

THE GREAT RECESSION, TAX POLICY, AND THE FUTURE OF CHARITY IN AMERICA

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Abstract

A great deal of research has studied the effects of income and tax changes on charitable giving. However, little work has focused on these relationships in the wake of the Great Recession. This paper estimates the price and income elasticities of giving using the 2009 Panel Study of Income Dynamics (PSID). The estimates are notably different than the typical findings from before the recession. Most importantly, price elasticity is much higher (in absolute terms) and income elasticity is lower. These unusual patterns are much more pronounced for secular giving than for religious giving, and the effects are much more muted when only considering itemizers. The elasticity estimates are used to develop policy analytic results, considering the likely effects of the 2013 personal income tax rate increases and possible tax deduction limits currently under consideration by the Obama Administration. I find the tax increases to have a moderately stimulative impact on giving, but predict the deduction cap will have a large negative impact.

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Introduction

Nonprofit and voluntary activities are central to the provision of public goods in America, and are as old as the Republic itself. Indeed, this has long struck outside observers as unique. In what is probably the most famous passage from *Democracy in America*, Alexis de Tocqueville wrote in 1835 that, “The Americans make associations to give entertainments, to found seminaries, to build inns, to construct churches, to diffuse books, to send missionaries to the antipodes; in this manner they found hospitals, prisons, and schools.”² He went on to make an explicit distinction from the Europeans: “Wherever at the head of some new undertaking you see the government in France, or a man of rank in England, in the United States you will be sure to find an association.”

American tax law’s accommodation of philanthropy can be seen, therefore, as an expression of the social contract. The imposition of the individual income tax in 1913 was quickly followed in 1917 by the charitable deduction that we still see today. The Congressional debate on this policy contains this argument from an unidentified Congressman: “If a man wants to make a gift to charity, he ought to be encouraged to do so and not [be] discouraged. He ought to be encouraged to make such a gift rather than be penalized for doing so.” (Desmond 1967)

In effect, deductions for charitable contributions were an acknowledgment that public goods in America have always been, in no small part, a private endeavor. As such, the taxes foregone on contributions to qualifying charities were a way for private citizens to direct public resources in exchange for their own investments. This is in contrast to the notion that charitable contributions are, in modern parlance, “tax loopholes.”

Given the importance of charitable contributions for the provision of public goods, it is no surprise that they have been a focus of public finance research. In particular, economists have studied the impact of income, as well as the “tax price of giving,” on donations.

The tax price of giving is defined as $1 - \tau$, where τ is the marginal tax rate, and charitable contributions are tax-deductible. When the tax rate increases, the deductible portion of a contribution increases by the same amount, so the effective price of the contribution falls. For example, if τ is 25 percent and a taxpayer donates a dollar, his taxable

² de Tocqueville, Alexis (1969). *Democracy in America*, ed. J.P. Maier, trans. George Lawrence Garden City, NY: Anchor Books.

income falls by the dollar and this saves him 25 cents in taxes—making the price of the contribution $(1 - \tau)$, or 75 cents.

The effects of income and tax price on giving are generally studied in terms of elasticities. The price elasticity of giving shows how tax policy will affect the nonprofit sector and allows us to predict the effects of changes in tax rates to donation levels. The income elasticity allows us to predict the rates of growth in the sector as disposable income GDP grows.

These elasticities have been calculated many times in the literature, and the results have been fairly stable for decades. However, we have every reason to doubt that this is still the case in the wake of the Great Recession of 2007-2009.

The recession created a downdraft in income and was associated with instability in expectations about taxes. For several years, citizens saw the average household income fall, and politicians discussed tax changes that might either increase or decrease the price of giving. As a result, we might logically expect to find income and price elasticities that are unusual, by historic standards.

Elasticities calculated in the 2008-2009 period can help provide insight into the effects on giving from recession, macroeconomic instability, and policy uncertainty. This has important policy implications in an era in which policymakers are questioning long-established policies such as the tax-deductibility of charitable donations and the role of government in providing many charitable public goods.

This is the first paper to estimate price and income giving elasticities during the 2008-2009 recession. After surveying the literature and summarizing the recent trends in American charitable giving, I use the 2009 data from the Panel Study of Income Dynamics/Center on Philanthropy Panel Study to produce the latest and to date, only, elasticity estimates for this period. The estimates show that donations are indeed less responsive to income and the price of giving than in the past. These results yield implications for both policy and management.

Background

Economists have measured the price and income elasticities of giving for many years. Empirical studies of the tax price elasticity using American data have found a fairly wide variety of values (Peloza & Steel, 2005; Clotfelter & Steuerle, 1981; Steinberg, 1994), varying from as low as -7.07 (Robinson 1990) to as high as +0.12 (Wu and Ricketts 1999).

Auten, et al. (2002) have shown that permanent tax changes have larger effects on charitable giving than temporary ones. They estimate that a permanent price change has an elasticity of $-.79$ to -1.26 on charitable giving, with the effect of temporary measures significantly smaller.

Elasticities vary across nonprofit subsectors. Feldstein (1975) derives elastic (lower than -1) estimates for contributions to education, health, and social welfare organizations, but an inelastic (between -1 and zero) estimate for religion. Reece (1979) estimates an elasticity below -1 for religion, but above -1 for education. Yetman and Yetman (2013) distinguish between giving to charities supported by a small group of donors (“private charities”) and charities supported by a broader base of many donors (“public charities”). They find that the tax price elasticity is around -1 for public charities, but is closer to -2 for private charities. Helms and Thornton (2012) have shown that religious donations by religious people have a lower sensitivity to price than secular donations by secular people.

Past studies have found a range of estimates for the income elasticity of giving. Surveys by Steinberg (1990) and Clotfelter and Steurle (1981) indicate that the average income elasticity in the 0.6 - 0.8 range, but with measured elasticities as low as 0.11 (Christian and Boatsman 1990) and others closer to 2 (Randolph 1995). Some of the inconsistency between studies may be due to the tendency of cross-sectional data to underestimate the income elasticity by interpreting transitory income shocks as permanent (Brown 1996). To solve this problem, some writers have introduced a longitudinal component into the estimates with panel data, generally finding higher income elasticities than cross-sectional studies. Panel data models using fixed effects produce estimates less biased by unobserved heterogeneity (Bakija 2002). Recent estimates of income elasticity from panel data models range from $.4$ for overall taxable income (Gruber and Saez 2002) to $.7$ (Bakija and Heim 2011) or larger in higher income individuals.

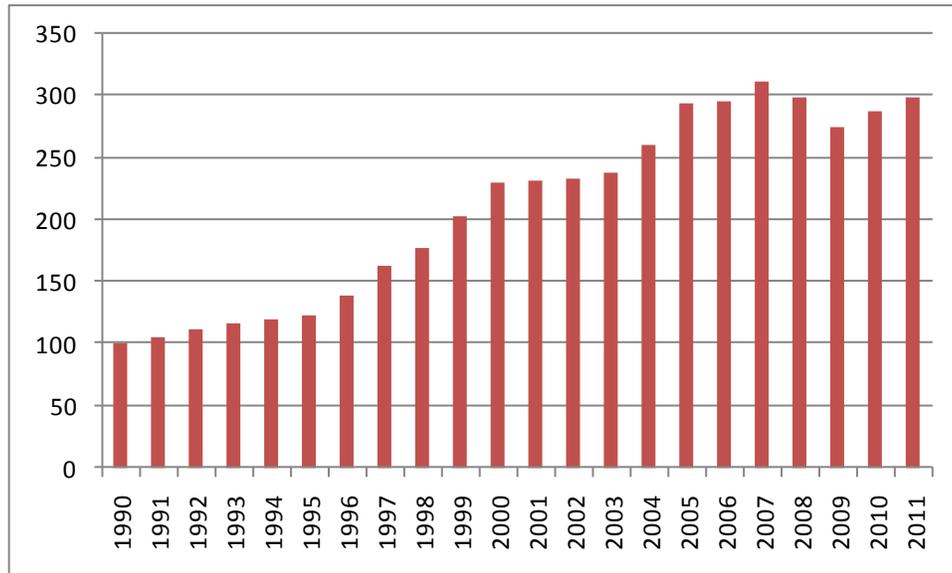
As for the price elasticity, panel models have found a greater income elasticity for persistent rather than transitory shocks, with Auten et al. (2002) estimating that persistent shocks have an elasticity roughly twice that of temporary changes.

Recent giving patterns in the United States

EAs shown in Figure 1, charitable giving in the United States is generally estimated to be about \$300 billion, a level first attained in 2007. After that year, however, it declined and has still not fully recovered. The latest estimates are from 2011, when giving came to \$298 billion in nominal terms. Of that amount, 73 percent came from individuals, with the other 27

percent coming from corporations (5 percent), foundations (14 percent) and bequests (8 percent).

Figure 1. Total billions of non-inflation adjusted dollars given charitably in the United States, 1990-2011

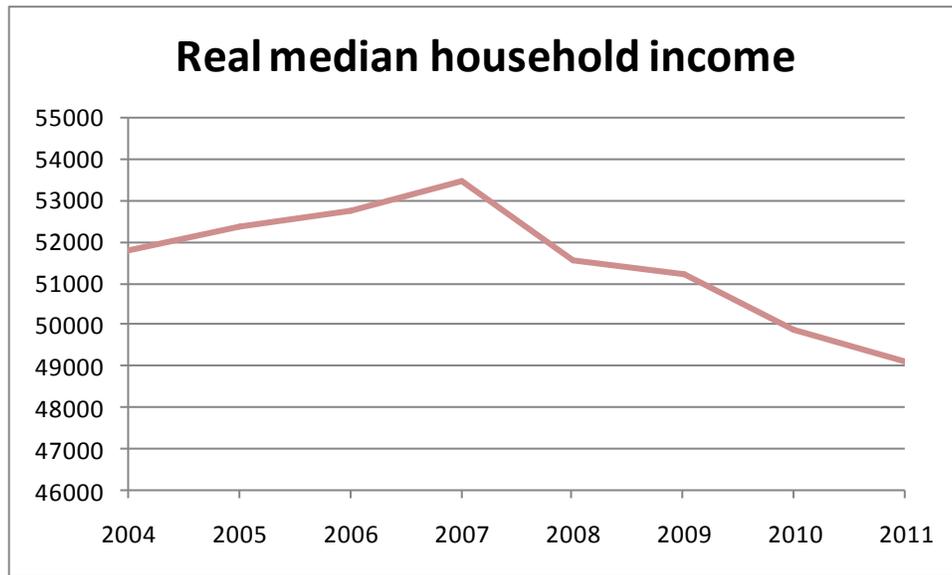


Source: Giving USA.

The most intuitive explanation for the decline in charitable giving after 2007 is the Great Recession and its impact on household income and wealth. As shown in Figure 2, the median American family experienced at least four consecutive years of diminished real purchasing power.³

³ The Census data here do not extend to 2012.

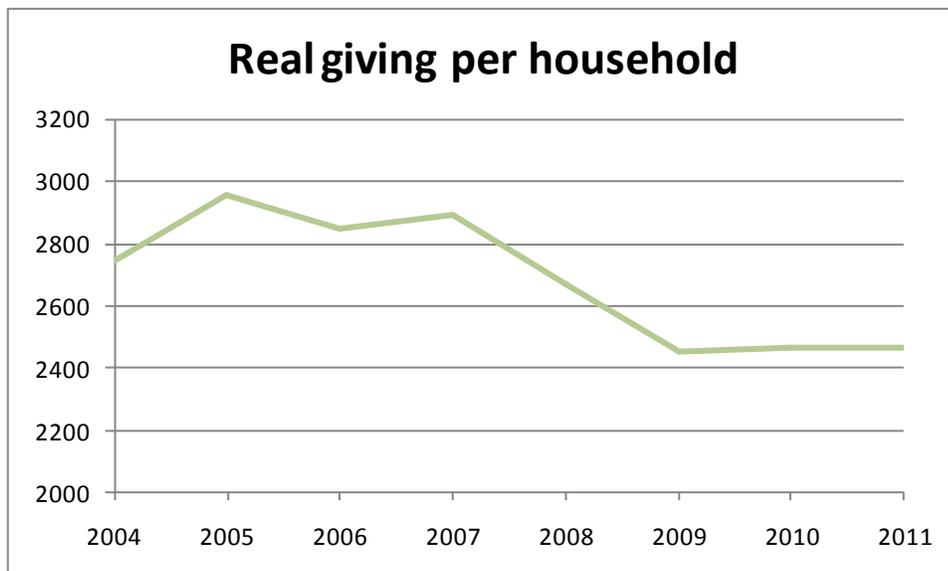
Figure 2. Real median household income, in 2011 dollars



Source: U.S. Census data.

Figure 3 reveals that real average household giving in America peaked in 2005 at \$2,956 (in 2011 dollars). It declined rapidly in the 2007-2009 period. From 2009-2011, real giving per household maintained a new, lower equilibrium at about \$2,460 (2011 dollars).

Figure 3. Real charitable giving per household, 1990-2011, in 2011 dollars



Source: Giving USA.

The figures above show basic trends and illustrate a clear correlation between household income and giving levels. To understand this relationship causally and estimate the underlying mechanisms, we need to develop theoretical and empirical models.

Models of charitable giving

A common model of giving behavior starts with the assumption that each individual has preferences defined over current and future levels of consumption (C) and donations (D) (see Auten, et al. 2002). Preferences can be expressed by

$$(1) E_t \left[\sum_{s=t}^{\infty} \beta^{s-t} U(D_s, C_s) \right], \text{ where}$$

$U(D_s, C_s)$ is the utility function within each period, β is a constant discount factor, and E_t is the expectation operator at time t. In each period the individual faces the budget constraint

$$(2) C_t + D_t + W_{t-1} = (1 + r_t)W_t + Y_t - T_t(r_t W_t, Y_t, D_t), \text{ where}$$

W_t is wealth at time t, r_t is the interest rate, Y_t is wage income, and T_t is the tax bill, a function of capital earnings, wage income and tax-deductible contributions.

Each individual maximizes utility, producing two optimality conditions:

$$(3) (1 - \tau_t) \frac{\partial U}{\partial C_t} = \frac{\partial U}{\partial D_t}$$

$$(4) \lambda_t = E_t \left\{ [1 + (1 - \tau_{t+1})r_{t+1}] \lambda_{t+1} \right\}, \text{ where}$$

τ_t is $-\partial T / \partial D_t$, the marginal tax rate at time t (so $1 - \tau_t$ is the tax price of giving), and λ_t is the Lagrange multiplier associated with the budget constraint. Equations (3) and (4) imply the optimal levels of consumption and donations in each period, from which the price and income elasticities can be derived.

Any empirical strategy to estimate the price and income elasticities features several major econometric complications. The first comes from the fact that $1 - \tau$ is itself a function of donations, because marginal tax rates are determined by income net of donations. Since $1 - \tau$ and D are simultaneously determined, an estimation that simply defines $1 - \tau$ as the last-dollar price of contributing (one minus the marginal federal and state tax rate at the stated level of donations) will produce an inconsistent estimate. Economists have solved this in several ways (see, for example, Randolph 1995 and Auten, et al. 2002). I use a simultaneous equations approach, in which the first-dollar price of giving (one minus the marginal tax rate on gross income) is an instrument for the last-dollar price.

A second econometric issue regards model specification. The large number of zero donations (43.7 percent of the sample in the 2009 PSID data) would cause ordinary least squares estimates to be inconsistent. This suggests the use of limited dependent variable models, which can accommodate a large number of zeros on the left-hand side (McClelland and Kokoski, 1994).

We are interested in the effect of the price of giving, $(1 - \tau_i)$, on the amount of donations an individual chooses to give, D_i^* . The relationship between the two can be summarized in the following equation.

$$(5) D_i^* = \beta_0 + \beta_1(1 - \tau_i) + \beta_2 Y_i + \beta_3' Z_i + \varepsilon_i, \text{ where}$$

Z_i is a vector of covariates, and u_i is a random disturbance. The estimates of the price and income elasticities are, respectively, $\hat{\beta}_1$ and $\hat{\beta}_2$, when donations, price, and income are measured in logs.

The last-dollar price of giving — the relevant price, including in the preceding equation — is estimated as a function of the first-dollar price:

$$(6) (1 - \tau_i) = a + b(1 - \tau_i') + e_i.$$

We do not observe D_i^* . Instead, we observe D_i , with the following condition:

$$(7) D_i = \begin{cases} D_i^* & \text{if } D_i^* > 0 \\ 0 & \text{if } D_i^* \leq 0 \end{cases}$$

Assuming (ε_i, e_i) are mean-zero and follow a multivariate normal distribution, we can write $\varepsilon_i = \vartheta e_i + \nu_i$. For notational ease, let $D_i^* = X\beta + \varepsilon_i$, $(1 - \tau_i) = (1 - \tau'_i)B + e_i$, and define $h_i = X\beta + \vartheta e_i$.

We want the joint density of donations and the price of giving conditional on the explanatory variables, $f[D_i(1 - \tau_i) | X_i]$. This can be conveniently expressed as the product of the marginal densities:

$$(8) f[D_i(1 - \tau_i) | X_i] = f[(1 - \tau_i) | X_i] f[D_i | (1 - \tau_i), X_i].$$

Taking logs gives

$$(9) \ln f[D_i(1 - \tau_i) | X_i] = \ln f[(1 - \tau_i) | X_i] + \ln f[D_i | (1 - \tau_i), X_i].$$

We can thus write the log likelihood function for the *i*th observation as:

$$(10) \begin{aligned} \ln L_i = & -\frac{1}{2} \left\{ \ln 2\pi + \ln \sigma_e^2 + \frac{[(1 - \tau_i) - (1 - \tau'_i)B]^2}{\sigma_e^2} \right\} \\ & + 1(D_i^* \leq 0) \left\{ \ln \left[1 - \Phi \left(\frac{h_i}{\sigma_{\varepsilon|e}} \right) \right] \right\} \\ & + 1(D_i^* > 0) \left\{ -\frac{1}{2} \left[\ln 2\pi + \ln \sigma_{\varepsilon|e}^2 + \frac{(D_i - h_i)^2}{\sigma_{\varepsilon|e}^2} \right] \right\} \end{aligned}$$

where the first term is the distribution of the price of giving conditional on the instrument, the second term is the probability of being censored, and the third term is the conditional distribution of the latent variable. In this equation, $1(\bullet)$ is an indicator function equal to unity if its argument is true and Φ is the normal distribution function. The second two terms correspond to the standard Tobit likelihood adjusted for the endogenous explanatory variable. See Smith and Blundell (1986) and Newey (1987) for more details. Summing over all observations gives the likelihood, which is estimated using full information maximum likelihood (FIML) (see Greene, 1998).

For this specification, D is re-coded as the natural log of 1 plus the donation level (to avoid the log-zero problem). Following McDonald and Moffitt (1980), I simulate a marginal effect of each coefficient by multiplying each raw Tobit coefficient by the proportion of the population making a gift.

The FIML Tobit model makes strong parametric assumptions, of course. If these assumptions are not legitimate, semiparametric methods may be indicated (Bradley, et al 1999). However, Wilhelm (2005) provides evidence that, even when distributional assumptions underlying the Tobit model are violated, this specification can still produce accurate coefficients. Estimates using quantile regression yield very similar results to those in the section that follow.⁴

Following the literature, the econometric model in (5) should yield $\hat{\beta}_1 < 0$ and $\hat{\beta}_2 > 0$.

Data

Perhaps the best dataset to estimate the tax price and income elasticities of giving is the Panel Study of Income Dynamics (PSID), a national panel survey that has been conducted every one or two years since 1968.⁵ In 2009, the Center on Philanthropy at Indiana University sponsored a module of questions on charitable behavior. The survey asked families different combinations of questions on a broad range of issues, including inquiries about various types of charitable donations (COPPS 2009). Respondents were asked how much they contributed in the year 2008 to all charities, as well as to specific categories of charities, including religious organizations, “combination” organizations such as the United Way that bundle gifts for secular nonprofits, organizations that aid the poor, health organizations, educational organizations, and “other” charitable organizations.⁶

The tax price of giving depends on each family’s marginal tax rate, which is not available in the PSID/COPPS data. To calculate this rate for each family, I used the National Bureau of Economic Research’s TAXSIM tax calculator.⁷ This calculator utilizes the

⁴ Econometric details of quantile are available on request..

⁵ The data and documentation are publicly-available at <http://psidonline.isr.umich.edu/>

⁶ These categories generally cover activities by public charities, which are 501(c)(3) organizations eligible to receive tax-deductible donations. However, it is not possible in the PSID/COPPS data—or any other survey of giving—to measure *only* contributions made to 501(c)(3)s. It is probably the case that some of the donations reported went to other kinds of nonprofits and hence were not tax-deductible. This reduces the measured sensitivity of donations to taxes.

⁷ See <http://www.nber.org/~taxsim/taxsim-calc/index.html>. For more details on the use of TAXSIM with COPPS-PSID data, see Steinberg, et al. (2004). One weakness of TAXSIM is the way it treats non-

PSID/COPPS data for each respondent's relevant demographic characteristics (e.g. state of residence, marital status, number of dependents, senior citizens in the home), income amounts and types (e.g. labor income, dividend income, property income, unemployment compensation), and expenses (e.g. itemized deductions and childcare expenses). TAXSIM determines whether a taxpayer would have itemized his or her deductions, and estimates a marginal tax rate for each family. The model has been used very extensively over the past 25 years, and has the advantage of being updated annually to reflect changes in the tax code. Researchers have found TAXSIM to provide an accurate measure of the true marginal tax rate (e.g. Butrica and Burkhauser 1997).

The PSID measure of income includes wages, dividends, interest, welfare benefits, pensions and annuities, unemployment, worker's compensation, child support and alimony, gifts from relatives or other people, and other income sources. The total household income includes income received by both the household head and the spouse.

As explained above, it is useful to distinguish between current and permanent income. A convenient way to estimate permanent income is to average several years' income across time. Below, I sum all sources of income for each family in the panel in 2004, 2006, and 2008, correct for price inflation using the Consumer Price Index, and average the sums across the three years. The correlation between permanent income and 2008 current income is 0.91. In 42 percent of households, 2008 income was lower than permanent income, confirming the recessionary pattern depicted in Figure 2.

To capture the effect of wealth on giving, I construct a variable that sums several stocks of resources. These include the value of pensions, savings and investments, and the value of homes. Education levels are measured in years completed by the household head.

The PSID/COPPS data, supplemented with the TAXSIM results, are summarized in Table 1.

traditional charitable gifts, such as appreciated assets. Most likely, this would be more of a problem in studies of the wealthy than it is here.

Table 1. Summary of PSID/COPPS data

VARIABLE	DEFINITION	MEAN (standard deviation)
Last-dollar price	Tax price based on marginal tax rate	0.93 (0.11)
Current income	Household income, 2008	68,923 (105,425)
Permanent income	Inflation-adjusted household income average in 2004, 2006, 2008	68,351 (92,272)
Age	Age of household head	45.2 (16.49)
Education	Years completed by household head	13.5 (2.37)
Wealth	Household wealth	250,563 (1,819,350)
Male*	Household head is a man	0.69
Married*	Household head is married	0.48
White*	Household head is white	0.6
Catholic*	Household head is Catholic	0.18
Protestant*	Household head is Protestant	0.61
Jewish*	Household head is Jewish	0.02
Other religion*	Household head belongs to other religion	0.04
All donations	Total charitable donations	1,239 (3,402)
Religious donations	Donations to religious organizations	778 (2,447)
Secular donations	Donations to combination organizations	472 (1,812)
Percentage making donations*		0.56
Percentage making religious donations*		0.38
Percentage making secular donations*		0.47

* *Dummy variable.*

In 2008, 56 percent of households in the sample made charitable contributions, averaging \$1,239. The average household contributed 1.6 percent of gross income to charity. Among those making positive contributions, the percentage was 2.4 percent.

Traditionally, the PSID/COPPS has found lower giving rates than other surveys, because it does not count gifts under \$25 (Brooks 2007). However, \$1,239 is lower even than in previous years of PSID data analysis. For example, the 2001 PSID (which measured giving in calendar year 2000) found the average giving level was \$1,221--\$1,512 in 2008 dollars—and

64 percent of households gave. This is consistent with the evidence presented earlier that charitable giving has dropped substantially during the recession.

The unweighted average marginal tax rate in 2008 was 19 percent. Using this average marginal tax rate and factoring in whether a taxpayer itemized deductions, the unweighted average tax price of giving in 2008 was 0.93.

The mean household income in the 2008 data was \$68,923 and the median was \$49,700, which is very close to the median value \$49,341 in the U.S. Census data (see Figure 2). The average respondent had some college education (about 13.5 years of education). Wealth had a mean value of \$250,563 and a median value of \$27,500, confirming the expected skewness of the wealth distribution. Sixty percent of the sample was white, and 79 percent were either Protestant (60 percent) or Catholic (18 percent). Fifteen percent of the sample identified with no religion.

Empirical results

Table 2 presents the results of FIML Tobit models for all donations. The first model uses the permanent income measure and the second uses current income. To estimate the marginal effect from each coefficient, I adjust the raw coefficients by the proportion of positive givers (0.56).

Table 2. FIML Tobit results for all charitable giving

	COEFFICIENT (standard error) [Marginal value]	COEFFICIENT (standard error) [Marginal value]
Intercept	-32.72*** (1.45) [-18.42]	-34.69*** (1.46) [-19.53]
Tax price (last-dollar price)	-5.69*** (0.53) [-3.2]	-5.3*** (0.53) [-2.98]
Current income	0.76*** (0.05) [0.43]	
Permanent income		1.12*** (0.07) [0.63]
Age	1.62*** (0.17) [0.91]	1.52*** (0.16) [0.86]
Education	5.99*** (0.4) [3.37]	5.53*** (0.4) [3.11]
Wealth	0.34*** (0.02) [0.19]	0.32*** (0.02) [0.18]
Male ⁺	-0.88*** (0.16) [-0.49]	-0.99*** (0.16) [-0.56]
Married ⁺	1.5*** (0.15) [0.84]	1.39*** (0.15) [0.78]
White ⁺	0.59*** (0.13) [0.33]	0.58*** (0.12) [0.33]
Catholic ⁺	0.59** (0.2) [0.33]	0.59** (0.2) [0.33]
Protestant ⁺	1.46*** (0.17) [0.82]	1.47*** (0.17) [0.83]
Jewish ⁺	1.05* (0.56) [0.59]	1.05* (0.56) [0.59]
Other religion ⁺	1.46*** (0.31) [0.82]	1.46*** (0.31) [0.82]
N	6,616	

* Significant at the .10 level. ** Significant at the .05 level. *** Significant at the .01 level

⁺ Dummy variable

The regression results in Table 2 tell an interesting story of giving in the wake of the recession. To begin with, the tax price elasticity of about -3 is very pronounced—much higher (in absolute terms) than the literature “norm” of unity, and significantly larger even than estimates using past years of PSID/COPPS data. This may reflect pronounced sensitivity to tax changes in the unusually stochastic tax environment following the election of President Obama, who signaled a desire to raise taxes and/or limit deductions in the coming years. Whatever the explanation, the important implication for policy analysis is that tax policy changes will have an unusually heavy impact on giving. The implications of this point will be developed in the next section.

Second, current income elasticity is somewhat lower than what research typically finds, at 0.43. One straightforward possible explanation is that many Americans have an effective “giving floor,” below which they tend not to fall. For example, many Americans give habitually to their houses of worship and are unlikely to zero out these contributions even as their incomes decline. This finding is encouraging for nonprofits in the wake of the Great Recession, because it results in donations being less depressed than income levels.

Third, the permanent income elasticity is higher than current income elasticity (.63 versus .43). This is consistent with the last finding; that income elasticity is depressed in a period of falling income as households give closer to habitual levels, as opposed to income-dictated levels. It also gives an interesting twist to the findings of Auten, et al. (2002), who

found that the permanent income elasticity tends to be lower than current income elasticity, as people accustom themselves to higher incomes. That is, upward and downward pressure on income may create opposite effects.

The other coefficients in Table 2 are fairly straightforward and consistent with past studies. Giving is inelastic in wealth, with a coefficient of just under 0.20. Age and education pushes giving up: A ten-percent increase in age increases giving by about nine percent, while a 10 percent increase in education increases giving by more than 30 percent. Men give less than women, race is slightly significant, marriage pushes giving up, and people of all religious groups give more than those with no religion.

Let's turn now to the differences between giving to religious and secular organizations. To be sure, this is an imperfect distinction in the PSID/COPPS data. Religious contributions are classified as those to "religious organizations"; all other contributions are those I classify as "secular." This will inevitably lead to misclassifications in cases such as Catholic hospitals. However, it should capture the difference between houses of worship and other organizations dedicated solely to religious activity compared to other nonprofits.

Table 3. FIML tobit results for all secular and religious giving

	Secular donations only	Religious donations only	Secular donations only	Religious donations only
	COEFFICIENT (standard error) [Marginal value]	COEFFICIENT (standard error) [Marginal value]	COEFFICIENT (standard error) [Marginal value]	COEFFICIENT (standard error) [Marginal value]
Intercept	-35.67*** (1.76) [-20.08]	-38.1*** (2.76) [-21.45]	-37.9*** (1.78) [-21.34]	-39.01*** (2.8) [-21.97]
Tax price (last-dollar price)	-5.21*** (0.53) [-2.93]	-6.61*** (0.84) [-3.72]	-4.78*** (0.53) [-2.69]	-6.45*** (0.83) [-3.63]
Current income	0.9*** (0.06) [0.51]	0.41*** (0.11) [0.23]		
Permanent income			1.31*** (0.07) [0.74]	0.58*** (0.13) [0.33]
Age	1.32*** (0.19) [0.75]	2.88*** (0.3) [1.62]	1.21*** (0.19) [0.68]	2.83*** (0.3) [1.59]
Education	6.47*** (0.46) [3.64]	5.16*** (0.64) [2.9]	5.97*** (0.45) [3.36]	4.95*** (0.65) [2.79]
Wealth	0.39*** (0.03) [0.22]	0.34*** (0.04) [0.19]	0.35*** (0.03) [0.2]	0.33*** (0.04) [0.19]
Male ⁺	-0.93*** (0.18) [-0.52]	-1.26*** (0.28) [-0.71]	-1.07*** (0.18) [-0.6]	-1.32*** (0.28) [-0.74]
Married ⁺	0.94*** (0.17) [0.53]	2.87*** (0.29) [1.62]	0.81*** (0.17) [0.46]	2.83*** (0.29) [1.59]
White ⁺	1.01*** (0.14) [0.57]	-0.55** (0.21) [-0.31]	1.01*** (0.14) [0.57]	-0.55** (0.21) [-0.31]
Catholic ⁺	0.26 (0.22) [0.15]	3.87*** (0.41) [2.18]	0.27 (0.22) [0.15]	3.87*** (0.41) [2.18]
Protestant ⁺	0.34* (0.19) [0.19]	5.15*** (0.39) [2.9]	0.36* (0.19) [0.2]	5.15*** (0.39) [2.9]
Jewish ⁺	1.2** (0.56) [0.68]	2.29*** (0.68) [1.29]	1.21** (0.55) [0.68]	2.29*** (0.68) [1.29]
Other religion ⁺	0.57* (0.34) [0.32]	4.79*** (0.56) [2.7]	0.57* (0.34) [0.32]	4.79*** (0.56) [2.7]
N	6,733			

* Significant at the .10 level. ** Significant at the .05 level. *** Significant at the .01 level

⁺ Dummy variable

Two points stand out on inspection of the results in Table 3. First, the basic patterns from Table 2 play out in both religious and secular giving: Price elasticity is elevated over typical historic levels; income elasticity is depressed; and permanent income elasticity is higher than current income elasticity.

Second, religious giving has a much lower income elasticity than secular giving, reinforcing the idea that religious gifts may be especially resistant to pressure from falling income.

A few other results stand out. Age and marriage push up religious donations more than secular gifts while education has the opposite effect. Unsurprisingly, all religious affiliations affect religious giving more than secular giving; however, it is notable that all religious affiliations except Catholic are associated with significantly higher secular giving. In other words, these results reject the contention that religious affiliation only pushes up religious gifts.

Discussion and policy analysis

The findings above show that the Great Recession has had a significant impact on giving patterns, at least in the near term. To put these results into a useful context, a bit of policy analysis is useful. I will turn first to the predicted effects of the personal income tax rate changes of 2013. Then, I will look at the likely impacts of the much discussed policy idea of capping charitable deductions.

In January 2013, President Barack Obama signed into law the American Taxpayer Relief Act of 2012, which increases the top marginal personal income tax rate from 35 percent to 39.6 percent for annual taxable income above \$450,000 (for couples filing jointly). The PSID/COPPS data show that 0.51 percent of families both have income affected by the increase and also itemize deductions. Their effective tax price of giving would thus drop from .65 to .604 per dollar donated, a price decrease of 7.07 percent. The price effect would be at least partially offset by the income effect of lower disposable income from a higher tax bill, *ceteris paribus*.

An example helps to make the price and income effects clear. Imagine a family with \$1 million in annual income and charitable donations of \$20,000 (two percent of income). Ignoring all other deductions and income adjustments for simplicity, the tax increase will lower their disposable income by 2.53 percent, or \$25,300. As mentioned above their tax price of giving falls by a bit over seven percent. Applying the permanent income and price elasticity estimates in Table 2 (0.63 and -2.98, respectively), we can see that the income effect on giving is predicted to be -1.6 percent, or -\$320.⁸ Meanwhile, the price effect is

⁸ The income effect would be larger at higher income levels and smaller at income levels closer to \$450,000.

predicted to be +21.12 percent, or \$4,223. The net effect on giving is estimated to be +19.5 percent, or \$3,903.

To many laypeople this is a counterintuitive result, because it predicts that the tax increase leads to a relatively large increase in short-run giving. This is completely predictable, however, given the nature and magnitude of the income and price effects. Of course, because the policy change affects only about one half of one percent of taxpayers, the net effect on philanthropy will be much lower than the percentage for the example family. Using the PSID/COPPS data, the net effect of the tax increase is an increase in total giving of about 1.13 percent.

A more complicated policy reform proposal is a cap on deductions, which would limit the tax saving for each dollar of deductions taken by high-income households. One level that is frequently considered is 28 percent, the cap proposed by President Obama in his Fiscal Year 2013 budget and previous budgets. This constraint would only bind households with a top marginal income tax rate above this level. For an itemizer at the top marginal rate, this means a tax price increase of 10.8 percent (from the old top rate of 35 percent) or 19.2 percent (from 39.6 percent). In the case of this policy, there is only a price effect because the tax rate has not risen or fallen; only the tax price has risen.

For the example family above, earning \$1 million, their tax price rises from .604 to .72. After the tax increase above, they are giving \$23,903 (\$20,000 + \$3,903). The new price effect on giving for this family will be (once again using the -2.98 elasticity) -57.3 percent, or -\$13,699, for a new giving level of \$10,205.

Again, this example is especially pronounced because it centers on the small percentage of the population affected: extremely high earners who itemize deductions. What happens when we look across the whole population? Table 4 summarizes the predicted impact of a 28 percent cap in the cases of all giving, secular giving, religious giving, and the top one percent of earners.

Table 4. Predicted effects on giving of a 28 percent deductions cap

	PERCENTAGE REDUCTION IN GIVING
All giving	-4.35 percent
Secular giving	-7.02 percent
Religious giving	-0.95 percent
Itemizers only	-9.30 percent
Top 1 percent of earners	-24.05 percent

The 28 percent cap could be expected to lower total charitable giving in the short run by 4.35 percent, *ceteris paribus*. Based on the *Giving USA* estimate that individual giving came to approximately \$218 billion in 2011, we can calculate a total loss of giving from this cap of about \$9.4 billion in the first year.

Using the permanent income estimates for tax price elasticity for secular and religious gifts, we can predict a loss of annual giving in these two categories of 7.02 percent and 0.95 percent, respectively. The muted effect on religious giving is due to both the lower price elasticity and the fact that lower income households and non-itemizers are overrepresented in this group of givers.

The most profound effect comes when we consider the top one percent of earners who itemize deductions. Why look specifically at this group? To begin with, they represent 7.4 percent of all dollars given in the PSID/COPPS data. Second, many so-called “elite” nonprofits disproportionately draw from this donor pool—top universities and think tanks, symphony orchestras, some hospitals, and even certain environmental groups, to name a few. Among this group of donors, we estimate a 24 percent reduction in giving from the 28 percent deduction cap. For nonprofits operating largely within this donor base, the results would be serious—maybe catastrophic.

There is one major caveat to these prediction; namely, the dynamic economic effects of tax reform. Some commentators believe that a deduction cap would improve economic efficiency and stimulate growth. If so, that would attenuate the negative effects predicted here. In addition, there are probably relevant behavioral dynamics that would change the impacts in the long run. For example, charitable giving patterns might revert to historical norms after a period of time after a deductions cap. These hypotheses cannot be tested with the PSID/COPPS data.

Further research and conclusions

This research has shown that the historically-typical price and income elasticities are not applicable in the wake of the Great Recession. Price elasticity is higher (in absolute terms) while income elasticity is lower. Policy analysis shows that these unusual elasticities have consequential implications for American giving as tax policy changes. The 2013 tax increases should have a small positive impact on giving, while a contemplated deduction cap would have a relatively large negative impact on giving.

Several questions remain for future research. Empirically, new rounds of the PSID/COPPS data will show whether or not the 2009 results persist, especially as the American economy works its way back toward normalcy.

The 2009 data offer a rich set of research possibilities not addressed here. For example, the role of wealth is not central to this paper, but wealth changes played a large role in the recession. How did this affect giving? Related to this, how did Americans' changing relationship with debt affect donations? Careful study of wealth and debt elasticities could provide important insights.

The work here leaves many theoretical questions unanswered as well. For example, a structural model of giving behavior in a stochastic tax policy environment might elucidate the elevated price elasticity found here. Similarly, a model that featured an effective "giving floor" could help us understand the muted income elasticity in the face of the recession's income downdraft. Related to this, it would be useful to develop a structural model that compares the asymmetric effects of income increases and decreases in the short and long runs. These and other research questions will fruitfully occupy future work.

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