

The use of third-party information reporting for tax deductions: evidence and implications from charitable deductions in Denmark

By Christian Gillitzer^a and Peer Ebbesen Skov^b

Abstract

We show that the introduction of information reporting for charitable tax deductions in Denmark in 2008 was associated with a doubling in the number of deductions claimed, and a 15% rise in the total value of claims, which can be credibly attributed to previously unclaimed deductions. This contradicts the presumption that evasion is the main source of non-compliance for deductions, and that the use of information reporting raises revenue collections. A pre-reform randomised audit experiment did not detect the unclaimed deductions, implying audits overstate evasion relative to extensive-margin underreporting. Various tests suggest that compliance cost, passive choice and overwithholding suppressed self-reporting of deductions.

JEL Codes: D64, H24, H26

^aSchool of Economics, The University of Sydney, Sydney, Australia; e-mail: christian.gillitzer@sydney.edu.au.

^bSchool of Economics, Auckland University of Technology, Auckland, New Zealand; e-mail: pskov@aut.ac.nz.

1 Introduction

Tax authorities in developed economies make extensive use of third-party information reports for several types of income, such as wage and salary, dividend and interest income. Information reports are used by tax authorities to verify taxpayers' reported income, and in some countries to pre-populate (pre-fill) tax returns on behalf of taxpayers (see OECD 2006 for a survey). Recently, a number of Scandinavian countries have introduced information reporting and pre-population for tax return *deduction* line items.

This paper provides the first study on the use of third-party information reporting for a tax return deduction line item. We study the introduction in Denmark in 2008 of information reporting for tax-deductible charitable contributions. Prior to 2008, charitable deductions were self-reported and subject to verification only upon an audit. Under the current system, charitable organisations report contributions received from each taxpayer directly to Denmark's tax authority, SKAT. These information reports are used by SKAT to pre-populate charitable deductions on taxpayers' annual declarations.

For tax return sources of income line items, information reporting has been shown to dramatically reduce evasion opportunities, and so raise revenue collections (Slemrod, 2007; Kleven et al., 2011). Conventional wisdom suggests that the introduction of information reporting for a deduction line item would have a similar effect.¹ Audit rates are generally low, making modest overclaiming of deductions a favourable evasion gamble for taxpayers in the absence of information reporting. IRS tax gap estimates, which are some of the most careful and comprehensive estimates anywhere in the world (Slemrod, 2007), indicate net misreporting (overreporting less underreporting) for tax deductions of US\$13.5 billion, exceeding the revenue shortfall for wage and salary income, for which there is extensive use of information reporting (IRS 2007).

Contrary to expectations, the introduction of information reporting for charitable deduc-

¹Charities have no incentive to overstate information reports. Furthermore, sustaining collusion between many charities and taxpayers to evade taxes is highly unlikely.

tion in Denmark was associated with an immediate doubling in the *number* of taxpayers claiming a charitable deduction; there was also a 15% rise in the total value of deductions claimed. Administrative reports made by charities to SKAT show no meaningful change in extensive-margin giving behaviour coinciding with the introduction of information reporting, allowing us to rule out the possibility that the reform coincided with or caused a surge in actual giving behaviour. We show that the surge in the number of deductions claimed can be credibly attributed to unclaimed deductions under the prior self-reporting regime.

We estimate the average annual value of forgone tax benefits to have been around DKK370 (US\$59).² There was little change pre- and post-reform in the number of high-value tax deductions claimed, suggesting that few taxpayers left large sums of money on the table in any given year. Together, these findings indicate that optimisation frictions affecting the claiming of self-reported tax deductions are modest, but widespread.³ Although the annual value of forgone benefits was typically modest, many taxpayers appear to have repeatedly failed to claim eligible charitable tax deductions. More than two-thirds of the taxpayers who had a deduction in 2008 under the information reporting regime, but who did not claim a deduction in either 2006 or 2007 under the self-reporting regime, claimed a deduction in each of the years 2009-2011. Repeated failure to claim eligible deductions may reflect per year fixed compliance costs, but is also consistent with taxpayers being slow to learn about tax incentives.

Using data from a pre-reform large-scale randomised audit experiment in Denmark, we document that there was negligible overreporting of charitable tax deductions under the self-reporting regime. This is an exception to the main findings of Kleven et al. (2011), who show that evasion in Denmark is substantial for tax return sources of income line items subject to little or no information reporting.⁴ There is good reason to trust the accuracy of these audits in identifying overclaiming of charitable deductions because, unlike self-reported

²DKK1 is approximately US\$0.16.

³Examining a policy experiment in Finland in the 1990s, Kotakorpi and Laamanen (2016) argue that unclaimed deductions may be particularly prevalent when many sources of income line items are pre-filled for taxpayers.

⁴The evasion rate was 37% for total self-reported net income, but only 0.3% for third-party reported income.

sources of income, the burden of proof falls on the taxpayer. However, the missing tax deductions were not detected by the pre-reform randomised audit experiment. Auditors did not purposely conceal eligible deductions from taxpayers, but neither did they systematically probe taxpayers about nil reports for deduction items. Audit effort is allocated to sources of abuse resulting in lost revenue, making audits unsuited to detecting extensive-margin underreporting. A key implication of our finding is that researchers using audit results to measure compliance are likely to overstate the importance of evasion relative to extensive-margin underreporting for self-reported deductions.

Our results demonstrate an important asymmetry in the effect of information reporting and pre-population for tax return sources of income and deduction line items. For sources of income line items, wilful understatement is the primary concern; the use of information reporting eliminates evasion and raises revenue. But for deduction line items, noncompliance takes the form of both deliberate evasion and unclaimed deductions; the use of information reporting eliminates evasion, raising revenue collected, but pre-population of deductions results in tax expenditures on deductions that would otherwise go unclaimed. For charitable deductions in Denmark, the net effect of introducing information reporting was a loss in revenue. This loss of revenue could in principle be partly offset by no longer having to audit the charitable deduction line item, but any saving is likely to have been small because the audit probability was low and evasion was minimal.⁵ The presumption that evasion is the primary source of noncompliance for deductions is based on audit results, which we show are unsuited to detecting missing deductions.

In the second part of the paper we use the reform to probe the anatomy of frictions that cause some taxpayers to not claim eligible deductions. Using a range of tests, we provide evidence that awareness of incentives, loss aversion and default behaviour were drivers of reporting behaviour under the self-reporting regime. We also provide evidence that record-keeping costs can explain only a small share of the missing charitable deductions.

⁵The charitable deduction is also straightforward to audit because the burden of proof for claimed deductions falls on the taxpayer. This reduces auditor time and cost to the tax authority.

In what follows, Section 2 provides background information on relevant aspects of Denmark’s tax system, Section 3 discusses the change in reporting behaviour when information reporting was introduced in 2008, and Section 4 analyses data from the pre-reform randomised audit experiment. Section 5 presents evidence indicating that there was no significant change in charitable giving—as opposed to reporting of charitable gifts—around the time of the policy change. We switch focus in Section 6 and provide a range of tests to investigate the anatomy of the frictions affecting the claiming of tax deductions. Section 7 relates our findings to the existing literature and Section 8 concludes our analysis.

2 Background

Denmark’s individual income tax system is similar to those in many other European countries. It features broad use of information reporting, with SKAT preparing pre-populated (pre-filled) returns that are mailed to taxpayers each year in mid-March. Taxpayers have until May 1 to amend their pre-populated return to reflect sources of income and deductions not subject to information reports.⁶

All taxpayers file as individuals and the subsidy rate for tax deductible charitable contributions is equal to one-third, subject to slight variation by region of residence. Notably, the subsidy rate does not depend on a taxpayer’s marginal tax rate. Assuming married couples live in the same tax region, this means that there is no tax advantage gained from shifting the claiming of charitable deductions between husband and wife depending on who faces the higher marginal tax rate. Because there is no difference in tax treatment of charitable deductions between singles and couples, our unit of analysis is individual taxpayers.

According to government documents, the principal stated motivation for the introduction of information reporting was a desire to limit perceived abuse of charitable deductions and to lower taxpayer compliance costs.⁷ Partly offsetting this, the reporting burden is greater for

⁶All income-tax-liable people in Denmark are required to file a tax return, which is approximately 88% of the population. The bulk of those not required to file are children under the age of 16.

⁷Available (in Danish) at: www.ft.dk/samling/20061/lovforslag/L85/index.htm. Accessed 31 October 2017

charities under the information reporting regime. However, charities are likely to have lower average compliance costs than individual taxpayers (e.g. because of economies of scale in reporting) so overall compliance costs are likely to have fallen. The tax authority appears to have been aware that pre-population would lead to some taxpayers receiving tax benefits they previously neglected to claim, but no increase in charitable tax expenditures was expected.⁸ Despite the loss of revenue, ensuring taxpayers receive the tax benefits they are entitled to could be viewed to be desirable on fairness considerations.

There are two types of charitable deductions: regular gifts, which make up the bulk of charitable contributions, and long-term giving contracts with a minimum 10-year length.⁹ Information reporting for both types of gifts was introduced in 2008. Because we do not observe each category of donation separately before 2008, we group regular and long-term gifts together to form one consistent series for charitable giving. For both these categories of gifts, only cash contributions are eligible for a deduction.

For regular gifts, there was a somewhat complicated eligibility requirement before 2012. Only total annual gifts to each eligible charity of DKK500 or more qualified for tax deductibility, and in calculating the total tax deduction for each taxpayer the first DKK500 in gifts was excluded. Throughout the paper we refer to the value of charitable tax deductions eligible for a subsidy. For example, for a taxpayer who donated DKK1,000 to charity we would report the tax deductible value DKK500 (i.e., exclusive of the DKK500 exemption limit). The only exceptions are in Sections 5 and 6.2, which we make clear in those sections. Deductions are capped, and thus so is the maximum value of charitable tax benefits.¹⁰

In the next section, we discuss the main effects of the reform on reporting behaviour.

⁸There was little change in the number of charities reporting charitable gifts in the years before and after the 2008 policy change.

⁹A third category was introduced in 2008 for gifts to cultural and research organisations. Because this type of gift was not tax deductible before 2008, we exclude this category from our analysis entirely. In 2008, there were only 11 cultural and research organisation gifts made.

¹⁰The maximum value of regular deductions eligible for tax deductibility has increased over time: from 1997-2004 the cap was DKK5,000, but the cap was lifted to DKK6,400 in 2005, and to DKK6,600 in 2006; in 2007 the upper threshold more than doubled to DKK13,600, and has increased modestly since, to DKK14,000 in 2008, and to its current DKK14,500 level in 2011.

3 The effect of information reporting

3.1 Descriptive analysis

Figure 1a reports the number and average size of charitable tax deductions reported over the period 1997-2011.¹¹ As foreshadowed in Section 1, the introduction of information reporting in 2008 coincided with a near doubling in the number of taxpayers receiving a charitable tax deduction: 150,311 taxpayers reported a charitable tax deduction in 2007 under the self-reporting regime, compared to 300,122 taxpayers in 2008, the first year of the information reporting regime. There was an accompanying 15.3% rise in the value of tax deductions claimed between 2007 and 2008. The new claims were mostly small in value, resulting in a sharp fall in the mean value of tax deductions claimed, from DKK4,671 to DKK2,697.

Figure 1a indicates that the mean value of contributions was higher in the year before the reform than in earlier years. This change can be mostly explained by a relaxation in the upper threshold for eligible regular gifts: in 2007 taxpayers were permitted to deduct up to DKK13,600 in regular charitable tax deductions, compared to only DKK6,600 in 2006.¹² There was a further modest rise in the upper eligibility threshold for regular tax deductions in 2008, but this does not meaningfully affect our analysis. The bulk of the increases in tax deductions due to the policy reform were small in value, so our focus is on the lower tail of the distribution of claims that was unaffected by changes to the upper eligibility threshold.

Figure 1b reports changes in the number of deductions claimed by size of deduction. Note that claim size is the tax deductible amount on individual tax returns, not the total value of contributions, which is larger because of the exemption limits that existed before 2012. For example, a taxpayer who gave a total of DKK600 to one charity would qualify for a

¹¹Before 1997 charitable gifts were reported on the same tax return line item as a standard deduction available to fishermen, and a special childcare deduction. Since 1997 these deductions have been reported separately from charitable gifts.

¹²The number of taxpayers with total tax deductions greater than DKK10,000 rose by 6,344 between 2006 and 2007, and there was a corresponding 6,350 fall in the number of taxpayers with total tax deductions in the range DKK5,001-10,000.

tax deduction of DKK100 and be counted in the category DKK0-500 in Figure 1b. There was an almost ten-fold increase in the number of claims less than DKK500, and a more than doubling in the number of claims in the range DKK500-DKK1,500.¹³ In contrast, there was little change in the number of claims larger than DKK3,000. For the two years before and after the policy change, Figure 2 presents a finer picture for the distribution of claims less than DKK5,000. The surge in small claims in 2008 when information reporting was introduced is particularly evident here. Abstracting from the policy change, the distribution of claims is very stable. Figure 2 shows that the pre-reform 2006 and 2007 distribution of tax deductions claimed are almost identical, as are the post-reform 2008 and 2009 distributions. This makes us confident that the pronounced change in the left tail of the claim distribution between 2007 and 2008 is not explained by regular variation in the distribution of claims over time.

3.2 An estimate of the number and value of unclaimed deductions

Because the policy change affected all taxpayers at the same time we do not have a control group to precisely estimate the effect of the reform. However, the magnitude of the change in reporting behaviour pre- and post-reform is several orders of magnitude larger than the usual year-to-year variation in reporting (see Figures 1a and 1b).¹⁴ This suggests it is reasonable to get an approximate estimate of effect of the policy change using time-series variation in the number and value of charitable deductions claimed.

Equation (1) reports coefficient estimates for a time-series regression of annual growth in the number of charitable deductions claimed on a time trend and an indicator variable for the year of the policy change, δ_{2008} . The regression equation explains 93% of the variation in the data. The coefficient on the policy change indicator, δ_{2008} , indicates that the introduction of

¹³We have produced a version of Figure 1b that groups the donations of married couples together. The figure is qualitatively unchanged. This means that the surge in deductions following the introduction of information reporting cannot be explained by married couples choosing to report deductions jointly pre-reform but individually post-reform.

¹⁴We are unaware of any other policy changes occurring at the same time that could have been responsible for the surge in charitable deductions claimed in 2008.

information reporting was associated with a 0.63 log point, or approximately 88%, increase in the number of deductions claimed. This corresponds to a 132,000 increase in the number of deductions claimed between 2007 and 2008. Heteroskedasticity robust standard errors are reported in parentheses and the Durbin-Watson statistic, DW , indicates no significant first-order autocorrelation in the residuals.

$$\Delta \log (Number_t) = \underset{(0.031)}{0.026} + \underset{(0.003)}{0.003t} + \underset{(0.053)}{0.630\delta_{2008}} + \varepsilon_t \quad ; \quad R^2 = 0.93, DW = 1.81, N = 14 \quad (1)$$

Equation (2) reports analogous regression estimates where the dependent variable is annual growth in the value of charitable deductions claimed. The coefficient on the policy change indicator, δ_{2008} , indicates that the introduction of information reporting was associated with an approximately 7% increase in the value of deductions claimed, which is an increase of DKK48.9 million between 2007 and 2008.¹⁵

$$\Delta \log (Value_t) = \underset{(0.018)}{0.028} + \underset{(0.002)}{0.004t} + \underset{(0.031)}{0.067\delta_{2008}} + \varepsilon_t \quad ; \quad R^2 = 0.50, DW = 1.97, N = 14 \quad (2)$$

Dividing the estimated change in the value of deductions claimed by the estimated change in the number of deductions claimed yields an estimated mean value of unclaimed deductions equal to DKK370; this estimate has a standard error of DKK63.¹⁶

3.3 Frequency of unclaimed deductions

Interestingly, the bulk of the increase in charitable deductions claimed after 2008 appear to be associated with regular rather than occasional donors. Of the 152,898 taxpayers who claimed a charitable tax deduction in 2008 (under the information reporting regime) but not in 2006 or 2007 (under the self-reporting regime), 68% claimed a deduction in each subsequent year 2009-2011. The share claiming zero, one, and two further tax deductions between 2009 and 2011 was 13%, 9%, and 10%, respectively. This suggests that foregone tax benefits under the self-reporting regime were concentrated among regular donors who systematically did not

¹⁵The coefficients on δ_{2008} are essentially unchanged if a quadratic time trend is included in Equations (1) and (2). In neither equation is the quadratic term significantly different from zero.

¹⁶We jointly estimate Equations (1) and (2) using the STATA command `suest` and estimate the standard error of the ratio using the `nlcom` command.

claim eligible charitable deductions, rather than a larger group of donors who occasionally did not claim their eligible deductions.

3.4 Characteristics of taxpayers by claiming frequency

Table 1 provides a typology of taxpayers: ‘pre-reform only’ are taxpayers who claimed a charitable tax deduction only under the self-reporting regime; ‘post-reform only’ are taxpayers who claimed a charitable deduction only under the information reporting regime; ‘pre- and post’ are taxpayers who claimed a charitable tax deduction under both the self-reporting and information reporting regimes, and; ‘never’ are taxpayers who did not claim a charitable deduction in either period. Note that the groups are mutually exclusive, and sum to the set of taxpayers who submitted a tax return in each year 2006-2011. Compared to those claiming a charitable deduction in both the pre-reform and post-reform periods, post-reform claimers are younger, on average have lower incomes, are less likely to be tertiary educated, and less likely to be married; the share of females, the incidence of unemployment and the fraction living in Copenhagen are similar.

4 Audits and missing deductions

Prior to the introduction of information reporting for charitable tax deductions in 2008, a large-scale unannounced randomised audit experiment was conducted, and studied by Kleven et al. (2011). They detected negligible evasion for tax return line items subject to a high degree of information reporting, but substantial levels of evasion for tax return items subject to no or little information reporting, such as self-employment income. Because audit rates are low, and self-reported tax deductions are subject to verification only upon an audit, their findings imply overclaiming of charitable deductions was a favourable evasion gamble under the self-reporting regime. Counter to this logic, overreporting on both the intensive and extensive margin was low under the self-reporting regime.

The overall evasion rate for charitable contributions was small: of the 872 taxpayers in the audit sample who reported any charitable contribution, only 65 taxpayers (7%) were found

upon audit to have overclaimed charitable deductions (see Table 2), 43 (5%) on the intensive margin and 22 (2%) on the extensive margin. This evasion rate is trivial compared to the 37% evasion rate found by Kleven et al. (2011) for self-reported sources of income. For the 65 taxpayers (7%) in the audit sample who overclaimed, the mean value of excess charitable deductions reported was DKK2,447.

The most striking feature of the audits is their inability to detect the missing tax deductions identified by the introduction of information reporting. The audits detected 30 people (3%) to have underclaimed charitable deductions, 20 (2%) on the extensive margin and 10 (1%) on the intensive margin. We have used the introduction of information reporting to show that only around half of all eligible charitable deductions were self-reported. This implies that the audits should have identified around 800 missing deductions, far greater than the 20 missing deductions identified. For the 20 taxpayers (2%) with an unclaimed deduction, the mean value of the increase was DKK2,702. We have estimated an average value of missing deductions in the population to be about DKK370, indicating that the few instances of underclaiming the audits did identify were of above-average value.

If so many taxpayers neglected to claim their charitable tax deductions under the self-reporting regime, then why did the auditors in the Kleven et al. (2011) study detect such little underclaiming? We have ascertained from discussions with SKAT officials that auditors do not investigate line items for which no deductions are claimed.¹⁷ This is most probably a sensible audit policy rule for the tax authority, because the social value of finding unclaimed deductions for taxpayers is arguably less than the social cost of auditors' time. The only way in which the audit process could have resulted in a higher post-audit than pre-audit charitable deduction was if the audit process prompted the taxpayer to review their records and discover charitable deductions they had not reported. An important new finding is that audit results can provide an inaccurate estimate of missing tax deductions. This implies that audit results have a systematic bias to overstate the importance of evasion relative to

¹⁷We would like to thank Søren Pedersen for sharing this detail of SKAT's audit procedure with us.

extensive-margin underreporting.

5 Did information reporting increase donations?

To this point, we have not addressed the possibility that the policy change coincided with—or caused—a change in actual giving behaviour, rather than the reporting propensity. One possibility is that the introduction of information reporting reduced compliance costs, and so the effective cost of charitable giving, by enough to induce an increase in actual donations. To investigate this possibility, we make use of administrative reports received by SKAT from charities. These filings are required in order for charities to maintain their tax-favoured status, and contain information on the total value and number of donations received by each charity.

We restrict attention to the 25 largest charities, measured by the number of information reports received by SKAT over the period 2008-2011. These 25 charities together represent 78% of the information reports received from all charities. We do this to avoid our findings being influenced by some small charities that did not file reports in each year or reported implausibly large year-to-year variation.¹⁸ Unlike the information reports made since 2008, these filings contain aggregated information and so cannot be used to determine tax liability.

We first investigate whether there was any change in the number of donations reported by charities following the policy change. The line labeled ‘Tax Return Data’ in Figure 3a shows the number of information reports received (aggregated by charity for each taxpayer) from the top-25 charities for the period 2008-2011 (the information reporting period), and the line labeled ‘Charity Data’ in Figure 3a reports the number of charitable donors reported by these top-25 charities for the period 2001-2011. The number of donors reported by these charities exceeds the number of information reports received by SKAT from these organisations, most probably because some charitable donors do not provide their tax identification together

¹⁸Furthermore, religious organisations have special reporting status and are not required by law to report their number of donors on annual compliance filings. However, since 2008 they have made information reports to SKAT for each donor.

with their gift. For gifts less than DKK500 this is not surprising: they do not result in a tax deduction. A few other factors are likely to contribute to the divergence between these series: transfer of funds via cell phone SMS (short message service) has become widespread in Denmark for popular giving campaigns, for which donations appear in charity records, but not tax records; tin rattling and church day donations are collected without tax identification; and some taxpayers may prefer to give anonymously. Between 2007 and 2008, when information reporting was introduced, the number of charitable tax deductions claimed doubled, but, as Figure 3a shows, growth in the number of donations received by large charities was almost unchanged. This tells us that the surge in the number of tax deductions claimed in 2008 was largely due to a change in reporting behaviour on the extensive margin, rather than actual giving behaviour.

The charity annual reports have relatively low power to detect a change in giving behaviour on the intensive margin for small value tax deductions, but nonetheless we find no suggestion of a change in the trend value of donations collected before and after the policy change. Mirroring Figure 3a, the line labeled ‘Tax Return Data’ in Figure 3b shows the total value of charitable contributions reported on information reports sent to SKAT by the top-25 charities (with charity size measured by the number of donors, as above), and the line labeled ‘Charity Data’ shows the total value of donations collected by the top-25 charities for each year 2001-2011. Apart from the spike in donations in 2005 (see Figure 3b), most likely due to giving campaigns following the Indian Ocean tsunami in December 2004, growth in the total value of donations has been stable. The fraction of total donations reported to SKAT via information reports has also been stable over the information reporting period 2008-2011.

Supporting our claim that the reform did not affect giving behaviour, there was little difference in the growth rate of mean charitable deductions in the post-reform period between taxpayers who claimed a deduction in the pre-reform period and those who claimed for the first time in 2008. For the group of taxpayers who claimed a charitable tax deduction in 2008 (the first year of the reform), but not in either of 2006 or 2007 (the pre-reform period), growth

in mean contributions over the period 2008-2011 averaged 2.2%, only slightly more than the 0.8% average growth rate for the group of taxpayers who claimed a charitable deduction in 2008 and in at least one of the two pre-reform years 2006 or 2007.¹⁹

Having established that there was no meaningful change in extensive-margin giving behaviour around the time of the policy change, we attribute the surge in the number of charitable tax deductions claimed between 2007 and 2008 to a change in reporting behaviour. This rules out the possibility that the reform reduced compliance cost by enough to cause a meaningful increase in the number of charitable gifts made.

6 What drives reporting behaviour?

We have documented pervasive missing charitable deductions under the self-reporting regime. We now seek to uncover the anatomy of the frictions affecting claiming behaviour. Many countries continue to rely on self-reporting for tax deductions, making it important for tax system design to understand the determinants of claiming behaviour. The reform we study provides an excellent opportunity to probe particular frictions affecting claiming behaviour.

6.1 Owed-taxes and missing deductions

We begin by comparing claiming behaviour under the self-reporting regime by the size of taxpayers' preliminary tax deficit, the amount that tax liability exceeds tax withheld during the year. Following Engstrom et al. (2015), we argue that the presence of a small preliminary surplus or deficit is quasi-random, uncorrelated with charitable giving propensity. This allows us to interpret any difference in claiming behaviour around the threshold of zero owed taxes as a causal effect of the preliminary deficit or surplus. Supporting our claim that the assignment of a small preliminary surplus or deficit is quasi-random, Figure 4a shows that the distribution of age, gender and income vary smoothly across the zero owed taxes threshold, for taxpayers with a surplus or deficit less than DKK3,000. Results are reported for tax-

¹⁹The calculation includes those who did not claim a charitable deduction in some years 2009-2011, for both groups. We also restrict the sample to those taxpayers who filed a return in each year 2006-2011.

payers with a standard filing deadline, and with labor income in the range DKK100,000 to DKK1,000,000; excluding taxpayers with small incomes is important because even a deficit or surplus of DKK3,000 is a large share of income for low-income taxpayers.²⁰ Based on observed covariates, we find no evidence that taxpayers with a small preliminary deficit are on average different from those with a small preliminary surplus. This enables us to rule out bias from systematic selection by taxpayers into a surplus or deficit position.

Figure 4b shows that taxpayers with a preliminary deficit are significantly more likely to report a charitable tax deduction than otherwise equivalent taxpayers with a preliminary surplus. Furthermore, the likelihood of reporting a deduction is increasing in the size of the preliminary deficit, up to about DKK2,500.²¹ With quasi-random assignment, the unobserved probability that taxpayers had a legitimate deduction in 2007 varies smoothly across the threshold of a zero preliminary deficit. Thus, differences in claiming behaviour around the threshold is caused by differences in reporting behaviour, not giving behaviour. Taxpayers are informed of their preliminary surplus or deficit after the end of the tax year, and so have no opportunity to adjust their legitimate deductions based on their discovery of a preliminary surplus or deficit.

Standard theory predicts no causal effect of a preliminary surplus or deficit on reporting behaviour. The income effect of owed taxes less than DKK3,000 is small, and quasi-random assignment implies that compliance cost varies smoothly across the zero owed taxes threshold. Engstrom et al. (2015) and Rees-Jones (2017) show theoretically and empirically that loss aversion can induce people with owed taxes to engage in evasion or avoidance behaviour to manipulate the amount of money paid to the tax authority.²² Consistent with our findings, the loss-aversion model proposed by Engstrom et al. (2015) predicts the share of taxpayers

²⁰An alternative procedure to ensure the size of preliminary deficits is comparable across people with different incomes is to scale each taxpayer's preliminary deficit by the ratio of average income to the taxpayer's labor income. The results are very similar using this weighting scheme.

²¹Consistent with our assumption of quasi-random assignment of taxpayers' preliminary deficit, controlling for observed covariates gives similar results.

²²A precursor is Feenberg and Skinner (1989), who find that taxpayers are more likely to open a tax deductible Individual Retirement Account if they owe taxes.

claiming a deduction to be constant among taxpayers with a preliminary surplus and increasing in the amount of owed taxes for those with a preliminary deficit, with a kink at zero owed taxes. However, in contrast to Engstrom et al. (2015) we can rule out meaningful levels of evasion: the randomised audit experiment found minimal overreporting. Reinforcing this, we find very similar results if we restrict our sample to taxpayers who had a deduction in each year 2008-2011 under the information reporting regime; these are high-propensity charitable donors, from whom the absence of a reported deduction in 2007 is likely to be due to a missing claim rather than the absence of a donation.

The presence of a preliminary deficit is quantitatively important for reporting behaviour. The fraction of all taxpayers reporting a deduction under the self-reporting regime in 2007 was 3.1%, very similar to the 2.9% reporting rate among taxpayers with a preliminary surplus, but among taxpayers with a preliminary deficit the claiming rate was much larger at 3.9%. For the population as a whole, we used the introduction of information reporting to estimate that 3.1% of taxpayers had an eligible deduction that they neglected to report. Thus, having a preliminary deficit reduces the underreporting rate by close to half.

6.2 Information frictions

Next, we investigate the importance of information frictions by examining an aspect of Denmark's charitable giving rules, in existence before 2012, that created a region of strictly dominated giving choices. The notched subsidy scheme we investigate provides a test for a relatively sophisticated level of awareness. Nevertheless, the information frictions identified here may be reflective of a more general lack of awareness of giving incentives that could account in part for underreporting of deductions.

We begin by formally describing the incentives created by the pre-2012 regime, under which only total annual gifts per charity of DKK500 or more were eligible for tax deductibility, and in calculating the total amount of eligible tax deductions, the first DKK500 in contributions was excluded. Supposing taxpayer i can donate to N charities eligible for regular charitable deductions, the amount of their total charitable deductions, taking account

of the DKK14,500 cap, is given by

$$S_i = \min \left\{ \max \left\{ 0, \left[\sum_{n=1}^N g_{i,n} 1(g_{i,n} \geq 500) \right] - 500 \right\}, 14500 \right\}, \quad (3)$$

where $g_{i,n}$ is taxpayer i 's total annual gifts to charity n , and $1(\cdot)$ is an indicator function taking the value one for gifts of DKK500 or more. The amount of tax benefits received is the tax deductible amount multiplied by the one-third subsidy rate.²³ The examples provided in Table 3 are provided in order to help clarify this formula. For simplicity, we assume for the scenarios in Table 3 that there are $N = 3$ charities.

For a taxpayer contemplating a gift to a single charity, the S_i function reduces to a kinked subsidy scheme with a DKK500 threshold. But once a taxpayer has made at least one charitable gift of DKK500 or more they face a notched subsidy for gifts to all other charities. The first gift meets the DKK500 exemption threshold, so all subsequent gifts to other charities are eligible for full tax deductibility if each gift is DKK500 or more. Suppose that a taxpayer's largest gift is $g_1 \geq 500$. Figure 6a shows the budget set facing the taxpayer for all subsequent gifts in the current tax year. Any second or subsequent gift to the value of $g \in (\underline{g}, \bar{g})$ is strictly dominated because a gift of $\bar{g} = 500$ affords a higher level of charitable contributions at no, or less, cost to the taxpayer. With the tax subsidy rate $\tau = \frac{1}{3}$ and $\bar{g} = 500$ then the lower limit on the strictly dominated region is $\underline{g} = \bar{g}(1 - \tau) = DKK333$.

To illustrate the incentives created by this notched subsidy scheme with an example, consider taxpayer D in Table 3, whose gift of DKK400 to charity number three is a dominated choice: either of her first two gifts meets the DKK500 exemption threshold, so each subsequent gift is eligible for tax deductibility provided it is to the value DKK500 or more. If she raised her donation to charity number three by DKK100 to DKK500, this gift would be eligible for tax deductibility, giving her a tax saving of DKK166 (given the one-third subsidy rate), leaving her with DKK66 more in after-tax income (plus any utility gain from higher charitable contributions).

²³In the text we refer to a one-third subsidy rate for simplicity, but there is slight variation based on the taxpayer's place of residence.

Fortunately, under the information reporting regime charities report to the tax authority all gifts above and below the DKK500 eligibility threshold for each taxpayer, allowing us to investigate taxpayer awareness of the incentives created by the kinked-and-notched subsidy scheme. Figure 6b plots the number of charitable gifts made in 2011 by claim size for taxpayers with a maximum gift of DKK500 or more. The distribution for the years 2008-2010 is similar to the distribution shown in Figure 6b for 2011. All of these taxpayers face the budget set shown by Figure 6a: each second or subsequent gift qualifies for full tax deductibility if it is DKK500 or more. The black bars in Figure 6b indicate the number of gifts made in the strictly dominated region. Only a few taxpayers made more than one dominated giving choice, so almost all these observations represent unique taxpayers. In total, 11,653 taxpayers made a gift in the strictly dominated region in 2011. There is a clear mass point at DKK500, at the upper limit of the notch, suggesting that many taxpayers understood the budget set created by the subsidy scheme, and were induced to raise their donations to DKK500. As a share of all taxpayers making more than one charitable contribution, about 10% of taxpayers make a dominated giving decision (see Table 4).

A clustering of donations in DKK100 multiples is evident, with the mass point at DKK600 even larger than that at DKK500. Because many taxpayers make gifts via automatic deduction on a monthly basis, we conjecture that the DKK600 mass point corresponds to taxpayers choosing an integer DKK50 per month charitable deduction: DKK50 is the smallest multiple of 10 that results in annual contributions qualifying for a subsidy, suggesting that the location of this mass point is influenced by the notch.

The economic significance of these dominated giving choices depends on the frequency with which individual taxpayers make such errors. Making a dominated choice in any one year results in a relatively small loss, and a taxpayer may make a mistake in any given year for idiosyncratic reasons. But for taxpayers making repeated mistakes, the cost may cumulate to a substantial amount, providing perhaps more persuasive evidence of ignorance of tax incentives for giving. To examine the frequency of dominated giving choices, Table 4 reports,

for the data sample available 2008-2011, the number of taxpayers who made dominated choices in each given and subsequent year. For example, in 2008 5,927 taxpayers made a dominated choice, and of those 2,050 also made a dominated choice in 2009; 1,304 made a dominated choice in each year 2008-2010, and so on. For each year 2008-2011, about one-third of taxpayers making a dominated choice did so again the following year; about one-fifth of taxpayers making a dominated choice did so for three consecutive years, and one-sixth of those making a dominated choice in 2008 did so for four consecutive years.

Taken together, these results provide evidence that a sizeable minority of taxpayers did not understand giving incentives created by the notched subsidy scheme in place before 2012. A non-trivial fraction of those making dominated choices did so repeatedly. However, a mass of taxpayers made giving choices just above the dominated region, consistent with a substantial mass of taxpayers being aware of the complex giving incentives in place before 2012.

6.3 Compliance cost

6.3.1 Evidence from the behaviour of accountants

We begin by looking at the response of trained accountants to the introduction of information reporting. This provides us with a frame of reference to isolate the effect of compliance cost from other frictions. We assume that trained accountants know that charitable contributions are tax deductible, and that the tax benefits are salient to accountants when preparing their own tax return. Under the additional assumption that average compliance costs (i.e., record keeping costs) are the same for trained accountants and non-accountants, any difference in the effect of information reporting on claiming behaviour can be attributed to other frictions.

Figure 6b reports the number of charitable tax deductions claimed by trained accountants before and after the introduction of information reporting, by claim size. This figure is analogous to Figure 1b, restricted to the population of accountants. For donations less than DKK500 there is some evidence of an increase in the number of deductions claimed between

2007 and 2008, suggesting that some accountants did not claim small eligible deductions under the self-reporting regime. (Recall that we present deductions net of the DKK500 exemption threshold, so all amounts shown in Figure 6 are tax deductible.) But unlike the population as a whole, there is no evidence among accountants of an effect of information reporting for tax deductions larger than DKK500. There is a trend increase in the number of accountants claiming a charitable deduction over the period 2006-2010, but no evidence of a break in the trend when information reporting was introduced in 2008. In contrast, for the population as a whole, there was a 70% increase in the number of deductions claimed of size between DKK501 and DKK5,000. Few accountants with tax deductions larger than DKK500 appear to have neglected to claim eligible deductions under the self-reporting regime. Under the assumption that average compliance cost is the same for accountants and non-accountants, the increase in claiming of deductions larger than DKK500 among the population as a whole cannot be due to a reduction in record keeping costs, and must be explained by other frictions.

6.3.2 Multiple Deductions

As an alternative test for the importance of compliance costs, we examine reporting behaviour for taxpayers with multiple self-reported deductions. If there is a fixed cost to claim any number of self-reported tax deductions, we should expect to find taxpayers to be more likely to self-report an eligible charitable deduction if they have other non-charity self-reported deductions. The larger the number of eligible deductions, the more likely that the benefits of reporting exceed the fixed compliance cost.

We restrict attention here and in the next sub-section to the subset of taxpayers who had a charitable deduction in each year under the information reporting regime. We do this because we cannot precisely identify individual taxpayers who had an unclaimed charitable tax deduction under the self-reporting regime. This makes our findings in this and the next subsection necessarily more suggestive, but we nonetheless argue that taxpayers who had a deduction in each year 2008-2011 under the information reporting regime are very likely to have had an eligible deduction in 2007. Thus, using this subset of taxpayers, we are most

likely (although not guaranteed) to identify factors that affect reporting behaviour but not giving behaviour. Note that the sample we use here is the ‘post-reform: every year’ group described in Section 3.4, and for which characteristics are reported in Table 1.

We estimate the following regression for the sample of taxpayers just described:

$$d_{i,2007} = \sum_j \beta_j \delta_{i,j}^{self} + \sum_j \gamma_j \delta_{i,j}^{pre} + \sum_j \gamma_j X_{i,j} + \varepsilon_i, \quad (4)$$

where the dependent variable is an indicator taking the value unity if the taxpayer reported a charitable deduction in 2007, the last year of the self-reporting regime, and zero otherwise (all taxpayers in the sample had a deduction in each year 2008-2011). The variables $\delta_{i,j}^{self}$ are indicators for non-charity self-reported deductions in 2007; if there is a fixed costs to self-report any number of deductions we would expect the coefficients β_j to be positive. The variables $\delta_{i,j}^{pre}$ are indicators for pre-populated deductions in 2007, and we expect the coefficients on these placebo variables to be close to zero. The set of variables $X_{i,j}$ are demographic controls listed in the notes to Table 5.

Having other self-reported deductions is associated with an economically significant increase in the probability of reporting a charitable tax deduction: the probability is 8.4, 8.2, and 12.9 percentage points higher if taxpayers self-reported an ‘other wage earner,’ ‘child-minders,’ or ‘establishment account deposit’ deduction (Table 5). The presence of a transport deduction is also associated with an economically significant increase in the probability of self-reporting a charitable deduction. Although the transport deduction is pre-populated, it is frequently adjusted by taxpayers to reflect actual rather than estimated home-to-work transport costs incurred. In contrast, and consistent with our compliance cost interpretation, the presence of other pre-populated deductions has an economically insignificant effect on the likelihood of self-reporting a charitable tax deduction.

Because we have restricted our sample to high-propensity givers, these results are likely to reflect reporting behaviour rather than an underlying association between these deduction items and charitable giving propensity. Our findings are consistent with compliance cost being a determinant of claiming for some taxpayers. Taxpayers with multiple deductions

are more likely to find it beneficial to incur a fixed cost to report any number of eligible deductions. However, our finding is also consistent with salience being important. The act of self-reporting a tax deduction may raise the salience of other legitimate deductions.

6.4 Active versus passive choice

Under the information reporting regime, taxpayers receive a charitable deduction by default. Information reports sent by charities to the tax authority are used to pre-populate charitable tax deductions, and taxpayers need take no further action to receive a deduction. In contrast, receiving a charitable deduction under the self-reporting regime required active behaviour. Taxpayers had to amend their preliminary tax statement to reflect their charitable gifts. We investigate whether passive choice can explain the prevalence of missing tax deductions under the self-reporting regime. We do this by investigating whether indicators of active choice are correlated with self-reporting an eligible charitable tax deduction.

A large literature finds default behaviour to be particularly prevalent for retirement saving decisions (Madrian and Shea, 2001). We investigate whether taxpayers making active retirement saving decisions were more likely to self-report an eligible charitable tax deduction than those making passive retirement saving choices. We use two indicators of active retirement saving behaviour. Our first indicator is a dummy variable for whether a taxpayer has a retirement saving contribution rate 2% or more than their firm’s occupation-type default. (Default rates differ by firm and by occupation type within firms. See Chetty et al. 2014 and Fadlon et al. 2017.) This is a conservative measure of active choice in retirement saving, because it excludes people with a retirement saving rate below their firm’s default. We exclude these taxpayers because supplementary income not subject to retirement contributions can result in passive savers being misclassified as active savers.²⁴ Our second measure of active choice in retirement saving is an indicator for whether a taxpayer has opened a capital pension account (retirement saving account). But because this saving vehicle is only

²⁴We restrict the sample to full-time workers in firms with 5 or more workers to reliably identify firm-occupation level default retirement saving contribution rates. Occupations are defined using the 2-digit ISCO classification.

tax-preferred for top marginal tax bracket individuals, our sample size is smaller with this indicator.²⁵

For each indicator of active choice, we estimate the following regression:

$$d_{i,2007} = \beta\delta_{i,2007} + \sum_j \gamma_j X_{i,j} + \varepsilon_i, \quad (5)$$

where the dependent variable is an indicator taking the value unity if the taxpayer reported a charitable deduction in 2007, the last year of the self-reporting regime, and zero otherwise. As in the previous section, we restrict attention to the ‘post-reform: every year’ group of taxpayers who had a charitable deduction in each year 2008-2011 under the information reporting regime. The variable $\delta_{i,2007}$ takes the value unity if the taxpayer made an active decision in 2007 for the domain under investigation, and the set of variables $X_{i,j}$ are demographic controls listed in the notes to Table 6.

The regression results indicate that active retirement savers were more likely to self-report an eligible charitable deduction than passive savers (Table 6). Having a retirement saving contribution rate 2% more than the default raises the probability of self-reporting an eligible charitable deduction by 1.9% and, for top-bracket taxpayers, having a capital pension account raises the reporting probability by 1.2%. (For brevity, coefficients on control variables are not reported.) The magnitude of these effects are modest, but recall that we have used conservative definitions to identify active behaviour.

Our second proxy for active behaviour is an indicator for whether a taxpayer elected to change their default withholding. At any time before the end of the tax year, a taxpayer may opt to amend the amount withheld from the wage and salary income, for example to avoid overwithholding if their circumstances change. Regression (3) in Table 6 shows that taxpayers making an active choice to change their default withholding were 8.5% more likely to self-report an eligible charitable deduction than those not changing their default withholding. This finding is related to Jones (2012), who shows that most taxpayers take several years to adjust their withholding in a timely manner following a change in circumstances, resulting in

²⁵See Fadlon et al. (2017) for further information on capital pension accounts.

sizeable tax refunds. But while he provides evidence of delayed adjustment of withholding, we present evidence of spillover behaviour from timely adjustment of withholding to claiming of eligible deductions.

Regression (4) in Table 6 reports a combined regression for a common sample, showing that each indicator of active behaviour has an independent effect on reporting probability. (Note that the sample size is smaller for the combined regression.) Our findings indicate that non-reporting of eligible charitable deductions can be in part explained by passive behaviour, as opposed to an active decision based on, for example, a considered cost-benefit analysis of compliance cost.

7 Discussion and relation to the literature

As well as having implications for the use of information reporting for tax deductions generally, our findings are related to a literature on reporting behaviour for charitable tax deductions. Our finding that extensive-margin underreporting is much more prevalent than overreporting contrasts with Fack and Landais (2016), who argue that abuse of the charitable tax deduction is the more important concern. Their evidence comes from a 1983 reform in France requiring taxpayers to attach receipts to their tax returns, which coincided with a 75% fall in the value of charitable tax deductions reported. They argue that the additional compliance burden is small and so cannot account for the drop in reported deductions. To provide support for this conjecture they rely on evidence from a series of surveys conducted in France from 2000 to 2004. These surveys indicate that over 80% of deductions were reported to the tax authority, and that the fraction was stable over the 2000 to 2004 period. Three factors limit the usefulness of this survey evidence for estimating the fraction of underreporting. First, the survey was conducted between 17 and 21 years after the policy change, during which time the fraction of underreporting may have changed substantially, for reasons unrelated to the 1983 policy change. Second, the survey does not record information on the size of gifts, and so may not detect taxpayers who neglected to claim some but not all their

eligible deductions. Third, the imputations made by Fack and Landais (2016) assume no change in behaviour due to increased post-reform compliance costs.

Our finding of modest but pervasive frictions affecting the claiming of tax deductions is consistent with work by Rehavi and Shack (2013), who uses survey reports of U.S. taxpayers to provide suggestive evidence of incomplete claiming of eligible charitable deductions. In contrast to the survey evidence relied upon by Rehavi and Shack (2013), the administrative panel data available to us provide more credible evidence, because it is less susceptible to systematic misreporting (providing incorrect information to the tax authority has an expected penalty, whereas misreporting on a household survey does not).

We have estimated the average value of forgone charitable tax deductions to be around DKK370 (US\$59). Taking into account that we have estimated the magnitude of frictions for a single tax deduction line item, our estimate is comparable (after adjusting for inflation) to Pitt and Slemrod (1989), who use a sample of 1982 U.S. tax returns to estimate the compliance cost of itemising deductions to be US\$105 (US\$43 in 1982 dollars). However, using a bunching methodology, Benzarti (2015) has estimated that U.S. taxpayers on average forego a much larger \$644 by claiming the standard deduction rather than itemising. Unlike these papers, we have not needed to make functional form or distributional assumptions to estimate the value of forgone deductions. Furthermore, we have shown that transaction costs (narrowly defined) can account for only some of the underreporting of eligible deductions.

8 Conclusion

Recently, a number of countries have introduced information reporting for tax return deduction line items. Conventional wisdom suggests that the use of information reporting for deduction line items would eliminate evasion opportunities and raise revenue collections. Few deduction line items are subject to information reporting and audit rates are low, making moderate amounts of overreporting a favourable evasion gamble for taxpayers. Contrary to expectations, we find that the introduction of information reporting and pre-population for

the charitable tax deduction in Denmark caused a doubling in the number of tax deductions claimed, and a 15% rise in the total value of deductions claimed. The surge in deductions claimed can be almost entirely attributed to previously unreported deductions. We estimate that about half of all eligible charitable deductions were unclaimed under the prior self-reporting regime. A majority of taxpayers neglecting to report deductions did so repeatedly, sacrificing about DKK370 per year in tax deductions.

Notably, a pre-reform large scale audit experiment detected few of the missing tax deductions. Tax authorities do not seek to conceal eligible deductions from taxpayers, but neither do they systematically probe taxpayers about nil reports for deduction items. Audit effort is allocated to sources of abuse resulting in lost revenue. A key implication is that extensive-margin underreporting is likely to be more widespread than audit results indicate.

Frictions affecting the claiming of tax deductions diminish the ability of policymakers to differentiate tax liability, and may dampen behavioural response. This makes it important for tax system design to understand both the magnitude of frictions and the drivers of reporting behaviour. Using a range of tests, we have presented new evidence on the anatomy of optimisation frictions suppressing claiming of self-reported deductions. The behaviour of accountants, and taxpayers with multiple deductions, provides evidence consistent with compliance cost being a deterrent to claiming. But other frictions appear to be more important. We provide evidence for three drivers of reporting behaviour other than compliance cost. First, passive rather than active choice appears to have suppressed claiming of legitimate tax deductions. Taxpayers who make active retirement saving and tax withholding choices are more likely to self-report an eligible charitable deduction than those who do not. Second, we find evidence that loss-aversion is a driver of reporting behaviour. Taxpayers with a preliminary tax deficit are substantially more likely to report a *legitimate* deduction than those due a refund. Third, we show that a sizeable minority of taxpayers made strictly dominated giving decisions, indicating a lack of awareness of giving incentives.

Supplementary material

The data used in this paper is confidential, but the replication files are available as supplementary material online at the OUP website.

Funding

This work was supported by the Rockwool Foundation Research Unit [P.S].

Acknowledgements

We would like to thank our advisers Jim Hines, Claus T. Kreiner, Søren Leth-Petersen, Martin Schmalz, Matthew Shapiro, and Joel Slemrod for their guidance and encouragement. We would also like to thank Jim Andreoni, Morten Appelsø, Wojciech Kopczuk, Erzo F. P. Luttmer (discussant), Søren Pedersen, and seminar participants at the U.S. Department of Treasury’s Office of Tax Analysis and at the 2014 Tax Systems conference at Oxford for helpful comments. We are grateful to the Danish tax administration (SKAT) for providing data, and to Torben Heien Nielsen for his help with the retirement saving data.

References

- Benzarti, Y.**, “How Taxing Is Tax Filing? Leaving Money on the Table Because of Hassle Costs,” Working Paper, University of California, Los Angeles, CA 2015.
- Chetty, R., J. N. Friedman, S. Leth-Petersen, T. Nielsen, and T. Olsen**, “Active vs. Passive Decisions and Crowdout in Retirement Savings Accounts: Evidence from Denmark,” *Quarterly Journal of Economics*, 2014, *129*, 1141–1219.
- Engstrom, P., K. Nordblom, H. Ohlsson, and A. Persson**, “Tax Compliance and Loss Aversion,” *American Economic Journal: Economic Policy*, 2015, *7*, 132–164.
- Fack, G. and C. Landais**, “The Effect of Tax Enforcement on Tax Elasticities: Evidence from Charitable Contributions in France,” *Journal of Public Economics*, 2016, *133*, 23–40.
- Fadlon, I., J. Laird, and T. H. Nielsen**, “Do Employer Pension Contributions Reflect Employee Preferences? Evidence from a Retirement Saving Reform in Denmark,” *American Economic Journal: Applied Economics*, 2017, *8*, 196–216.
- Feenberg, D. and J. Skinner**, “Sources of IRA Saving,” in L. H. Summers, ed., *Tax Policy and the Economy*, number 3, Cambridge, MA: MIT Press, 1989.
- IRS (U.S. Department of the Treasury, Internal Revenue Service)**, “Tax Year 2001 Federal Tax Gap (Extended Version),” Available at: <www.irs.gov/uac/Additional-Materials-on-the-Tax-Gap>, [Accessed: 25 October 2017], 2007.
- Jones, D.**, “Inertia and Overwithholding: Explaining the Prevalence of Income Tax Refunds,” *American Economic Journal: Economic Policy*, February 2012, *4*, 158–185.

- Kleven, H. J., M. B. Knudsen, C. T. Kreiner, S. Pedersen, and E. Saez**, “Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark,” *Econometrica*, May 2011, 79, 651–692.
- Kotakorpi, K. and J. P. Laamanen**, “Prefilled Income Tax Returns and Tax Compliance: Evidence from a Natural Experiment,” Working Paper 1604, School of Management and Economics, University of Tampere, Tampere 2016.
- Madrian, B. C. and D. F. Shea**, “The Power of Suggestion: Inertia in 401(k) Participants and Saving Behavior,” *Quarterly Journal of Economics*, 2001, 116, 1149–1187.
- OECD (Organization for Economic Co-operation and Development)**, “Using Third Party Information Reports to Assist Taxpayers Meet their Return Filing Obligations: Country Experiences With the Use of Pre-Populated Personal Tax Returns,” Paris, France. 2006.
- Pitt, M. M. and J. Slemrod**, “The Compliance Cost of Itemizing Deductions: Evidence from Individual Tax Returns,” *American Economic Review*, December 1989, 79, 1224–1232.
- Rees-Jones, A.**, “Quantifying Loss-Averse Tax Manipulation,” *Review of Economic Studies*, 2017, <https://doi.org/10.1093/restud/rdx038>.
- Rehavi, M. and D. Shack**, “Partial Reporting: An Example from Charitable Giving,” Working Paper, University of British Columbia, Vancouver 2013.
- Slemrod, J.**, “Cheating Ourselves: The Economics of Tax Evasion,” *Journal of Economic Perspectives*, Winter 2007, 21, 25–48.

Table 1: Typology of Claiming of Charitable Tax Deductions

	Pre-reform only	Post-reform only	Pre- and Post	Never	Memo: Post-reform: Every year
Number	37,464	330,864	154,245	3,858,121	224,238
Percent of taxpayers	0.9	7.6	3.5	88.1	5.1
Group means:					
Female (%)	46	59	57	50	60
Age: years	46	43	50	43	47
Income: DKK ('000)	236,565	190,903	237,664	169,613	219,305
Tertiary education (%)	41.85	38.19	49.94	29.53	47.07
Unemployed (%)	2.05	1.60	1.14	1.83	1.28
Migrant (%)	13.35	7.81	6.23	10.49	6.34
Copenhagen (%)	35.89	41.02	38.58	28.11	41.88
Married (%)	61.08	43.03	60.98	46.09	53.11

Notes: The first four columns categorise taxpayers into mutually exclusive groups based on their frequency of claiming charitable tax deductions: 'pre-reform only' are taxpayers who claimed at least one charitable tax deduction in the period 2006-2007 under the self-reporting regime but not in the period 2008-2011 under the information reporting regime; 'post-reform only' are taxpayers who claimed at least one charitable deduction under the information reporting regime but none under the self-reporting regime; 'pre- and post' are taxpayers who claimed at least one charitable deduction in both the self-reporting and information reporting regimes, and; 'never' are taxpayers who did not claim a charitable deduction in the period 2006-2011. The memo item 'post-reform: every year' is the group of taxpayers who claimed a charitable deduction in each year 2008-2011 under the information reporting regime, and possibly under the self-reporting regime. We restrict attention to taxpayers who filed a tax return in each year 2006-2011. 'Percent of taxpayers' is the number of tax returns as a percent of all returns filed.

Source: Authors' calculations

Table 2: Charitable Tax Deductions: Pre-reform Randomised Audit Experiment Results

	Number	Mean (DKK)
Audit sample	18,702	199
Taxpayers with pre-audit charitable tax deduction	872	4,258
Audit adjustment to filed deductions	75	-1,892
Negative audit adjustment:	65	-2,447
Positive audit adjustment:	10	1,717
No pre-audit deduction and positive adjustment	20	2,702
Taxpayers with post-audit charitable tax deduction	870	4,181

Notes: This table reports results from an unannounced randomised audit experiment conducted in 2007 on 2006 tax returns. See Kleven et al. (2011) for details on the audit experiment.

Source: Authors' calculations

Table 3: Tax Value of Regular Gifts

Taxpayer	Charity			Tax Deductible Amount
	1	2	3	
A	400	0	0	0
B	0	700	0	200
C	500	500	0	500
D	500	500	400	500

Notes: Taxpayer A's gift is less than DKK500, so she receives no tax deductions for her charitable contributions. Taxpayer B makes one gift of DKK700, exceeding the DKK500 threshold, and so is eligible to receive tax preferences for this gift, but because the first DKK500 in gifts receives no tax benefit she has only DKK200 in charitable tax deductions. Taxpayer C is eligible to receive tax preferences on both her gifts of DKK500, and receives a total tax deduction of DKK500, after taking the exemption limit into account. Even though taxpayer D gave an additional DKK400 to charity number three compared to taxpayer C, and has given more than DKK500 in total, she receives no more tax deductions than taxpayer C because her gift to charity number three is less than DKK500.

Source: Authors' calculations

Table 4: Dominated Giving Choices

	2008	2009	2010	2011
2008	5,927	2,050	1,304	900
2009		7,350	2,421	1,416
2010			9,743	3,170
2011				11,653
Total:	67,403	77,092	101,116	114,374

Notes: The diagonal elements report the number of taxpayers making a dominated giving choice in that year; the off-diagonal elements report the number of those taxpayers who made a dominated giving choice in each subsequent year. For example, 5,927 taxpayers made a dominated choice in 2008, and of those 1,304 also made a dominated choice in 2009 and 2010. 'Total' is the number of taxpayers making more than one deduction, and so subject to the notched subsidy scheme.

Source: Authors' calculations

Table 5: Probability of Self-Reporting a Charitable Deduction: 2007

Dependent Variable: Reported a Charitable Deduction in 2007		
Other wage-earner (self-reported)	0.084***	[0.063,0.104]
Childminders and fisherman deduction (self-reported)	0.082***	[0.051,0.114]
Establishment account deposit (self-reported)	0.129***	[0.033,0.225]
Transport (pre-populated)	0.185***	[0.180,0.190]
Unemployment insurance contributions (pre-populated)	0.021***	[0.015,0.027]
Alimony (pre-populated)	-0.033***	[-0.047,-0.018]
Preliminary surplus less than DKK3,000	-0.069***	[-0.074,-0.064]
Preliminary deficit less than DKK3,000	0.028***	[0.022,0.033]

Notes: The sample consists of taxpayers who had a charitable deduction in each year 2008-2011 under the information reporting regime. Preliminary deficit (surplus) is a dummy variable for taxpayers whose tax liability exceeds (is less than) tax withheld by up to DKK3,000. The transport deduction is pre-populated using the shortest home-to-work driving distance; frequently taxpayers adjust this pre-populated value to reflect the route actually used, or to reflect a change of job. Included controls not reported are: gender, migrant dummy, labor force status, marital status, education level, location dummies, and fully-saturated age dummies. *** denotes statistical significance at the 1% level and 95% confidence intervals are reported in brackets. Using 2006 data for the dependent variable gives similar results.

Source: Authors' calculations

Table 6: Reporting of Charitable Deductions: By Indicators of Active Behaviour

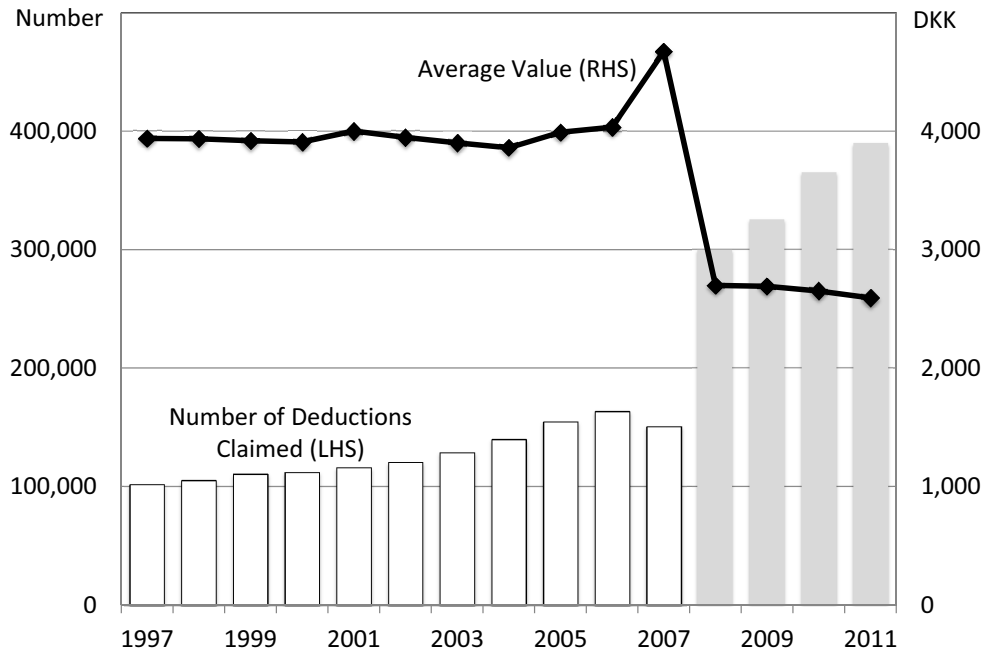
Dependent variable: Reported a Charitable Deduction in 2007				
	(1)	(2)	(3)	(4)
Pension saving above default	0.019*** [0.012, 0.025]			0.031*** [0.021, 0.040]
Capital pension account		0.012*** [0.002, 0.021]		0.007 [-0.003, 0.018]
Changed withholding			0.085*** [0.080, 0.089]	0.065*** [0.057, 0.074]
Number of observations	145,119	69,097	213,579	57,656

Notes: The sample for each regression consists of taxpayers who had a charitable deduction in each year 2008-2011 under the information reporting regime. Each column represents a separate regression. 'Pension saving above default' is an indicator variable for whether a taxpayer has adjusted their employer pension contributions to be 2% or more above their employer's default; the sample is restricted to employer-occupation cells of 5 or more people. 'Capital pension account' is an indicator variable for whether a taxpayer has chosen to setup a private (non-employer based) pension account; this type of account brings tax benefits only for top marginal tax bracket individuals, so we restrict the sample for this regression to top-bracket taxpayers, classified by 2006 income. 'Changed withholding' is an indicator for whether a taxpayer filed an amendment to their default withholding for their 2009 tax statement. Included controls not reported are: income, gender, migrant dummy, labor force status, marital status, education level, location dummies, and fully-saturated age dummies. 95% confidence intervals in brackets, *** indicates statistical significance at the 1% level.

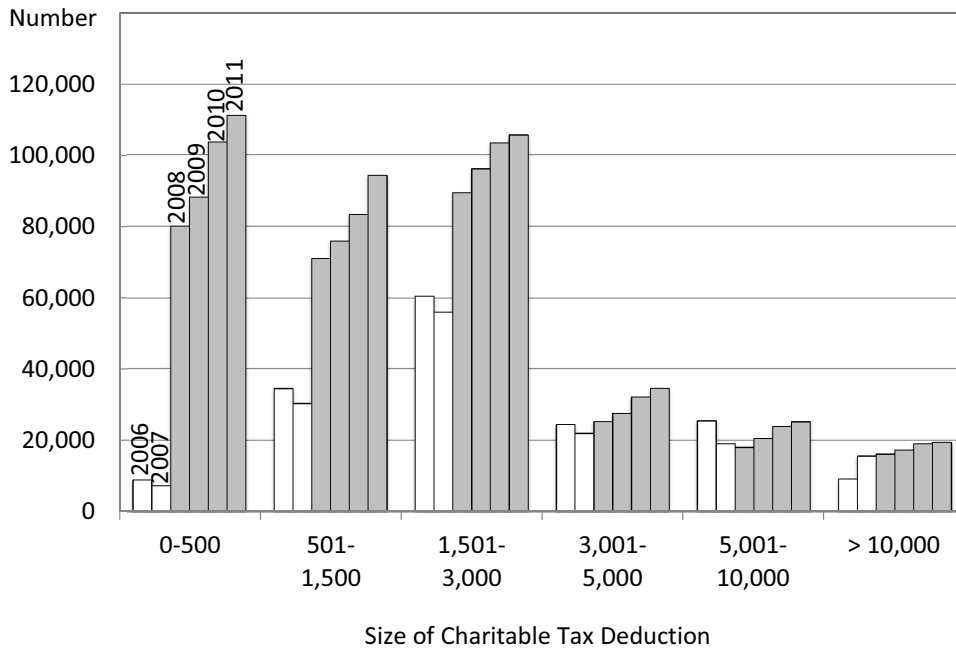
Source: Authors' calculations

Figure 1: Charitable Tax Deductions Claimed

(a) Number and Average Value

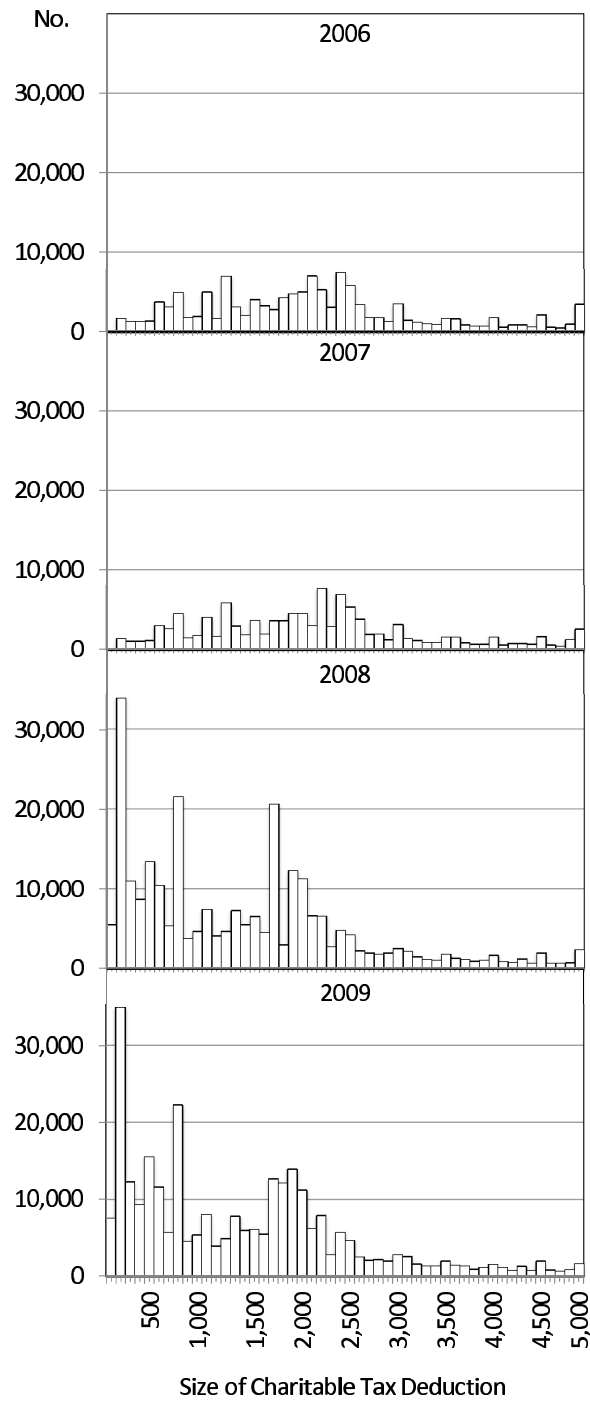


(b) Number: By Claim Size and Year



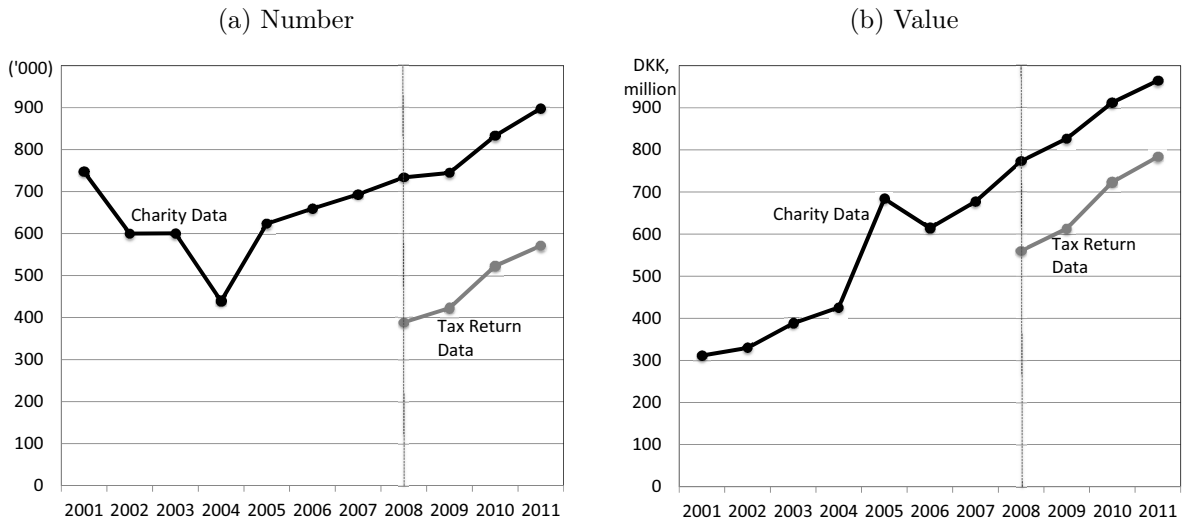
Notes: The claim size is the amount of tax deduction claimed, not the total value of charitable gifts made, which is larger because of a DKK500 exemption limit. Years for which there was information reporting correspond to the shaded bars.

Figure 2: Distribution of Tax Deductions Claimed



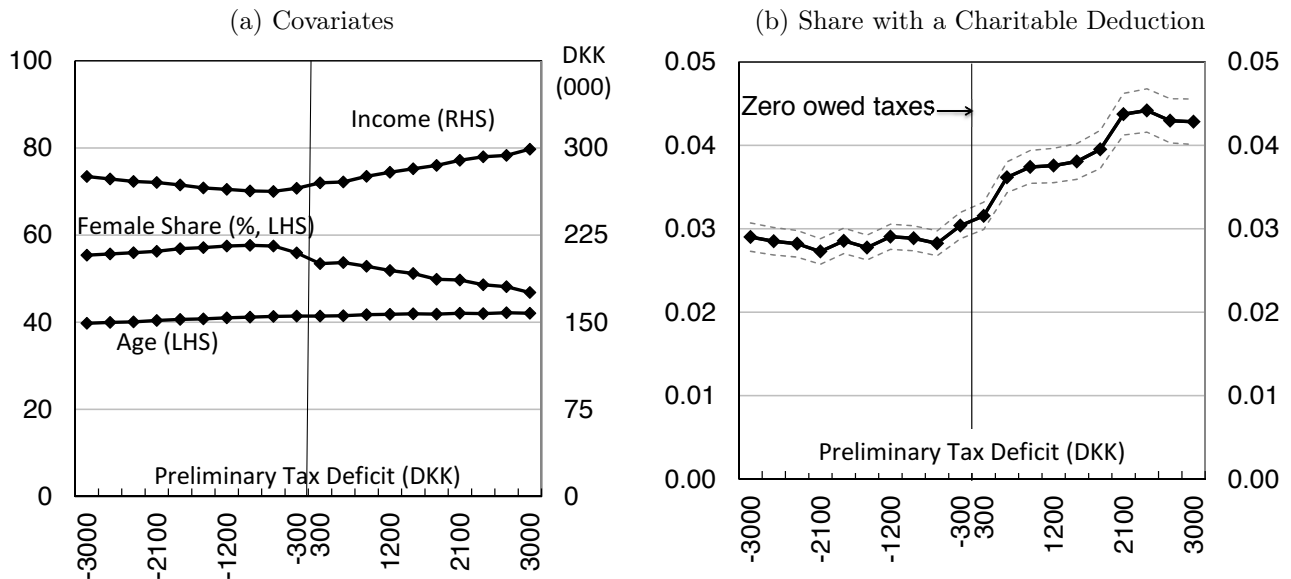
Notes: This figure shows the distribution of tax deductions claimed for the years 2006-2009. Information reporting was introduced in 2008.

Figure 3: Charitable Donations: 25 Largest Charities



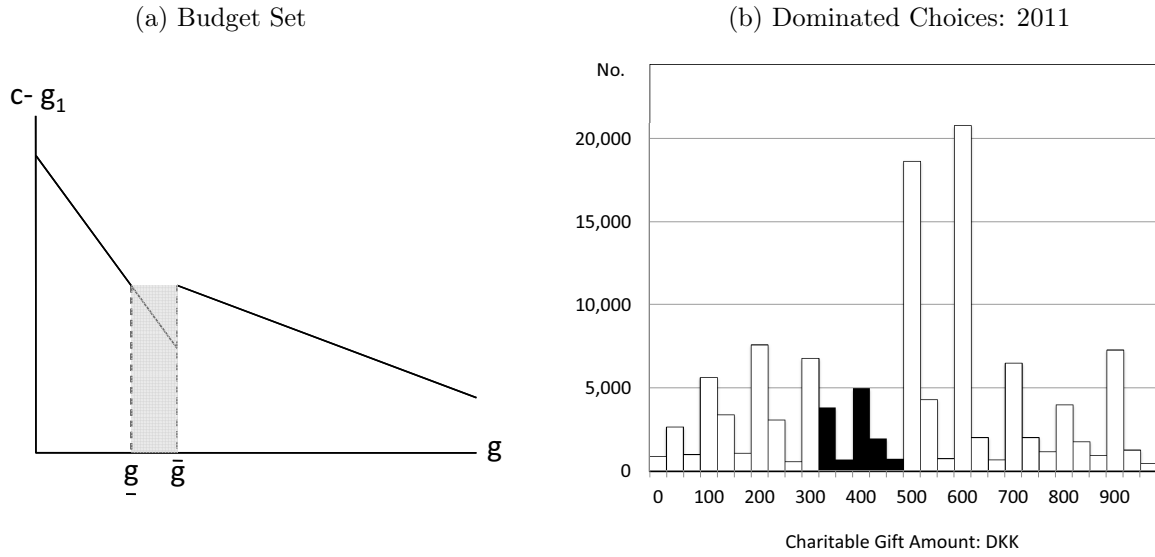
Notes: The ‘Tax Return Data’ line indicates the total number (left panel) or value (right panel) of information reports received by SKAT from the 25 largest charities (aggregated by charity for each taxpayer), where charity size is measured by the total number of information reports received by SKAT over the period 2008-2011 (information reporting was introduced in 2008). The ‘Charity Data’ line indicates the number (left panel) or value (right panel) of contributing members reported by those 25 charities. The dip in the number of donors in 2004 is due to a sharp drop reported by one large charity; because there was no accompanying drop in the value of donations reported for that charity, we suspect this to be a reporting error.

Figure 4: Taxpayer Characteristics: By Size of Preliminary Deficit



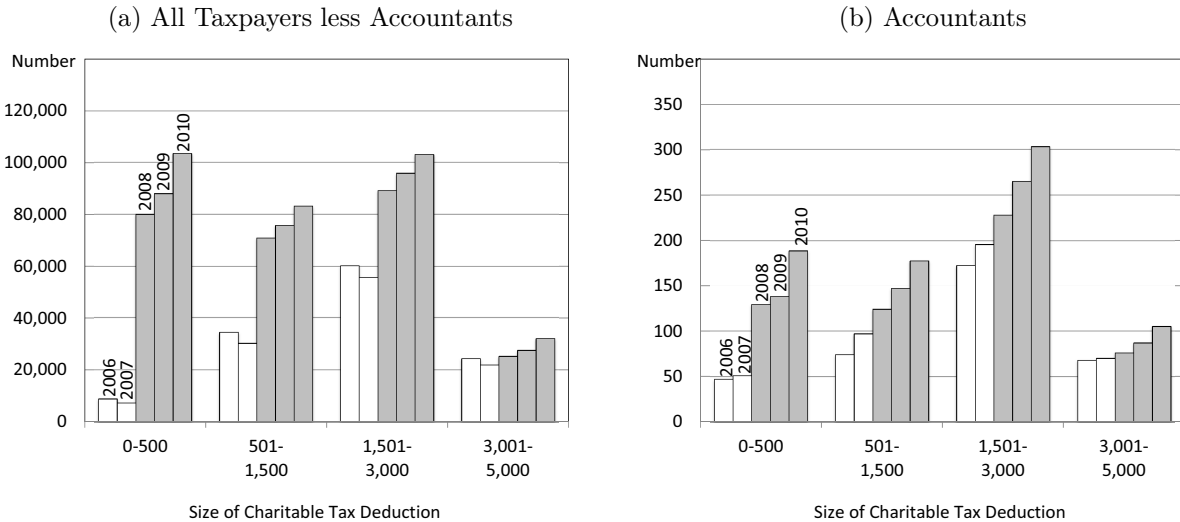
Notes: Preliminary deficit is the amount that tax liability exceeds taxes withheld during the year, before self-reported sources of income and deductions. Negative numbers indicate a tax refund. Data are in bin sizes of width DKK300, with an average 37,000 taxpayers in each bin. The sample consists of all taxpayers with a standard filing deadline and labor income in the range DKK100,000-1,000,000. Dashed lines in panel (b) show a 95% confidence interval; confidence intervals for series in panel (a), not shown, are extremely tight.

Figure 5: Notched Subsidy Scheme for Second and Subsequent Gifts



Notes: (Left panel): For a taxpayer with total annual gifts of DKK500 or more to a particular charity, all subsequent gifts qualify for tax deductibility provided they are of DKK500 or more. Any gift in the shaded region $g \in [g, \bar{g}]$ is a strictly dominated choice because a gift of \bar{g} results in a higher level of charitable contributions and either the same or a higher level of consumption of all other goods. At the one-third subsidy rate, $\bar{g} = 500$ and $g = 333$. The y-axis measures consumption on all non-charitable items, less the largest charitable donation in excess of the DKK500 threshold (g_1). (Right panel): For the group of taxpayers with a maximum regular gift greater than or equal to DKK500, the figure shows the number of other regular gifts made in 2011 (on the y-axis) by gift amount (on the x-axis). The solid bars show the number of strictly dominated charitable gift choices made in 2011.

Figure 6: Number of Taxpayers Claiming a Deduction: By Claim Size and Year



Notes: Years for which there was information reporting correspond to the shaded bars. Accountants are those with accountancy training.