Evidence on Unclaimed Charitable Contributions from the Introduction of Third-Party Information Reporting in Denmark*

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Abstract

We document underreporting of charitable tax deductions to be more important than overreporting. Our findings are based on the introduction in Denmark of information reporting for charitable tax deductions, one of the first uses of information reporting for a deduction line item. Half of all eligible charitable tax deductions were unclaimed under the prior self-reporting regime, with an estimated average after-tax value of DKK262 (US$47) per year. In contrast, there was negligible evasion. Our results indicate that audits are unsuited to detect missing tax deductions, implying that audit results overemphasize the importance of evasion relative to underreporting. Compliance cost and a lack of awareness of giving incentives appear to have suppressed claiming under the self-reporting regime. Taxpayers with small amounts of owed taxes are significantly more likely to self-report a legitimate deduction, which we argue provides a new benefit of accurate withholding.

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1 Introduction

Self-reported tax deductions are widely perceived to be subject to overreporting (Slemrod 2007). Most countries do not use information reporting for deduction line items, and audit rates are low, making modest overclaiming a favorable evasion gamble for taxpayers. U.S. Internal Revenue Service tax gap estimates indicate net misreporting (overreporting less underreporting) for tax deductions of US$13.5 billion, exceeding the revenue shortfall for wage and salary income (IRS 2007).\textsuperscript{1} We show that audits are unlikely to detect missing tax deductions, and find evidence of underreporting being much more important than overreporting.

Our evidence comes from on the introduction of third-party information reporting in Denmark in 2008 for tax-deductible charitable contributions, one of the most prominent tax benefits in many countries. This reform represents one of the first uses of information reporting for a tax deduction line item.\textsuperscript{2} Prior to 2008, charitable deductions were self-reported and subject to verification only upon an audit. Under the new system, charitable organizations report contributions received from each taxpayer directly to Denmark’s tax authority, SKAT. These information reports are used by SKAT to pre-fill charitable deductions on taxpayers’ annual declarations (referred to as pre-population).

The effect of the policy change on reported deductions was immediate and large: the number of taxpayers claiming a charitable deduction doubled, and the value of donations rose by 15 percent. This is inconsistent with widespread evasion: had there been meaningful evasion there would have been a decrease in the value, and possibly the number, of tax deductions claimed. Supporting this claim, data from a pre-reform large-scale audit experiment in Denmark found negligible overreporting of charitable tax deductions. In contrast, the same audit study found high evasion rates for self-reported sources of income (Kleven et al. 2011).\textsuperscript{3} There is good reason to trust the accuracy of these audits in identifying overclaiming

\textsuperscript{1}The net misreporting percentage is the amount misreported divided by the amount that should have been reported.
\textsuperscript{2}See OECD (2006) for a survey of information reporting and pre-population in OECD countries.
\textsuperscript{3}The evasion rate was 37 percent for total self-reported net income, but only 0.3 percent for third-party reported income.
of charitable deductions because, unlike self-reported sources of income, the burden of proof falls on the taxpayer.

A striking finding is the inability of the audits to detect underreporting. Auditors did not seek to 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. By using audits to measure compliance, our results suggest that researchers are likely to overemphasize the importance of evasion relative to underreporting for self-reported deductions.

Administrative reports made by charities to SKAT enable us to separately identify the effect of the policy change on charitable giving and reporting behavior. We find no evidence of a change in giving behavior coinciding with the introduction of information reporting. Accordingly, we can rule out the possibility that the reform coincided with or caused a surge in actual giving behavior.

We estimate the average annual value of forgone tax benefits to have been about DKK262 (US$47).\(^4\) There was little change in the number of tax deductions of more than DKK2,500 (US$500), suggesting that few taxpayers left large sums of money on the table in any given year. Together, these findings indicate that optimization frictions affecting the claiming of self-reported tax deductions are relatively modest, but pervasive.\(^5\) 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.

Employing several different approaches, we provide evidence on the anatomy of optimization frictions affecting the claiming of tax deductions. Firstly, examining the response

\(^4\)DKK1 is approximately US$0.18.

\(^5\)Examining a policy experiment in Finland in the 1990s, Kotakorpi and Laamanen (2013) argue that unclaimed deductions may be particularly prevalent when many sources of income line items are pre-filled for taxpayers.
of trained accountants to the policy change indicates that compliance cost may have suppressed claiming of deductions less than DKK500, but that other frictions are likely to have been important for deductions greater than DKK500. Secondly, we find that taxpayers were more likely to self-report a charitable deduction if they had other self-reported deductions, which is consistent with there being a fixed cost to claim any number of tax deductions. Thirdly, using quasi-experimental variation in owed taxes, we find that taxpayers with a small preliminary deficit were substantially more likely to claim an eligible charitable tax deduction that those with a preliminary surplus under the self-reporting regime. Taxpayers appear to dislike having owed taxes, and exert extra effort to discover eligible tax benefits. In contrast to Engstrom et al. (2011), we show that having owed taxes triggers taxpayers to report legitimate deductions they would have otherwise neglected to report. Lastly, we use a notched subsidy scheme to identify information frictions affecting giving behavior.

Our finding that underreporting is much more prevalent than overreporting contrasts with Fack and Landais (2011), who argue that abuse of the charitable tax deduction is a “first-order” concern for policymakers. Their evidence comes from a 1983 reform in France requiring taxpayers to attach receipts to their tax returns, which coincided with a 75 percent fall in the value of charitable tax deductions reported. Slemrod (1989) presents evidence of charitable overreporting in audited returns, but unlike Fack and Landais (2011) finds overreporting to be more elastic than actual giving.

Our finding of modest but pervasive frictions affecting the claiming of tax deductions is consistent with work by Rehavi (2010), 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 (2010), the administrative panel data available to us provides 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). The average magnitude of frictions that we estimate is about half the size of compliance costs estimated for 1982 U.S. taxpayers by Pitt and Slemrod (1989) (after adjusting for inflation), but the Pitt and Slemrod (1989) estimate
should be larger because it measures the compliance costs associated with all deductions for which a taxpayer is eligible, not just charitable contributions.\textsuperscript{6}

The use of information reporting to pre-fill tax deductions is akin to default enrollment—taxpayers are automatically credited with their eligible charitable tax benefits—and the post-reform surge in charitable tax deductions claimed attests to the power of defaults (see, for example, Carroll et al., 2009 or Chetty et al., 2014). More generally, our findings contribute to a growing literature that seeks to estimate optimization frictions: Kleven and Waseem (2013) find that a majority of the income taxpaying population in Pakistan face optimization frictions affecting their taxable income choice of at least 2.5 percent of gross income; Chetty (2012) shows that it is possible to reconcile high-quality intensive-margin labor supply elasticity estimates from the labor and public finance literatures given an assumption of frictions equal to about one percent of income; and Saez (2010) finds kinks in the U.S. Earned Income Tax Credit insufficiently powerful to create bunching, except at the first kink, and only for self-employed taxpayers.\textsuperscript{7}

In what follows, Section 2 provides background information on relevant aspects of Denmark’s tax system, Section 3 uses data from a pre-reform tax audit experiment to investigate reporting behavior before the policy change, and Section 4 discusses the change in reporting behavior when information reporting and pre-population of charitable deductions was introduced in 2008. Section 5 presents evidence indicating that there was no change in charitable giving—as opposed to reporting of charitable gifts—around the time of the policy change, and Section 6 provides a range of tests to investigate the anatomy of the optimization frictions affecting the claiming of tax deductions. Section 7 discusses some policy implications, and Section 8 concludes our analysis.

\textsuperscript{6}Using a different methodology to Pitt and Slemrod (1989), Benzarti (2014) estimates that U.S. taxpayers on average forego a much larger $800 by claiming the standard deduction rather than itemizing.

\textsuperscript{7}Saez (2010) attributes the bunching of self-employed taxpayers at the first kink in the EITC schedule to tax evasion.
2 Background

Denmark’s individual-income tax system features broad use of information reporting. SKAT prepares pre-populated (pre-filled) returns that are mailed to taxpayers each year in mid-March, and taxpayers have until May 1 to amend their pre-populated return to reflect sources of income and deductions not subject to information reports.\(^8\)

All taxpayers file as individuals, unlike in the U.S. where married couples generally elect to pool their income and file a joint tax declaration. The subsidy rate for tax deductible charitable contributions varies only (slightly) by region of residence, and so 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. Even if taxpayers have no tax liability, they are able to receive tax benefits for their charitable contributions. Unlike the U.S. tax system, there is no standard deduction.

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. 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.\(^9\)

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.\(^10\) Information reporting for both types of gift was introduced in 2008. Because we do not observe each category of donation separately before 2008, we group regular and long-term

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

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

10. A third category was introduced in 2008 for gifts to cultural and research organizations. 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 organization gifts made.
gifts together to form one consistent series for charitable giving. For both these categories of gift, 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. We discuss the incentives created by this policy design in detail in Section 6.4. Deductions are capped, and thus so is the maximum value of charitable tax benefits.¹¹

In the next section we investigate reporting behavior prior to the introduction of information reporting and pre-population of deductions.

## 3 Tax Evasion Under the Self-Reporting Regime

Before investigating the effect of the policy change, we first draw on data from the Kleven et al. (2011) audit experiment to estimate the level of misreporting of charitable gifts under the self-reporting regime. A random sample of about 20,000 taxpayers was subjected in 2007 to an unannounced extensive and thorough audit of their 2006 tax returns. The overall misreporting rate for charitable contributions was small: of the 872 taxpayers in the audit sample who reported any charitable contribution, only 7 percent were found upon audit to have overclaimed charitable deductions, while 3 percent were found to have underclaimed, combining, with rounding, to give a gross misreporting rate of 11 percent. For the 7 percent of taxpayers who overclaimed, the median value of excess charitable deductions reported was DKK1,100, and for the 3 percent of taxpayers in the audit sample found to have underclaimed, the median value of missing deductions was DKK1,975. The value of underclaiming offset about half the value of overclaiming, giving a net evasion rate (net overclaiming as a share of deductions that should have been claimed) of 2.3 percent conditional on having initially reported a non-zero charitable gift, and about 0.1 percent as a share of all taxpayers in the

¹¹The 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.
audit sample. This evasion rate is trivial compared to the 37 percent evasion rate found by Kleven et al. (2011) for self-reported sources of income.

In light of these audit results, our finding of a surge in reported tax-deductible charitable contributions following the introduction of information reporting may seem surprising. If so many taxpayers neglected to claim their tax deductible contributions under the self-reporting regime, 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 did not investigate line items for which no deductions were claimed.\(^{12}\) This is most probably a sensible audit policy rule for the tax authority: 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 need not provide an accurate estimate of unclaimed tax benefits.

Having established that there was negligible charitable evasion under the self-reporting regime, in the next section we describe the change in reporting behavior due to the introduction of information reporting in 2008.

### 4 The Effect of Information Reporting

#### 4.1 Number and Size of Deductions Claimed

Figure 1a reports the number and average size of charitable tax deductions reported over the period 1997-2011.\(^ {13}\) As foreshadowed in Section 1, the introduction of information reporting coincided with a near doubling in the number of taxpayers claiming 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

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\(^{12}\) We would like to thank Søren Pedersen for sharing this detail of SKAT’s audit procedure with us.

\(^{13}\) Before 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.
regime. There was an accompanying 15.3 percent 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.\textsuperscript{14} 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 increase 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 tax deduction of DKK100 and be counted in the category DKK0-500 in Figure 1b. The surge in the number of charitable deductions claimed between 2007 and 2008 were primarily small in value. 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. 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 in part accounted for by regular variation in the distribution

\textsuperscript{14}The 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 DKK5001-10,000.
of claims over time.

In absolute terms, the increase in the share of taxpayers claiming a charitable deduction in the post-reform period was particularly large for high income groups, female taxpayers, and those residing in Copenhagen. But, because these groups of taxpayers have an above-average likelihood of claiming a charitable deduction, the share of unclaimed deductions under the self-reporting regime was not unusually large for these groups of taxpayers. The appendix contains regression results with a full-set of demographic controls.

### 4.2 Value of Forgone Benefits

If we attribute all the change in charitable tax deductions between 2007 and 2008 to a decline in unreported claims, the value of forgone charitable deductions in 2007 was DKK717. However, this is an imprecise estimate of the value of deductions forgone under the self-reporting regime. Any change in the number of large tax deductions between 2007 and 2008 is probably unrelated to the policy change. Taxpayers with large deductions forgo a substantial amount of money from not reporting their eligible deductions and so are unlikely to have not done so under the self-reporting regime. Informed by the distribution of claims data presented in Figure 2, we estimate the value of forgone deductions under the self-reporting regime by restricting our attention only to the increase in claims less than DKK2,500. Between 2007 and 2008 the total number of tax deductions claimed amounting to less than DKK2,500 increased from 77,046 to 226,855, and the total value of these deductions increased from DKK116 million to DKK234 million. This implies an average value of DKK786 for forgone deductions, which corresponds to DKK262 in after-tax income (given the one-third subsidy rate). This calculation is not particularly sensitive to the upper threshold of DKK2,500 used in this calculation (see Figure 7 in the appendix, and the notes therein for details on this calculation).

These estimates implicitly assume that there would have been no change in average giving behavior had the reform not occurred, which absent a control group (the reform affected all taxpayers at the same time) we cannot formally test. Although this assumption is almost
certainly violated, the magnitude of the change in reporting behavior pre- and post-reform is several orders of magnitude larger than the usual year-to-year variation in reporting (see Figures 1a and 1b). Any error in our estimate due to trend changes in giving behavior is likely to have only a minor effect.

4.3 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 percent 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 percent, respectively (see Table 1). This suggests that foregone tax benefits under the self-reporting regime were concentrated among regular donors who systematically did not claim eligible charitable deductions, rather than a larger group of donors who occasionally did not claim their eligible deductions. Although the typical amount of forgone tax benefits appears to have been modest in any given year, our finding that many taxpayers repeatedly failed to claim eligible tax benefits indicates that the cumulative amount of forgone deductions and tax savings may have been substantial for a sizable fraction of charitable donors.

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 behavior, rather than the reporting propensity. One possibility is that the introduction of information reporting reduced compliance cost, 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-favored status,
and contain information on the total value and number of donations received by each charity. These data correspond to donations that, provided they were of at least DKK500, qualify for a charitable tax deduction.

We first investigate whether there was any change in the number of donations reported by charities following the policy change. We restrict our attention to the ten largest charities, measured by the number of information reports received by SKAT over the period 2008-2011. These ten charities together represent about 60 percent of the information reports received from all charities. We exclude small charities to avoid our findings being influenced by potentially misleading reporting behavior of some small charities: a few small organizations did not file reports in each year, and, in some circumstances, reported implausible year-to-year changes in their number of donors. 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-ten 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-ten 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 organizations, most probably because some charitable donors do not provide their tax identification together 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, 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 due to a change in reporting behavior, not giving behavior.

15All results that follow are qualitatively the same if we consider instead the 25 largest charities, measured by the number of information reports received from each charity (per taxpayer) over the period 2008-2011.
We are further persuaded that the policy change affected reporting but not giving behavior by the fact that there was no apparent 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-ten 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-ten 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. Given that there was almost no change in the number of donations made pre- and post- reform, the data in Figure 3b indicate that there was no intensive margin giving response coinciding with the policy change either.

Supporting our claim that the reform did not affect giving behavior, 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 percent, only slightly more than the 0.8 percent 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.\(^{16}\)

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

\(^{16}\)The 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.
6 Anatomy of Optimization Frictions

Thus far, we have documented widespread underclaiming of legitimate tax deductions under the self-reporting regime. In this section we investigate factors that induce some taxpayers to report eligible deductions and others to leave tax benefits unclaimed.

6.1 Behavior of Accountants

By looking at the response of qualified accountants to the introduction of information reporting we can isolate the effect of compliance cost from awareness of incentives. We assume that trained accountants know 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 cost is the same for trained accountants and non-accountants, any difference in the effect of information reporting on claiming behavior can be attributed to knowledge and salience.

Figure 4 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 small donations less than DKK500 there was a four-fold 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. But this increase is much smaller than the more than ten-fold increase in the number of deductions less than DKK500 claimed by the population as a whole. Attributing all the underclaiming by accountants to compliance cost, frictions other than compliance cost must account for at least half of the underclaiming by non-accountants for donations less than DKK500.

Unlike the population as a whole, there is no evidence among accountants of an effect of information reporting for donations 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 percent 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 compliance cost.

6.2 Multiple Deductions

As an alternative test for the importance of compliance cost, we examine reporting behavior
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.

For this test, we restrict attention to taxpayers who had a charitable deduction in each
year under the information reporting regime. We select this group of taxpayers because
of their high giving propensity. Prior to information reporting, the absence of a reported
deduction for these taxpayers is likely to be because they did not claim an eligible deduction,
rather than because they did not donate to charity. Regression results for this sample of
high-propensity givers is reported in Table 2. The dependent variable is an indicator taking
the value unity if a taxpayer reported a charitable deduction in 2007, the last year of the self-
reporting regime. Having other self-reported deductions is associated with an economically
significant increase in the probability of reporting a charitable tax deduction: the probability
is 8.3, 8.1, and 11.7 percentage points higher if taxpayers self-reported an “other wage earner,”
“childminders,” or “establishment account deposit” deduction. 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 behavior 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.

6.3 Owed-taxes and Missing Deductions

Next, we compare claiming behavior 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. (2011), 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 behavior 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, Figures 6a, 6b and 6c show 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-
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.17 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.

17 An 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.
Figure 6d 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.\(^\text{18}\) 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 behavior around the threshold is caused by differences in reporting behavior, not giving behavior. 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 behavior. 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. (2011) argue that loss-aversion induces people with owed taxes to engage in evasion or avoidance behavior to reduce their preliminary deficit.\(^\text{19}\) We can rule out evasion: the randomized 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 behavior. The fraction of all taxpayers reporting a deduction under the self-reporting regime in 2007 was 3.1 percent, very similar to the 2.7 percent reporting rate among taxpayers with a preliminary

\(^{18}\)Consistent with our assumption of quasi-random assignment of taxpayers’ preliminary deficit, controlling for observed covariates gives similar results.

\(^{19}\)The formal model proposed by Engstrom et al. (2011) supposes that non-reporting is a rational choice: only if a taxpayer’s compliance cost is less than the benefit of reporting a deduction (legitimate or illegitimate) will they claim a deduction. Furthermore, taxpayers are assumed to be loss-averse, suffering more disutility from paying owed taxes than utility gained from an equal-sized refund. We note that a preliminary deficit only increases reporting in their model if taxpayers are loss-averse with respect to owed taxes exclusive of compliance cost. If taxpayers are loss-averse with respect to owed taxes net of compliance cost then the presence of a preliminary deficit has no effect on reporting: the disutility of incurring compliance cost rises proportionately with the magnitude of owed taxes.
surplus, but among taxpayers with a preliminary deficit the claiming rate was much larger at 3.9 percent. For the population as a whole, we used the introduction of information reporting to estimate that 3.1 percent of taxpayers had an eligible deduction that they neglected to report. Thus, having a preliminary deficit reduces the underreporting rate by close to half.

6.4 Information

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.

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 to 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, up to a maximum of 14,500, is given by

$$S_i = \max \left\{ \sum_{n=1}^{N} g_{i,n} 1\left(g_{i,n} \geq 500\right) - 500, 0 \right\},$$

where $g_{i,n}$ is taxpayer $i$’s total annual gifts to charity $n$, and $1\left(\cdot\right)$ 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.\footnote{In 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.} The examples provided in Table 3 are provided in order to help clarify this formula. For simplicity, we assume there are $N = 3$ charities in this example. 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.

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 $g \in \mathbb{R}$ is strictly dominated because a gift of $g = 500$ 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 $g = 500$ then the lower limit on the strictly dominated region is $g = \frac{g}{(1 - \tau)} = DKK333$.

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).

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, 11,624 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 claiming a charitable deduction, only about 2 to 3 percent of taxpayers made strictly dominated giving choices in each year 2008-2011. However, the number of gifts in the dominated region DKK333-500 in 2011 was about one-quarter the number in the range DKK500-666, and a little less in earlier years.

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; 1,878 made a dominated choice in each year 2008-2010, and so on. For each year on the diagonal, about
one-third of the taxpayers making a dominated choice do so again the following year. And of those taxpayers making a dominated choice in 2008, about 25 percent made a dominated choice in each of the next three years.

Taken together, these results provide evidence that a sizable 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.

7 A New Reason for Accurate Withholding

Our finding that overwithholding suppresses the reporting of legitimate tax deductions provides the basis for a novel policy instrument. By manipulating the share of taxpayers with a preliminary deficit, tax authorities can influence the claiming of self-reported tax deductions. The results in Section 6.3 show that more accurate tax withholding, reducing the share of taxpayers with owed taxes, would decrease the likelihood that taxpayers claim a legitimate deduction, and thereby reduce subsidy cost. It is unlikely that reducing the prevalence of underwithholding would affect giving behavior. This would require taxpayers to anticipate a preliminary deficit when making a giving decision, and factor in an increased likelihood of reporting an eligible deduction in the event they have a deficit. But there is no reason to believe a taxpayer whose giving is sensitive to the subsidy rate would plan to only claim an eligible gift only if they happened to have a preliminary deficit. More likely, a preliminary deficit raises the salience of existing gifts, or induce taxpayers to discover the tax favored nature of gifts already made. Providing a subsidy to taxpayers who would otherwise have neglected to claim a deduction is an inefficient use of revenue. Minimizing the prevalence of underwithholding has few obvious costs: tax authorities have a preference for over- rather than underwithholding, because it is easier to issue refunds than collect owed taxes.

Our suggestion that the prevalence of underwithholding can be used as a policy instrument is related to recent work on commodity tax salience. Chetty et al. (2009) find that
consumers purchase more when sales tax is added at the register rather than included in the marked price, because tax-exclusive prices make the sales tax less salient. Building on this finding, Goldin (2014) shows that the distortionary cost of taxation can be reduced by collecting a disproportionate share of revenue from low salience taxes. Our recommendation is analogous. We argue that decreasing the prevalence of underwithholding reduces the salience of legitimate deductions at tax filing time, but not when giving decisions are made, achieving the same amount of charitable giving at less subsidy cost.

8 Discussion

Modern income tax systems feature a broad range of possible deductions, to incentivize favored activities and differentiate tax liability. Conventional wisdom holds that self-reported deductions are subject to substantial overreporting. Few deduction line items are subject to information reporting and audit rates low, making moderate amounts of overreporting a favorable gamble. Studying one of the first uses of third-party information reporting for a tax deduction line item, we have documented widespread under rather than overclaiming of charitable tax deductions. Most taxpayers neglecting to report deductions did so repeatedly, sacrificing about DKK262 per year. A key finding is the inability of audits to detect underreporting. In retrospect, this is not too surprising: audit effort is allocated to sources of abuse resulting in lost revenue. Tax authorities do not seek to conceal eligible deductions from taxpayers, but neither do they systematically probe taxpayers about nil reports for deduction items. Researchers relying on audit results to measure compliance are likely to overstate the importance of evasion relative to missing deductions.

Frictions affecting the claiming of tax deductions diminish the ability of policymakers to differentiate tax liability, and may dampen behavioral response. This makes it important for tax system design to understand both the magnitude of frictions and the types of taxpayers for whom frictions are likely to be large. Using a range of tests, we have presented new evidence on the anatomy of optimization frictions suppressing claiming of self-reported deductions. The behavior of accountants, and taxpayers with multiple deductions, provides evidence
consistent with compliance cost being a deterrent to claiming. But other frictions, such as knowledge about giving incentives and salience, appear to be more important. We find that taxpayers with a preliminary tax deficit are substantially more likely to report an eligible deduction than those due a refund. By analogy to the literature on commodity tax salience, we argue that improving the accuracy of withholding is desirable, because it would reduce the salience of eligible deductions at tax filing time, and thereby reduce subsidy cost.

References


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<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
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</thead>
<tbody>
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<td>Total deductions claimed in 2008</td>
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<tr>
<td>Filed a return 2006-2011</td>
<td>293,190</td>
</tr>
<tr>
<td>No deduction 2006-2007</td>
<td>152,898</td>
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<td>3 deductions 2009-2011</td>
<td>104,208</td>
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<td>2 deductions 2009-2011</td>
<td>15,585</td>
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<td>13,970</td>
</tr>
<tr>
<td>0 deductions 2009-2011</td>
<td>19,135</td>
</tr>
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Notes: *Filed a return* is the number of taxpayers who claimed a charitable tax deduction in 2008 and filed a tax return in each year 2006-2011. *No deduction 2006-2007* is the subset who did not claim a charitable tax deduction in 2006 or 2007. The *No deduction 2006-2007* group is split into four mutually exclusive groups according to the number of charitable tax deductions claimed in the years 2009-2011.
Table 2: Probability of Self-Reporting a Charitable Deduction: 2007

<table>
<thead>
<tr>
<th>Dependent Variable: Reported a Charitable Deduction in 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other wage-earner (self-reported)</td>
</tr>
<tr>
<td>[0.063,0.104]</td>
</tr>
<tr>
<td>Childminders and fisherman deduction (self-reported)</td>
</tr>
<tr>
<td>[0.050,0.112]</td>
</tr>
<tr>
<td>Establishment account deposit (self-reported)</td>
</tr>
<tr>
<td>[0.023,0.212]</td>
</tr>
<tr>
<td>Transport (pre-populated)</td>
</tr>
<tr>
<td>[0.180,0.190]</td>
</tr>
<tr>
<td>Unemployment insurance contributions (pre-populated)</td>
</tr>
<tr>
<td>[0.017,0.029]</td>
</tr>
<tr>
<td>Alimony (pre-populated)</td>
</tr>
<tr>
<td>[-0.047,-0.019]</td>
</tr>
<tr>
<td>Preliminary surplus less than DKK3,000</td>
</tr>
<tr>
<td>[-0.075,-0.064]</td>
</tr>
<tr>
<td>Preliminary deficit less than DKK3,000</td>
</tr>
<tr>
<td>[0.021,0.032]</td>
</tr>
</tbody>
</table>

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. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively, and 95 percent confidence intervals are reported in brackets. Using 2006 data for the dependent variable gives similar results.
### Table 3: Tax Value of Regular Gifts

<table>
<thead>
<tr>
<th>Taxpayer</th>
<th>Charity</th>
<th>Tax Deductible</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>A</td>
<td>400</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>700</td>
</tr>
<tr>
<td>C</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>D</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

Notes: This table shows the amount of regular tax deductions received by four hypothetical taxpayers. Only annual gifts of DKK500 or more per charity qualified for a tax deduction before 2012, and the first DKK500 in total gifts is excluded in calculating the total value of regular tax deductions. The value of charitable deductions is equal to the deductible amount multiplied by the one-third subsidy rate.

### Table 4: Dominated Giving Choices

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>5,927</td>
<td>2,050</td>
<td>1,878</td>
<td>1,480</td>
</tr>
<tr>
<td>2009</td>
<td>7,350</td>
<td>2,421</td>
<td>1,925</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>9,743</td>
<td>3,168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td>11,624</td>
</tr>
<tr>
<td>Total</td>
<td>270,826</td>
<td>294,912</td>
<td>336,571</td>
<td>360,527</td>
</tr>
</tbody>
</table>

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 1,878 also made a dominated choice in 2009 and 2010. Total is the number of taxpayers claiming a regular charitable tax deduction in each year.
Figure 1: Charitable Tax Deductions Claimed

(a) Number and Average Value

(b) Number: By Claim Size and Year

Note: 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: Ten Largest Charities

(a) Number

(b) Value

Notes: The Tax Return Data line indicates the total number (top panel) or value (bottom panel) of information reports received by SKAT from the 10 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 (top panel) or value (bottom panel) of contributing members reported by those 10 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, we suspect this to be a reporting error.
Note: The sample is restricted to qualified accountants. Years for which there was information reporting correspond to the shaded bars.
Figure 5: Taxpayer Characteristics: By Size of Preliminary Deficit

(a) Average Age

(b) Share of Females

(c) Average Income

(d) Share with a Charitable Deduction

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 38,000 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 (d) show a 95 percent confidence interval; confidence intervals for panels (a)-(c), not shown, are extremely tight.
Figure 6: Notched Subsidy Scheme for Second and Subsequent Gifts

(a) Budget Set

(b) Distribution of Charitable Gifts in 2011: Dominated Choices

Notes: (Top 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 \( g \in \left[ g^*, \bar{g} \right] \) 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 (\( g_1 \)). (Bottom panel): For the group of taxpayers with a maximum regular gift greater than or equal to DKK500, the bottom panel 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.
A Appendix

Figure 7: Average Value of Unclaimed Deductions

Notes: The black line shows the average value of the change in charitable deductions claimed between 2007 and 2008 for claims having a value no more than the upper limit shown on the x-axis. That is, the mean value ($m$) of net new contributions between 2007 and 2008 conditional on claimed gifts ($g$) being no more than $x$ is 

$$m|g < x = [(V_{2008}|g < x) - (V_{2007}|g < x)] / [(N_{2008}|g < x) - (N_{2007}|g < x)]$$

where $(V_t|g < x)$ is the total value of tax deductions less than $x$ in value claimed in year $t$, and $(N_t|g < x)$ is the number of tax deductions with a value no more than $x$ claimed in year $t$. The solid dot sets $x$ to its maximum observed value: $x = x_{max}$.
Table 5: Effect of the Reform by Type of Taxpayer

<table>
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<tr>
<th>Dependent Variable: Claimed a Tax Deduction</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
</tr>
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<tr>
<td>Intercept</td>
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<td>0.00027068</td>
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<tr>
<td>Female</td>
<td>0.01331</td>
<td>0.00016898</td>
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<tr>
<td>Married</td>
<td>0.01041</td>
<td>0.00018638</td>
<td>55.86</td>
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<tr>
<td>Copenhagen</td>
<td>0.01260</td>
<td>0.00024514</td>
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<tr>
<td>Self-Employed</td>
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<tr>
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<tr>
<td>Age: 26-45</td>
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<tr>
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Notes: The data consists of the universe of taxpayers (4.37 million) observed over the years 2006-2011. Post is a dummy variable taking the value unity for the post-2008 information reporting period. Time is a linear time trend, and the R-squared statistic for the regression is 0.0265. The omitted category represents a male taxpayer aged 46-65, in 50-75th income percentile, single, residing outside Copenhagen, and not self-employed. Robust standard errors have been used.