. 2 (2005), 260–72.

Reece, William S. “Charitable Contributions: New Evidence on Household Behavior.” *American Economic Review*, no. 42 (1979), 142-151.

Ribar, David C., and Mark O. Wilhelm. “Charitable Contributions to International Relief and Development.” *National Tax Journal* 48, no. 2 (1995), 229-244.

Schwartz, Robert A. “Personal Philanthropic Contributions.” *Journal of Political Economy* 78, no. 6 (1970), 1264-1291.

Steinberg, Richard. “Taxes and giving: new findings.” *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 1, no. 2 (1990), 61-79.

Taussig, Michael K. “Economic Aspects of the Personal Income Tax Treatment of Charitable Contributions.” *National Tax Journal* 20, no. 1 (1967), 1-19.

Tiehen, Laura. “Tax Policy and Charitable Contributions of Money.” *National Tax Journal* 54, no. 4 (2001), 707-723.

Yetman, Michelle H., and Robert J. Yetman. “How Does the Incentive Effect of the Charitable Deduction Vary across Charities?” *The Accounting Review* 88, no. 3 (2012), 1069-1094.

Zampelli, Ernest M., and Steven T. Yen. “The Impact Of Tax Price Changes On Charitable Contributions To The Needy.” *Contemporary Economic Policy* 35, no. 1 (2016), 113-124.

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