THE PRICE ELASTICITY OF CHARITABLE GIVING:

DOES THE FORM OF TAX RELIEF MATTER? [1]

Kimberley Scharf and Sarah Smith

Abstract: *We use a survey-based approach to compare the effects of alternative forms of tax relief on donations – a tax rebate for the donor and a matched payment to the charity. On accounting grounds these two are equivalent but, in line with earlier experimental studies, we find that charitable contributions are significantly more responsive to a match than to a rebate. The difference can largely be explained by the fact that a majority of donors do not adjust their nominal donations in response to a change in subsidy. We relate our findings to the growing literature on behavioural tax policy.*

KEY WORDS: charitable giving, tax incentives, match and rebate, salience

JEL CLASSIFICATION: H2, D0, D8

[1]

Kimberley Scharf: Department of Economics, Warwick University, Coventry, CV4 7AL, United Kingdom. (k.scharf@warwick.ac.uk)
Sarah Smith: CMPO and Department of Economics, University of Bristol, 8 Woodland Road, Bristol, BS8 1TN, UK. (sarah.smith@bristol.ac.uk)

1. Introduction

The majority of developed countries offer government support to charities in the form of income tax relief for charitable contributions. Most offer a tax rebate, either as a deduction from taxable income or as a tax credit granted at the marginal rate of income tax; in the UK, there is also a match element; charities can claim a payment from the government equal to the basic rate income tax paid on donations made by taxpaying donors.

The aim of offering tax relief, whether through a rebate or a match, is to increase donations – and hence charities' incomes – by lowering the price of giving. However, recent experimental evidence has cast some doubt on the idea that there is one, single price elasticity, suggesting that the *form* in which tax incentives are offered might have an effect on donations. Specifically, lab and field experiments summarized in Eckel and Grossman (2003, 2008), Davis, Millner and Reilly (2005) and Blumenthal, Kalambokidis and Turk (2012) have shown that offering donors a match has a bigger effect than an equivalent-value rebate on the total contributions (including the subsidy) received by the charity. These studies also find that total contributions are more responsive to variation in the match rate than to variation in the rebate rate.

These studies are relevant to policy because they suggest that offering match-style incentives may be more cost-effective than standard tax rebates. However, policymakers may be keen to have evidence that the findings from lab experiments and single-charity field experiments are generalisable to a relevant population of taxpayers and to subsidies offered through the tax system. The first contribution of this paper is to provide such corroborating evidence for a sample of taxpayers, confirming the asymmetry of responses to match and rebate incentives offered through the tax system. The UK makes an ideal case study because the main scheme through which individuals get income tax relief on their donations – known as Gift Aid – has

both a match and a rebate element for higher-rate taxpayers. We use a survey-based approach which allows us to focus on a sample of taxpaying donors and we explore their responses to changes in the match and rebate elements of the UK system of tax relief for charitable donations. We do this by means of a number of hypothetical scenarios. Compared to an experimental approach, this has a number of potential disadvantages. In particular, the hypothetical nature of the scenarios brings with it a concern that respondents may not answer truthfully. We have taken a number of measures to establish the reliability of our results. We discuss our approach – and the reliability of our findings – in detail in section 3.

The second contribution of the paper is to shed further light on why total contributions respond more to (changes in) the match than to (changes in) the rebate. A number of possible explanations have been proposed in the existing literature – including donor confusion, a differential warm glow associated with match and rebate and the fact that donors may focus on their checkbook donation (i.e. how much they give out of their net-of-tax income) rather than the total contribution (including the value of the subsidy). Davis, Millner and Reilly (2005) argue that, faced with a complex set of incentives, donors ignore both match and rebate and focus only on their checkbook donation. They refer to this as an isolation effect. Like them, we also find that many donors appear to ignore changes to both match and rebate and fail to adjust their checkbook donation but we uncover systematic patterns in whether or not there is adjustment that point to a different explanation. Specifically, we find that donors are more likely to adjust when the stakes are higher (i.e. when donors give large amounts), suggesting a more rational response – that donors choose whether or not to respond to match and rebate changes depending on the balance of likely costs and benefits associated with adjustment. We describe this as "rational inattention" and we discuss the implications of this behaviour for policy design.

The rest of the paper is structured as follows. In the next section we present a simple model of giving to make clear our discussion of the effects of match and rebate incentives. Section 3 discusses the sampling frame and survey design for our study. Section 4 presents the main findings and section 5 explores heterogeneity of responses across different groups of donors, including evidence consistent with rational inattention. Section 6 concludes.

2. Framework for considering the effects of match and rebate

To clarify our discussion of the effects of match and rebate incentives on contributions and the operation of the UK system of Gift Aid, we present a simple, stylized model of charitable giving. Consumers are assumed to care about their consumption of a private good, x, and their total contribution (which includes any subsidy) to a public good, g. They have an endowment,[2] Y, which they can choose to allocate between the two. To simplify, we abstract from the public good dimension; consumers may be assumed to derive a "warm glow" from their public good contribution (Andreoni, 1990).[3]

In the absence of any subsidy for charitable contributions, the consumer's problem is:

$$Max\ U(x_i, g_i)\ subject\ to\ Y_i = x_i + g_i \qquad (1)$$

However, the government may subsidize contributions by offering either a rebate or a match. In the UK, the main form of tax relief on individual giving, Gift Aid, combines both elements. It works in the following way: individuals make a checkbook donation (d) out of

[2] For simplicity of exposition we assume Y is not taxed; the subsidies are effectively credits.

[3] A narrow interpretation is that the warm glow is derived from the sacrifice which would depend only on the checkbook donation net of any rebate. But, equally plausibly, individuals may care about their personal contribution to a good cause, i.e. the warm glow comes from g. This is the implicit assumption here.

their net income.[4] Charities can claim a payment from the government equal to the basic rate income tax paid on the donations made by taxpaying donors, equivalent to 25 pence per £1 checkbook donation since the basic rate of tax is 20%. In the context of the simple model above, the total contribution received by the charity can be written as $g = (1 + m)d$ where $m = 0.25$ is the rate at which the checkbook donation is "matched" by the government with a payment to the charity.

In the UK, higher-rate taxpayers can additionally reclaim a rebate equal to the difference between their marginal rate of tax at 40 per cent and the basic rate of tax at 20 per cent on the gross equivalent donation.[5] In practice, this means that for every checkbook donation of £1, a higher-rate donor can reclaim 25 pence as a rebate. In the context of the model above, the cost to the donor (c) of making a contribution can be written as $c = (1 - r)d$ where r is equal to the rebate rate = 0.25. In practice there may be additional processing costs for the donor associated with the rebate: higher-rate taxpayers need to claim through a self-assessment tax return (completed by approximately one third of all UK taxpayers) or ask for a change in their tax code via a simpler tax review form. In practice, not all higher-rate taxpayers reclaim the additional rebate, although it is more common among those donating larger amounts. Blumenthal, Kalambokidis and Turk (2012) discuss compliance cost issues in more detail.

In the presence of match and rebate subsidies, the consumer's problem is to maximise:

$$U(Y_i - (1 - r)d_i, (1 + m)d_i) \qquad (2)$$

[4] When it was originally established, Gift Aid provided tax relief on donations exceeding a minimum threshold. This threshold was initially set at £600, reduced to £400 from May 1992 and to £250 from March 1993 and abolished altogether in 2000.

[5] The UK tax system has a basic marginal tax rate of 20% on earnings between £6,475 and £43,875 (2009-10 rates) and a higher marginal tax rate of 40% on earnings above this. Median earnings in 2009 were £20,801. In April 2010 – after the survey was run – a higher rate of 50% was introduced for incomes over £150,000.

The consumer is assumed to care about the total contribution to the public good, including the value of the match subsidy. The price of a £1 total contribution is equal to $(1 - r) /(1 + m)$ and can be affected by a change in either the match rate or the rebate rate. In this simple model, an equivalent change in the price through a change in either *m* or *r* would be assumed to affect total contributions (*g*) in the same way.[6] Of course, there are mechanical differences in the way the two types of subsidy work but consumers are assumed to adjust their checkbook donations (*d*). For example, in the case of a switch from a match subsidy to a rebate subsidy of equivalent value, consumers would be assumed to increase their checkbook donation to preserve the value of the total contribution.

However, recent experimental studies in the lab and the field (Eckel and Grossman, 2003, 2008, Davis, Millner and Reilly, 2005, and Blumenthal, Kalambokidis and Turk, 2012) have found that match and rebate subsidies do not affect total contributions (*g*) in the same way. The first finding is that match subsidies result in a higher level of total contributions than equivalent-value rebates. Eckel and Grossman (2003), for example, found that total contributions were 1.2 – 2 times greater with a match than a rebate. The second finding is that total contributions are more responsive to changes in the match than they are to changes in the rebate. Eckel and Grossman (2003) report that the elasticity of total contributions (*g*) with respect to changes in the price associated with changes in the match rate (which they call the match elasticity) is -1.14 , while the elasticity with respect to changes in the price associated with changes in the rebate rate (which they call the rebate elasticity) is -0.36.[7]

[6] The match and rebate rates may be linked to the tax system in which case changes to the tax rate would have a separate effect. In the analysis we assume that the match and rebate are independent of the tax system, which was true of the scenarios that we tested.

[7] They do not report that corresponding elasticities for checkbook donations, but these would be -0.14 in the case of the match and -0.36 in the case of the rebate.

These findings have potential implications for public policy but there may be a concern that they are not generalisable beyond the lab or single-charity settings. Blumenthal, Kalambokidis and Turk (2012) present important evidence in a laboratory setting that the findings hold when the subsidies are offered through a tax system rather than being offered by a single charity. This paper offers additional, complementary evidence that is more directly relevant to real world tax subsidies. We survey a sample of taxpaying donors and the subsidies are offered in relation to the UK system of Gift Aid which combines both match and rebate subsidies. We also offer new insights into why the effects of match and rebate subsidies differ. A number of possible explanations have been given in the literature (see Lukas, Grossman and Eckel, 2010, for a discussion). One possibility is that consumers do not understand the implications of changes in the match and rebate rates for the price of giving. The fact, for example, that a match rate is higher in percentage terms than the equivalent value rebate may cause particular confusion (since $m = r/(1 - r)$). Blumenthal et. al describe this as "rate illusion". However, Davis, Millner and Reilly (2005) show that the difference in responsiveness persists when donors are given information on the relationship between their checkbook donation, the total contribution to the charity and the net cost, suggesting that the difference cannot simply be attributed to confusion among donors.

Eckel and Grossman (2003, 2008) attribute the difference to preferences. Following Benabou and Tirole (2006) they argue that the match induces greater giving because it is associated with a cooperation frame, which makes donors feel more generous, while the rebate is associated with a reward frame.

In this paper, we provide an alternative explanation that is more closely related to Davis et al (2005) who argue that the difference arises because, faced with a complex set of incentives, donors ignore both match and rebate and focus only on the checkbook donation. They refer to

this as the "isolation effect". In this case, the differential effect of match and rebate on total contributions arises purely as a mechanical consequence of ignoring (changes in) subsidies. Offering a match has a direct effect on *g*, while offering a rebate only affects the cost to the donor. Consistent with this, in our survey we find a high level of non-adjustment to changes in match and rebate subsidies. However, we show that there are important differences in the likelihood of adjusting depending on the level of giving and also on the type of incentive. We therefore argue that, rather than simply ignoring the match/rebate and focusing on the checkbook donation, donors do care about their total contribution but because of processing and adjustment costs may rationally choose to – or not to – process match and rebate in different situations, which is what is observed in practice. This kind of rational inattention has been discussed in relation to the salience of taxes that modify consumer prices (Chetty, Looney and Kroft, 2009) but the application to the effect of different forms of tax incentive that generate equivalent changes in the price (such as in our example of charitable giving) – and the implications for the design of effective tax subsidies – have not previously been explored.

Of course, there are a number of other stories about why people give that might explain a focus on checkbook donations. For example, donors might derive utility not from their total contribution but from the amount they give out of their net of tax income (their checkbook donation because it provides a more visible signal (see Glazer and Konrad, 1996, and Harbaugh, 1998). However, in this case (as discussed in Turk et al, 2007), checkbook donations should be much more responsive to changes in the rebate (which affect the price of checkbook donations) than to changes in the match (which do not) and this is not observed in practice in most studies. Our survey also provides some additional evidence relevant to this issue – when asked about what they thought about when making their decision about how

much to give, 69 per cent of donors said that they thought about how much the charity claimed (on its own or together with how much they gave) compared to 13 per cent who cared only about how much they gave and how much they could reclaim (the remaining 18 per cent reported don't know). This suggests that an assumption that donors care about total contributions is appropriate for most givers.

3. Sampling and survey design

We use a survey-based approach to explore how UK donors respond to changes in the match and rebate elements of Gift Aid. Invitations to take part in an on-line survey were e-mailed to 40,000 UK-based donors, split (roughly) equally between a random sample of people who had donated online through Justgiving (an online giving portal) during the previous six months and all those with a Charities Aid Foundation (CAF) charity account who also had an email address. The response rate was just under 9%, comparable with previous email surveys for the two groups. We discuss below how our sample compared to the population in terms of levels of giving. Respondents are also likely to have different unobservable characteristics, including above average levels of interest in tax relief and charitable giving. We cannot control for this but note that it is likely to make respondents more likely to take the hypothetical scenarios seriously and respond to the proposed tax changes. Since much of the difference in the responsiveness of total contributions to match and rebate subsidies comes from non-adjustment, this selection will tend to work against us finding such a difference, strengthening our main finding.

The 3,445 individuals who responded fully to the survey were presented with a number of hypothetical scenarios involving changes to Gift Aid and asked to say how they would respond. The aim of the research was to explore a set of possible reforms to the existing

system of Gift Aid that reduced the rebate element and increased the match element. The hypothetical scenarios were designed to reflect this and only higher-rate taxpayers faced options that changed both match and rebate elements (Gift Aid does not have a rebate element for basic-rate taxpayers). Our analysis therefore focuses on responses from just over 1,400 higher-rate donors. Summary statistics are presented in Appendix A1.

Before describing the research design in more detail, we address two potential concerns with our approach – first, that we do not sample from the general population of (Gift Aid) donors and second, that we use a stated choice approach.

Our data are drawn from a convenience sample comprising two groups. The first group is a random sample of donors who had given through Justgiving over the previous six months. This is an online fundraising portal used primarily by individual fundraisers to collect sponsorship donations. The total population of Justgiving donors is around 20 million. The mean reported giving in the last 12 months among the sample respondents in this group who were higher-rate taxpayers is £2,377. The second group is people with a CAF charity account (including all those with an email address) – an account that can be used to make donations to different charities and that facilitates tax-efficient giving. The total population of CAF account holders is around 60,000. The sample respondents from this group who were higher-rate taxpayers had mean reported giving of £4,846 in the last 12 months.

There is no reliable population information on Gift Aid donors that could act as an accurate benchmark for our sample. Even tax authority data is not fully comprehensive since many Gift Aid donors – including higher-rate donors – do not reclaim a rebate and do not therefore declare their giving. The best information is the Individual Giving Survey (IGS), a population-based survey that collects information on giving. Among the sample of higher-

rate tax Gift Aid users in the IGS, the mean level of giving over the last 12 months was £1,411, lower than the mean of £3,332 in our combined Justgiving/CAF sample.

What explains the difference in mean giving across our Justgiving/CAF sample and the IGS sample? One issue is that we almost certainly over-sampled higher-rate taxpayers who reclaim the rebate and who are more likely to give more (56 per cent in our sample). There is no information on reclaiming in the IGS, but a more reasonable estimate is 35 per cent, the proportion in the JG sub-sample, which is consistent with HM Revenue and Customs statistics on the value of tax relief claimed. Re-weighting reduces the mean level of giving in our sample to £2,442 which is closer to the IGS figure, but still higher. Note that we do not re-weight our estimates in our analysis, but we do estimate match and rebate elasticities separately for reclaimers and non-reclaimers.

Another reason is that the IGS fails to capture major donors, who are relatively small in number in the general population but who account for a relatively large share of total giving. Our Justgiving/CAF sample includes many of these major donors. In the IGS data the largest donation was £46,000 in the last year, compared to more than 100 donors who reported giving in excess of £100,000 in our sample. When we exclude donations of £50,000 or more and re-weight for our over-sampling of reclaimers, the mean level of giving in the Justgiving/CAF sample falls to £1,796, which is much closer to the IGS figure. In our analysis we keep the larger donors in our Justgiving/CAF sample. The fact that these major donors are captured among the respondents is an advantage of our approach since these donors constitute a very important group in determining the overall response to tax subsidies.

The second potential issue with our approach is our use of a stated choice approach, which is not common in policy evaluation (although Krueger and Kuziemko, 2011 provide a recent

example).[8] Ideally, we would like to look at responses to real tax changes – through either a field or natural experiment. However, field experiments involving actual tax rates are not feasible; nor is there any data on actual reforms that have taken that is available and detailed enough. In the absence of evidence on actual tax policy changes, our survey approach complements existing experimental results. As discussed above, we were able to survey the relevant population, resulting in a reasonably representative sample of higher-rate Gift Aid donors; and we were able to test the responses of these taxpaying donors to the relevant instrument, i.e. tax incentives. Our survey approach allowed us to collect information on a large sample of donors and test for differential responses across donor groups, allowing us to explore alternative explanations for why total contributions respond differently to match and rebate subsidies.

We incorporated a number of elements into our survey design to make the findings more credible. We made the scenarios more realistic by asking respondents to consider how the alternative tax treatments would affect a specific donation that they had previously in the survey said that they were likely to make in the next six months rather than asking generally how they would respond to a change in tax incentives.[9] As a measure of the reliability of our survey responses, we can show that there is close agreement between how much CAF respondents in our sample reported they gave through Gift Aid during the last year (mean = £2,435) and how much was actually given by (the population of) CAF donors through CAF

[8] Our study differs from a classic WTP study where, according to Harrison and Ruström (2008) `as a matter of logic, if you do not have to pay for the good but a higher verbal willingness to pay (WTP) response increases the chance of its provision, then verbalize away to increase your expected utility!' In our case, it is not clear ex ante whether donors would over-state since they are directly informed in the survey about tax changes and incur no real adjustment costs, or under-state since a no adjustment response is the easiest answer to give.

[9] In our sample of higher-rate taxpayers, 39 donors were not planning to make a donation in the next six months. We asked them to think about a donation they had made in the previous six months. Our results are not sensitive to excluding this group altogether.

charity accounts during that year (mean = £2,436). This provides some evidence that respondents were answering truthfully. We also designed the survey to show that the ordering of the options does not affect the responses, ruling out the so-called embedding effects (i.e the idea that the ordering of the scenarios may affect responses) discussed in Diamond and Hausman (1994). Again, this is evidence that the respondents were taking the survey seriously.

The design of our scenarios was as follows. Respondents were first asked whether they were likely to make a Gift Aid donation in the next six months. Higher-rate taxpayers were then randomly allocated to five different treatment sets, each consisting of two hypothetical scenarios reflecting different combinations of match and rebate (summarized in the first column of Table 1).

- Set A, increased *either* the match *or* rebate rate (but not both):
- Set B, decreased *either* the match *or* rebate rate (but not both):
- Sets C, D and E, *both* increased the match *and* eliminated the match

In each case, respondents were asked to say how much they would give if faced with the alternative system of tax relief (see Appendix A2 for further details on how the scenarios appeared in the survey).[10]

The design and description of the scenarios in the survey reflect the way Gift Aid is portrayed to donors – i.e. the charity receives *X* pence for every £1 given out of net-of-tax

[10] Specifically, respondents are asked to say how they would respond – by increasing/decreasing their donation or leaving it the same. No higher-rate taxpayer responded don't know at this stage. Donors that would increase/ decrease their donation are asked to say what their new donation would be. 27 donors said that they didn't know and were then prompted with different levels of adjustment. Our results are not sensitive to excluding this group.

income and the individual can reclaim *X* pence for every £1 given out of net-of-tax income. Respondents were explicitly told that the current system offered a match of 25 pence and a rebate of 25 pence.

For higher-rate taxpayers, two of the treatment sets (A, B) tested how people would respond to changes in *either* the match *or* the rebate (but not both). In Set A, individuals were faced with the following two scenarios that increased *either* the match *or* rebate rate (but not both):

A1: A match of 30 pence and a rebate of 25 pence (price of giving = .577);

A2: A match of 25 pence and a rebate of 30 pence (price of giving = .560).

While in set B, individuals were faced with the following two scenarios that decreased either the match or rebate rate (but not both):

B1: A match of 20 pence and a rebate of 25 pence (price of giving = .625);

B2: A match of 25 pence and a rebate of 20 pence (price of giving = .640).

Note that the changes in match and rebate were symmetric in terms of pence change for each £1 donated but not in terms of price changes. The price changes are larger for the changes in rebate. Eckel and Grossman (2003, 2008) defined match and rebate pairs that were equivalent in value but had different rates – for example, a 25% match and a 20% rebate. However, as in Blumenthal, Kalambokidis and Turk (2012), experimental evidence has shown that individuals respond differently to alternatives that produce exactly the same outcome but that are presented to them through what Kahneman and Tversky (1979) refer to as different "frames of reference" which may imply that donors respond more to what they perceive is a "larger" match. In our case, if the match and rebate elasticities are the same, there should be a larger percentage change in total contributions to the rebate change. If we find that total

contributions respond less to the rebate change this is a strong indication that total contributions are less responsive to changes in the rebate than to changes in the match.

The other treatment sets for higher-rate taxpayers (C, D and E) were designed to explore responses to specific policy options that involved increasing the generosity of the match rate, while abolishing the rebate rate. Scenario E1 changed the form of the tax subsidy but not the price. The other scenarios involved increases in the price of giving compared to the current system. The same scenarios were included twice (C1 & E2 and C2 & D1) to test for embedding effects.

Specifically, in Set C, individuals were faced with the following two scenarios which both increased the match and eliminated the rebate element:

C1: A match of 50 pence and no rebate (price of giving = .667);

C2: A match of 30 pence and no rebate (price of giving = .769).

In set D, individuals were faced with the following two scenarios:

D1: A match of 30 pence and no rebate (price of giving = .769);

D2: A match of 37 pence and no rebate (price of giving = .730).

While in set E, individuals were faced with the following two scenarios:

E1: A match of 66 pence and no rebate (price of giving = .600);

E2: A match of 50 pence and no rebate (price of giving = .667).

4. Basic results

To explore the effect of the different treatments on contributions, we estimate the following reduced form model:

$$\ln g_{in} = \beta_0 + \sum_{s=1}^{S} \beta_s T_{si} + v_{in} \qquad (3)$$

where g_{in} is the n^{th} contribution of individual i. For each donor, we observe up to three contributions – their initial total contribution, g_{i0}, and their contributions under the two different scenarios they face in their randomly allocated treatment set, i.e. $n = 0, 1, 2$. Our estimation sample therefore consists of 4,266 observations, i.e. three observations for each of 1,442 higher-rate taxpayer respondents.

We choose to focus on the total contribution – the checkbook donation plus the match – for a number of reasons. The total contribution is relevant for the public policy debate since the main focus is on the total amount received by charities; it is what previous analyses have typically focused on and, as discussed in section 3, it is also what donors are assumed to care about. Although donors directly choose the level of their checkbook donation, they are assumed to adjust their checkbook donation to take account of the match or rebate to achieve the desired total contribution. We also report results for checkbook donations, d, but, as discussed in section 2, we think that the most reasonable assumption is that donors care about the total contribution and not their checkbook donation.

We include a set of binary indicators for each of the hypothetical scenarios in sets A through C ($T_{1i} = 1$ if $m = .30$ and r = .25 and $T_{1i} = 0$ otherwise; $T_{2i} = 1$ if $m = .25$ and $r = .30$ and $T_{2i} = 0$ otherwise; and so on). The omitted category is the current system of Gift Aid (i.e. m = .25 and r = .25) corresponding to the initial contribution. The estimated coefficients on the

scenarios therefore capture the difference in total contributions compared to the initial contribution under the current system. In total, sets A – C contained ten hypothetical scenarios, but two of these simply involved varying the ordering of the scenarios in order to test for so-called embedding effects. As we show in Appendix A3, the ordering made no significant difference to responses, our main results therefore focus on the eight distinct treatment scenarios (S = 8), with the current system omitted as the baseline.

The error term is decomposed into a constant, individual-specific effect and a donation-specific random error term that could capture eg rounding or reporting error for each individual for each scenario they face, i.e. $\nu_{in} = \phi_i + u_{in}$. The results from estimating equation (1) using a random effects model are reported in Table 1.[11]

In line with earlier studies, we find that total contributions are more responsive to changes in the match than to changes in the rebate. Scenario A1 (m = .30; r = .25) is associated with a bigger increase in total contributions than scenario A2 (m = 0.25; r = .30), although the price reduction is smaller. Similarly, scenario B1 (m = .20; r = .25) is associated with a bigger fall in total contributions than scenario B2 (m = .25; r = .20), although the price increase is smaller. This is clear from looking both at the estimated coefficients which capture the change in ln total contributions compared to the initial contribution and from the implied elasticity estimates, calculated following Halvorsen and Palmquist (1980) which can be more directly compared. The elasticity estimates are greater (in absolute value) for changes in the match than for changes in the rebate. They are also greater for increases in match/rebate than for decreases in match/rebate, although these differences are not always significant. Looking

[11] This is efficient and unbiased if the rebate and match terms are unrelated to individuals' characteristics. Since the rebate and match terms are randomly allocated to individuals this should be true by assumption. Very similar results were obtained from a fixed effects model.

at checkbook donations, the implied elasticities for match and rebate are much more similar. However, we do not take this as evidence that consumers care about checkbook donations since, as discussed in Turk et al (2007), checkbook donations would be expected to respond more to changes in the rebate, which affect the price of such donations.

The coefficients associated with scenarios C1 – E2 show that policy options that withdraw the rebate and increase the match result in an overall increase in total contributions, even where the price of giving has increased relative to the current system. The implied elasticity estimates are therefore positive. Note that the implied elasticity is not defined for the option (m = .66; r = 0) since the price is unchanged compared to the baseline. In general under these scenatios, the greater the change in the match rate, the greater the elasticity with respect to total contributions. This can be explained by differences in the rate of match, not underlying changes in checkbook donations: the implied elasticities with respect to checkbook donations are similar for different changes in the match rate.

The final column of Table 1 summarizes the proportion of donors who, for each scenario, report that they would change their checkbook donation (i.e. how much they give out of net-of-tax income). Levels of non-adjustment are very high – the majority of donors for each scenario. As already discussed, and as we explore further in the next section, this non-adjustment is a key factor in understanding why total contributions respond more to changes in the match than to changes in the rebate.

A potential concern is that this high level of non-adjustment may be an artefact of the hypothetical nature of the survey; there is no benefit to respondents if they respond truthfully and reporting an alternative donation amount may have a small effort/ computational cost. However, as evidence against this, the proportion adjusting does vary across the scenarios –

the proportion adjusting to changes in the rebate is typically greater than the proportion adjusting to changes in the match, while more people adjust to a larger change in the match rate. In many cases, these differences in the level of non-adjustment across scenarios arise because the same individual reports that they will adjust in the case of one of the scenarios and not the other, consistent with respondents taking these scenarios seriously. Of course, it is still possible that there are some individuals who would respond differently to a real change in match/rebate, but we do not think this would be enough to explain all non-adjustment. The fact that there are differences in levels of non-adjustment across scenarios is an important finding and suggests that there is more going on than Davis et al's (2005) isolation effect in which donors simply ignore (changes in) match and rebate rates altogether.

Another finding worth highlighting is that we find significant differences in checkbook donations across treatments. As shown in Table A3 in the Appendix, we reject that m30r25=m25r25, m66r0=m30r0 and m50r0=m30r0. This is in direct contrast to findings from a related literature on the effects of larger matches (typically in the order of 1:1, 2:1, 3:1) summarized in Karlan and List (2007) and Huck and Rasul (2012). These studies, based on single-charity field experiments, find that the presence of a match matters for checkbook donations (compared to no match), but not the level of the match. Here, the evidence suggests that the level of match rates may affect the magnitude of checkbook donations.

5. Heterogeneity of responses across donors

In order to facilitate direct comparisons with earlier studies and to allow convenient analysis for sub-groups of donors, we estimate separate elasticities for price changes associated with changes in the match rate and changes in the rebate rate (referred to by Eckel and Grossman

as match and rebate elasticities). For this part of the analysis we focus only on scenarios A1 – B2 which change *either* the match *or* the rebate but not both.

We assume that the n^{th} total contribution for individual i (g_{in}) depends on the price of giving, which depends on the scenario as before, and an individual-specific effect capturing both observed and unobserved characteristics of the individual. β is the price elasticity of total contributions, but we allow donors to give a different relative weight to the match rate (compared to the rebate), i.e.:

$$g_{in} = \phi_i P_s^{\alpha} + u_{in} = \phi_i \left(\frac{1 - r_s}{(1 + m_s)^{\gamma}} \right)^{\beta} + u_{in} \qquad (4)$$

Taking logs and re-writing:

$$\ln g_{in} = \beta_0 + \beta_r \ln(1 - r_s) - \beta_m \ln(1 + m_s) + v_{in} \qquad (5)$$

where β_r (corresponding to β in equation 4) captures the elasticity of total contributions with respect to changes in the price through changes in the rebate, while β_m (equal to $\beta\gamma$) captures the same thing for changes in the match. Following the literature, we describe these as the rebate and match elasticities. As before, the error term is decomposed into a constant, individual-specific effect and a donation-specific random error term; we estimate equation (5) using a random effects estimator. Because we focus only on scenarios A1 – B2 our sample is smaller than before, with 1,736 donations.

The basic results for the full sample of respondents presented with scenarios A1 through B2 are reported in Table 2, panel a. The magnitudes of the estimated elasticities, -1.20 in the case of the match and -0.31 in the case of the rebate, are very similar to those from Eckel and Grossman's experimental studies, -1.14 – -1.05 for the match and -.36 – -.11 for the rebate.

Our results therefore provide corroborating evidence that the asymmetry of responses holds with respect to match and rebate subsidies in the tax system.

In addition, we can exploit additional information on the donors collected as part of the survey to explore potential explanations for why the responses are different. This is the focus of the rest of this section.

5.1 Reclaimers versus non-reclaimers

One possible explanation for why total contributions are more responsive to the match than to the rebate may be because of the additional processing cost for the donor associated with reclaiming the rebate. We explore this by comparing responses among reclaimers and non-reclaimers. We did not directly ask whether changes in the rebate affected the decision to reclaim; we therefore split the sample by whether people currently reclaim or not. This is imperfect in that changes in the match/ rebate may affect the decision to reclaim but current reclaim status provides an indication of whether or not changes in the rebate are more or less relevant to donors.

We find that the presence of many non-reclaimers cannot account for the higher match elasticity. As shown in Table 2, the estimated rebate elasticity among reclaimers is higher than that among non-reclaimers, as would be expected (-.52 compared to -.07). However, among reclaimers, the estimated match elasticity is still significantly higher than the rebate elasticity. This is suggestive evidence that the fact that many donors do not reclaim the rebate is not the explanation for the difference in match and rebate elasticities.

5.2 Level of understanding

Here, we analyse the responses separately for donors according to their likely level of understanding of tax incentives. We focus only on reclaimers since there may be some correlation between level of understanding and reclaim status. We assess the level of understanding on the basis of their response to a question about how much the match is worth to charities. Respondents are told that the charity can reclaim basic-rate tax and asked to say how much the charity gets for each £1 donated out of net-of-tax income (choosing one out of a set of possible responses). If they respond correctly, we define them as having a good level of understanding. If they do not choose the correct answer, we define them as having a poor level of understanding. We find some difference between those with "good" and "poor" understanding" – those with a good understanding are more responsive to changes in both match and rebate. Nevertheless, we find that the match elasticity is significantly higher than the rebate elasticity for both groups. This confirms the earlier findings from Davis et al (2005) that misunderstanding of the subsidies does not appear to be a plausible candidate explanation.

5.3 Size of contributions

Table 2 also shows elasticity estimates by quartile of contributions. Again we focus only on reclaimers since the decision to reclaim is linked to size of donation (see Scharf and Smith, 2009). We find that total contributions from donors in the top quartile are more sensitive to changes in the rebate than total contributions from smaller donors, but the significant difference in responsiveness of total contributions to match and rebate persists among all groups.

5.4 Adjusters/non-adjusters

Non-adjustment of checkbook donations to changes in the match/rebate is potentially important for understanding why total contributions are more responsive to the match than to the rebate. This is because of the way that non-adjustment differentially impacts on total contributions in the two cases. If consumers do not adjust their checkbook donation in response to a change in the rebate, there is no effect on the total contribution – the rebate elasticity is therefore equal to zero. If donors do not adjust their checkbook donation when the match changes, however, their total contributions automatically adjust by the full amount of the match change – the match elasticity is therefore equal to -1.

Table 2 shows estimates of match and rebate elasticities separately for adjusters (i.e. donors who adjust to at least one of the two scenarios). For this group, total contributions are much more responsive to changes in the rebate compared to the rest of the sample. While the match elasticity is still higher than the rebate elasticity, the difference is no longer statistically significant. This suggests that non-adjustment is a big part of the explanation for why total contributions respond more to changes in the match than to changes in the rebate.

Davis et al (2005) provide an explanation that donors ignore match and rebate changes altogether and focus only on checkbook donations because the incentives are too complex. However, this does not explain why some donors do adjust. We propose a slightly different interpretation as follows. Suppose that donors do not simply ignore match and rebate changes but instead do care about their total contribution but (rationally) choose to respond to match and rebate changes and adjust their checkbook donations only when the benefits from doing so are greater than the costs. There may be some small effort costs involved in processing changes in tax relief and in adjusting checkbook donations. The cost of not adjusting is that donors' total contributions are further away from the optimal level. Chetty, Looney and Kroft (2009) have shown that even small processing or adjustment costs can result in non-

adjustment since such utility costs from failing to process tax changes are second order. Donors would be more likely to adjust when the utility costs are higher.

We describe this as "rational inattention" to distinguish it from the isolation effect. We present two pieces of evidence in support of this explanation. First, we show in Figure 1 that the probability of adjusting is increasing in the size of contributions. This would be the case if, as seems likely, the utility costs of non-adjustment were relative to the size of contribution while the processing costs were either constant or increasing more slowly relative to contributions. Second, Figure 1 also shows that the probability of adjusting is consistently higher in the case of changes to the rebate than in the case of changes to the match. The explanation for this could plausibly be that, for a change in the match, total contributions automatically adjust, while, for a change in the rebate, the donor has to adjust the checkbook donation for total contributions to change. Assuming a greater utility cost associated with total contributions remaining constant compared to adjusting in line with a price change, a donor will be more likely to make a change to their checkbook donation in response to a change in the rebate compared to a change in the match.

<< Figure 1 near here >>

Of course, as discussed earlier, there are other possible explanations in the literature on giving for why donors might not adjust their checkbook donation. One possibility is that donors care only about checkbook donations because they want to signal their wealth or generosity (Glazer and Konrad, 1996; Harbaugh, 1998). In this case, checkbook donations would respond more to a change in the rebate (which changes the price of such a signal) than to a change in the match (which does not). In practice, as shown in Table 1, we cannot reject that the elasticity of checkbook donations with respect to the match is the same as the

elasticity with respect to the rebate. Explanations which assume that donors care only about checkbook donations are less consistent with the observed patterns in the data than our rational inattention story in which donors care about the total contribution but do not always adjust their checkbook donation because of processing and adjustment costs.

6. Summary and discussion

This paper provides new evidence on the asymmetry in the response of total contributions to match and rebate incentives. Specifically, we have shown that total contributions respond more to changes in the match rate than to changes in the rebate rate. While this asymmetry had previously been demonstrated in lab and field experiments; the survey evidence presented here shows that it also holds for a sample of taxpaying donors when these subsidies are offered through a real-world tax system which contain both match and rebate elements.

It is worth commenting on how our findings relate to the earlier experimental studies. These demonstrated two things – that offering a match would generate a higher level of total contributions than an equivalent-value rebate and also that total contributions were more responsive to changes in the match than to changes in the rebate. Our study focuses on the second of these two. However, we also present results showing that withdrawing the rebate altogether and replacing it with a lower value increase in the match can increase total contributions.

Looking at what might explain the asymmetry of responses, we have shown that non-adjustment of checkbook donations to changes in the match and rebate is an important factor. We have also argued that the pattern of non-adjustment is consistent with donors optimally choosing whether or not to adjust, depending on the costs and benefits. This paper therefore makes an additional contribution to the growing literature on the behavioural economics of

tax policy which emphasizes the processes through which consumers respond to tax changes, discussed recently in Congdon, Kling and Mullainathan (2009). Our findings are consistent with recent studies by Chetty, Looney and Kroft (2009) and Finkelstein (2009) that have emphasized that consumers may not fully optimize with respect to tax-inclusive prices. In these studies, this failure is attributable to taxes being "shrouded" or hidden attributes. Here we suggest that consumers may fail to adjust even when taxes are visible because of costs of processing/adjusting to tax changes.

The findings presented here – together with the findings from earlier studies – have clear policy implications. The asymmetry of responses strongly suggests that match-style tax incentives are likely to be more (cost-) effective than rebate-style incentives if the objective is to increase total contributions. However, it is worth noting a couple of additional relevant considerations. One relates to the issue of compliance. In practice, tax incentives on donations are potentially subject to both under-claiming (as observed among the estimated 65 per cent of higher-rate donors who do not reclaim) and over-claiming. This issue is discussed in Blumenthal et al (2012) who find that match incentives are associated with greater tax compliance than rebate incentives. This additional asymmetry in compliance will also affect the relative cost-effectiveness of the two types of subsidy. The second consideration relates to the potential long-term effects of changing match and rebate rates. These may differ to the short-term responses captured by the existing set of studies, not least because the processing/adjustment costs may change in the longer term.

"Rational inattention" also has a number of other implications for policy. The evidence shows that contributions from larger donors are more sensitive to changes in tax incentives than contributions from smaller donors hence targeting incentives on this group is likely to be more cost-effective. Bigger changes in tax rates are also likely to have relatively more

impact. Relevant to this, the UK government announced a £50,000 cap on tax relief for donations in the most recent UK Budget in March 2012. This would withdraw tax relief for donations in excess of £200,000 a year, which would be precisely the group that would be likely to be more responsive to tax incentives (in our survey the rebate elasticity among donors giving more than £100,000 a year was more than one in absolute value). Two months later, after a fierce debate, the proposal was dropped.

Acknowledgements

We would like to thank Charities Aid Foundation and Justgiving who allowed us to survey their donors. We have received helpful comments and suggestions from the editor and two anonymous referees, Jim Andreoni, Chris Woodruff, Abigail Payne, Rob Sauer, HMRC economists and seminar participants at Oxford University and the Institute for Fiscal Studies. All remaining errors are our own.

References

Andreoni, J., 1990. "Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving," *The Economic Journal*, 100: 464-477.

Baija, J. and Heim, B. 2011 "How Does Charitable Giving Respond to Incentives and Income: New Estimates from Panel Data," *National Tax Journal* 64: 615-650.

Blumenthal, M., Kalambokidis, L. and Turk, A. (2012). "Subsidizing Charitable Contributions with a Match Instead of a Deduction: What Happens to Donations and Compliance?" *National Tax Journal* 65: 91-116.

Chetty, R., A. Looney and K. Kroft. 2009. "Salience and Taxation: Theory and Evidence," *American Economic Review* 99: 1145-1177.

Congdon, W., Kling, J. And Mullainathan, S. 2009. "Behavioral Economics and Tax Policy," *National Tax Journal* 62: 375-386.

Diamond, P., and J. Hausman. 1994. "Contingent Valuation: Is Some Number Better Than No Number?" *Journal of Economic Perspectives* 8: 45-64.

Davis, D., Millner, E. and R. Reilly. 2005. "Rebates and Matches and Consumer Behaviour," *Southern Economic Journal* 72: 410-421.

Eckel, C., and P. Grossman. 2003. "Rebate Versus Matching? Does how we Subsidize Charitable Contributions Matter?" *Journal of Public Economics* 87: 681--701.

Eckel, C., and P. Grossman. 2008. "Subsidizing Charitable Contributions: A Natural Field Experiment Comparing Matching and Rebate Subsidies,"' *Experimental Economics* 11: 234-252.

Finkelstein, A. 2009. "EZ-Tax: Tax Salience and Tax Rates," *Quarterly Journal of Economics* 124: 969-1010.

Glazer, Amihai and Kai Konrad (1996). "A Signaling Explanation for Charity," *American Economic Review* 86: 1019–28.

Halvorsen, R. and Palmquist, R. (1980) "The interpretation of dummy variables in semilogarithmic equations" *American Economic Review* 70(3) pp. 474-475

Harbaugh, William (1998). "The Prestige Motive for Making Charitable Transfers," *American Economic Review, Papers and Proceedings* 88: 277–82.

Harrison, G., and E. Rutsrom. 2006. "Hypothetical Bias Over Uncertain Outcomes," in List, J. (ed.) Using Experimental Methods in Environmental and Resource Economics, Elgar: Northampton, MA.

Huck, S. and Rasul, I. 2012. "Matched Fundraising: Evidence from a Natural Field Experiment," *Journal of Public Economics* 95: 351 – 362.

Johansson-Stenman, O and Svedsäter, H, 2008. "Measuring Hypothetical Bias in Choice Experiments: The Importance of Cognitive Consistency," *The B.E. Journal of Economic Analysis & Policy* 8, Article 41.

Karlan, D. And List, J. 2007. "Does price matter in charitable giving? Evidence from a large-scale natural field experiment," *American Economic Review* 97: 1774-1793.

Krueger, A. and Kuziemko, I. 2011. "The Demand for Health Insurance Among Uninsured Americans: Results of a Survey Experiment and Implications for Policy" NBER working paper 16978.

Lukas, I., Grossman, P. And Eckel, C. 2010. "Preference or Confusion: Understanding the Differential Impact of Rebate and Matching Subsidies," Working Paper. Indiana University, Indianapolis, IN.

Roberts, R. 1987. "Financing Public Goods," *Journal of Political Economy* 95: 420-437.

Table 1: The effect of alternative tax treatments

				Regression results: Dependent variable = total contribution (ln g_i)				Regression results: Dependent variable = checkbook donation (ln di)				
Treatment		Price	N	Coeff	SE	Implied elasticity [confidence intervals]		Coeff	SE	Implied elasticity [confidence intervals]		Proportion adjusting d
Baseline	M = £0.25; R = £0.25	0.600	1,442									
A1	M = £0.30; R = £0.25	0.577	288	0.054 *	(0.006)	-1.45	[-1.78, -1.12]	0.015 *	(0.006)	-0.39	[-0.71, -0.07]	0.108
A2	M = £0.25; R = £0.30	0.560	284	0.033 *	(0.006)	-0.50	[-0.69, -0.32]	0.033 *	(0.006)	-0.50	[-0.69, -0.32]	0.243
B1	M = £0.20; R = £0.25	0.625	290	-0.041 *	(0.006)	-0.97	[-1.24, -0.69]	-0.000	(0.006)	-0.01	[-0.29, 0.28]	0.069
B2	M = £0.25; R = £0.20	0.640	291	-0.008	(0.006)	-0.12	[-0.30, 0.06]	-0.008	(0.006)	-0.12	[-0.30, 0.06]	0.144
E1	M = £0.66; R = 0	0.600	274	0.274 *	(0.006)	--	--	-0.014 *	(0.006)	--	--	0.215
C1, E2	M = £0.50; R = 0	0.667	554	0.172 *	(0.004)	1.69	[1.60, 1.78]	-0.009 *	(0.004)	-0.09	[-0.16, -0.01]	0.206
D2	M = £0.37; R = 0	0.730	281	0.068 *	(0.006)	0.33	[0.27, 0.38]	-0.024 *	(0.006)	-0.11	[-0.16, -0.06]	0.228
C2, D1	M = £0.30; R = 0	0.769	562	0.009 *	(0.004)	0.03	[0.00, 0.06]	-0.030 *	(0.004)	-0.11	[-0.13, -0.08]	0.171

Note to table: The total contribution refers to the total amount of funding received by the charity (including the value of the match). The checkbook donation refers to the amount given out of net-of-tax income, without taking account of the match and before the donors has reclaimed any rebate. N = 4,266 (three observed contributions for each of 1,442 higher-rate donors). Regressions estimated using random effects. *p < 0.05

Table 2: Elasticity estimates

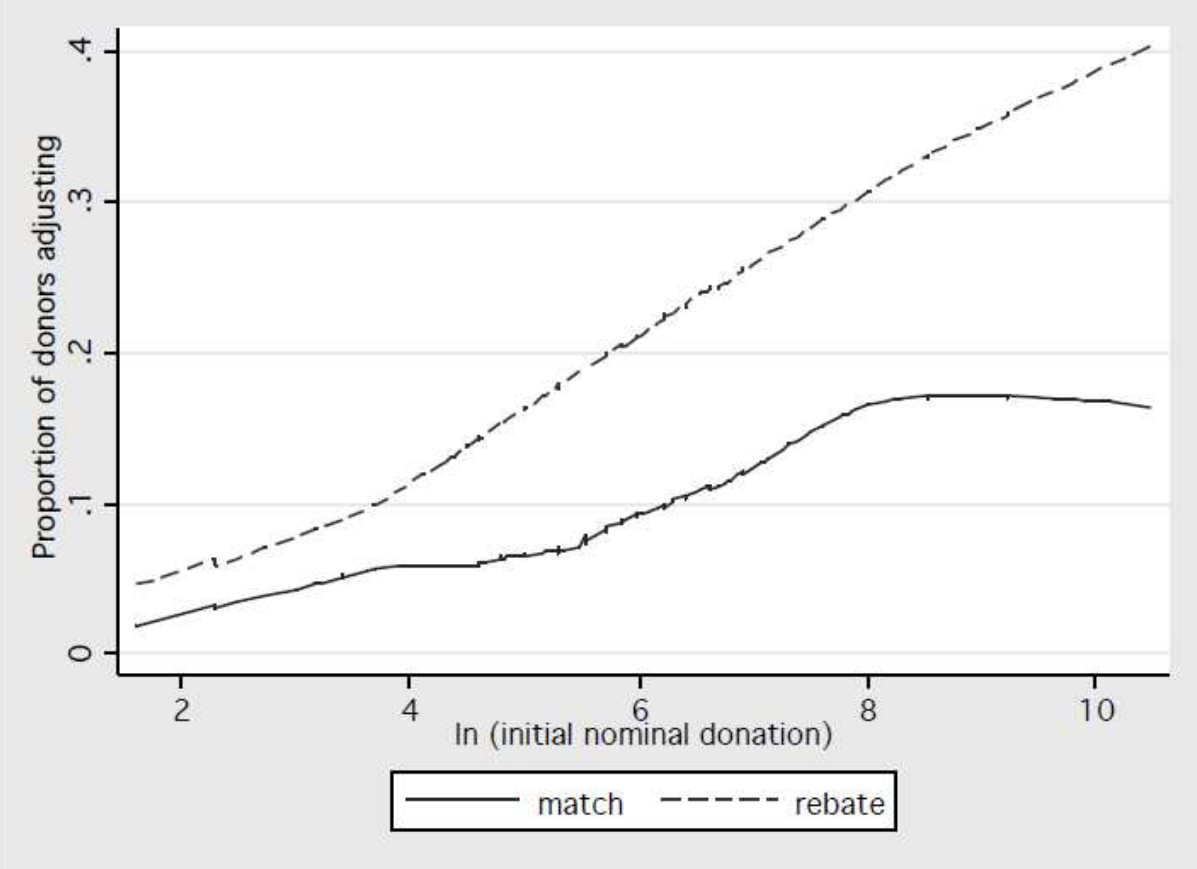
	Estimated match elasticity	Estimated rebate elasticity	P-value	N
All higher-rate taxpayers	-1.195 (*.089*)	-.314 (*.053*)	.0000	1737
Whether or not individual reclaims higher-rate rebate				
Reclaimers	-1.338 (*.122*)	-.516 (*.091*)	.0000	951
Non-reclaimers	-.1.023 (*.091*)	-.071 (*.054*)	.0000	786
Level of understanding (higher-rate reclaimers)				
"Good"	-1.458 (*.161*)	-.590 (*.097*)	.0000	639
"Poor"	-1.095 (*.170*)	-.366 (*.102*)	.0000	315
Size of donations (higher-rate reclaimers)				
Quartile 1: £332	-1.363 (*.251*)	-.612 (*.132*)	.0006	238
Quartile 2: £1,056	-1.245 (*.253*)	-.371 (*.152*)	.0001	238
Quartile 3: £2,946	-1.205 (*.180*)	-.396 (*.110*)	.0000	238
Quartile 4: £20,170	-1.473 (*.202*)	-.754 (*.123*)	.0044	237
Whether or not donor adjusts checkbook donations (higher rate reclaimers)				
Adjusters	-2.133 (*.374*)	-1.735 (*.224*)	.225	282

Notes: Each line represents a separate regression on a different sub-sample of donors. Standard errors are given in parentheses, The p-value is for the test that the match and rebate elasticity are equal.

Figure 1

Proportion of donors adjusting checkbook donation

(Response to change in *either* the match *or* the rebate, but not both)



Appendix A1

Summary Statistics

	Higher-rate taxpayers: Non-reclaimers	Higher-rate taxpayers: Reclaimers
Total donations – last 12 months	£1037	£5121
Donations through Gift Aid – last 12 months	£514	£3842
Female	0.38	0.20
Aged < 35	0.28	0.07
Aged 35-44	0.31	0.17
Aged 45-54	0.26	0.34
Aged 55-64	0.12	0.24
Aged 65-74	0.02	0.12
Aged 75+	0.00	0.06
Individual income < £30K	0.00	0.00
Individual income £30K - £40K	0.00	0.00
Individual income £40K - £75K	0.62	0.42
Individual income £75K - £100K	0.13	0.14
Individual income £100K - £200K	0.13	0.23
Individual income > £200K	0.04	0.09
Employed full-time	0.87	0.60
Employed part-time	0.02	0.05
Self-employed	0.07	0.13
Retired	0.03	0.19
Other non-working	0.01	0.02
Highest qualification – degree	0.45	0.40
Highest qualification – higher degree	0.35	0.42
Married	0.60	0.80
Cohabiting	0.15	0.05
Single	0.18	0.09
Widowed	0.02	0.02
Divorced	0.04	0.03
Separated	0.01	0.01
Ever had children	0.54	0.77
Understands tax incentives	0.46	0.64
Regular giver	0.40	0.35
Ever worked as a volunteer	0.62	0.66
Ever worked for a charity	0.10	0.10
Sample size	633	809

Appendix A2: Presentation of the Scenarios

Initial donation

How likely are you to make any Gift Aid donations to a charity within the next six months? This could be a one-off donation or a regular donation set up as a standing order or direct debit.

- Certain
- Very likely
- Fairly likely
- Not very likely
- Not at all likely
- Don't know

IF 'Certain' or 'Very likely' or 'Fairly likely'

And how much do you think that you are likely to give (to the nearest pound)? If the donation you are thinking about is a regular direct debit or standing order, please give the total of that donation for a six month period.

Introduction to scenarios

The Gift Aid scheme allows charities to reclaim the basic rate income tax on your donation and allows higher rate taxpayers to claim back higher rate tax relief. You are now going to be presented with two hypothetical changes to the Gift Aid scheme – either to the amount that the charity can reclaim and/or to the amount that higher rate taxpayers can claim back. In each case you will be asked to consider whether the amount of money that you are likely to give to charity would be affected by the proposed changes.

Example

Through the Gift Aid scheme, the charity you are donating to reclaims the basic rate income tax on your donation. This is worth 25 pence for every £1 you donate.

Suppose instead that the charity received 30 pence for every £1 you donate. (Assume that the amount of higher rate relief that you can claim back is unchanged).

Thinking about your donation of [£X] would this change affect the amount you are likely to give? SINGLE CODE ONLY

- Yes - I would give more than [£X]
- Yes - I would give less than [£X]

- No - I would give the same amount
- Don’t know

IF yes, how much would you be likely to give (to the nearest pound)?

- (write in)
- Don’t know

IF ‘don’t know’, which of these comes closest to what you think you might increase/ reduce your donation by?

- By 10% or less?
- By more than 10%?
- Don’t know

If more than 10%, Would you increase/ reduce your donation by 25% or more?

- Yes
- No
- Don’t know

If yes, Would you increase/ reduce your donation by 50% or more?

- Yes
- No
- Don’t know

Scenario 1

Through the Gift Aid scheme, the charity you are donating to reclaims the basic rate income tax on your donation. This is worth 25 pence for every £1 you donate. As a higher rate taxpayer you can also claim back higher rate relief, worth an additional 25 pence for every £1 you donate. This means that it "costs" a higher rate taxpayer 75 pence for the charity to receive £1.25.

Suppose instead that the charity received 30 pence for every £1 you donate, but that you could no longer claim back any additional higher rate relief.

Thinking about your donation of £60 would this change affect the amount you are likely to give?

Please choose one answer.

- Yes - I would give more than £60
- Yes - I would give less than £60
- No - I would give the same amount
- Don't know

next

Appendix A3

These tables summarize p-values for testing the equality of the coefficients associated with different scenarios (equation (3)). We include binary indicators for all ten scenarios, allowing us to test for embedding effects. Specifically, the embedding effects tests are C1 = E2 (p = 0.715) and C2 = D1 (p = 0.593) .

Dependent variable = ln (total contributions)

	A2 M25R30	B1 M20R25	B2 M25R20	C1 M50R0	C2 M30R0	D1 M30R0	D2 M37R0	E1 M66R0	E2 M50R0
A1 M30R25	.000	.000	.000	.000	.000	.000	.000	.000	.000
A2 M25R30		.000	.000	.000	.003	.016	.081	.000	.000
B1 M20R25			.000	.000	.000	.000	.000	.000	.000
B2 M25R20				.000	.000	.075	.020	.000	.000
C1 M50R0					.000	.000	.000	.000	.715
C2 M30R0						.593	.000	.000	.000
D1 M30R0							.000	.000	.000
D2 M37R0								.000	.000
E1 M66R0									.000

Dependent variable = ln (checkbook donations)

	M25R30	M20R25	M25R20	M50R0	M30R0	M30R0	M37R0	M66R0	M50R0
M30R25	.003	.079	.008	.006	.000	.000	.000	.001	.002
M25R30		.000	.000	.000	.000	.000	.000	.000	.000
M20R25			.197	.307	.000	.002	.011	.093	.169
M25R20				.910	.007	.029	.107	.434	.632
M50R0					.000	.039	.137	.505	.715
M30R0						.593	.272	.057	.028
M30R0							.423	.169	.095
M37R0								.417	.218
M66R0									.677