Tax Expenditure Salience

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We investigate taxpayer perceptions of two tax expenditures: the charitable deduction (CD) and the home mortgage interest deduction (HMID). Our survey evidence suggests widespread misperceptions regarding both programs' incentives. Almost half of eligible taxpayers are unaware of the CD's availability. Regarding the HMID, taxpayers err in both directions: many eligible taxpayers falsely believe themselves to be ineligible while even more ineligible taxpayers falsely believe themselves to be eligible. Eligible taxpayers tend to underestimate the magnitude of both tax subsidies. Our results provide important context for evaluating the effectiveness of the CD and HMID and shed light on potential reforms. (*JEL:* L38, R38, H20, H24, H31)

1. Introduction

Every year, the federal government "spends" over $100 billion in the form of income tax deductions to promote charitable giving and housing consumption (Joint Committee on Taxation, 2012). A voluminous literature investigates whether the charitable deduction (CD) and home mortgage interest deduction (HMID) are effective in achieving those goals.[1] With the acute need for government revenues, the importance of understanding the effectiveness of these costly tax expenditures has never been greater.

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1. See infra, I.B and I.C.

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Yet despite the numerous studies that investigate the effectiveness of the CD and HMID, an important part of the question has largely been overlooked. Tax expenditures create incentives for taxpayers to behave in a particular way but their ultimate effect on behavior is mediated through taxpayer *perceptions* of those incentives. And a spate of new research suggests that taxpayers' beliefs about a tax may not match the reality. Across many contexts, researchers are discovering a wedge between the economic incentives generated by a tax and the way in which individuals account for those incentives when making decisions. Consequently, those seeking to understand the effectiveness of a tax expenditure should consider not only the incentives the tax expenditure creates, but also taxpayer perceptions of those incentives.

This paper investigates taxpayer perceptions of the CD and HMID. Three possibilities are apparent. First, the tax expenditures may be *fully salient*, meaning that taxpayers correctly perceive the incentives the expenditures generate.[2] Second, the tax expenditures may have *low salience*, in that taxpayers under-account for the true incentives the expenditures generate. Finally, the association of either charity or home ownership with tax benefits may be so strong that the expenditure is *hyper-salient*, with taxpayers overestimating the associated tax benefits.[3] Because different taxpayers may operate under quite different perceptions of a tax expenditure's incentive effects, we investigate distributional patterns in taxpayer beliefs as well as aggregate measures.

Our analysis fits into a growing literature that investigates the manner and extent to which taxpayers account for tax incentives when making their decisions. In particular, a number of recent studies suggest that taxpayers regularly under-account for certain taxes in the context of beer (Chetty et al., 2009), toll booths (Finkelstein, 2009), cigarettes (Goldin and Homonoff, 2013), and property tax payments (Cabral and Hoxby, 2010).

2. Within the literature, *salience* typically refers to the prominence a decision-maker attaches to some feature of a decision. Because both momentary inattention to a feature of a tax expenditure as well as false beliefs about a tax expenditure's incentives can affect behavior in similar ways, we employ the term *salience* to refer to the latter as well as the former.

3. In concurrent work, Faulhaber (2012) also raises the possibility of hyper-salience in the context of the CD.

Our paper is also closely related to an established literature probing taxpayer perceptions of marginal and average tax rates (Fujii and Hawley, 1988).

Two recent papers shed light on the salience of income tax expenditures and are thus particularly relevant to our focus here. First, Chetty and Saez (2009) provide evidence that EITC filers do not fully understand the incentives generated by that program. Second, Gallagher and Muehlegger (2008) compare the effectiveness of a variety of hybrid car purchase tax credits and find evidence consistent with income tax credits having lower salience than other tax designs. Although they also operate through the income tax code, the CD and HMID are quite different from these other income tax provisions. Relative to the EITC and hybrid car subsidies, the CD and HMID cost the fisc much more money and disproportionately affect more affluent and potentially more knowledgeable taxpayers. Additionally, the CD and HMID are itemized deductions; as explained below, this feature may affect how taxpayers perceive the incentives the expenditures generate. Although others have speculated on the salience of the CD,[4] to our knowledge we are the first to investigate the question empirically.

Understanding taxpayer perceptions of the CD and HMID is important for furthering a number of policy goals. First, the salience of a tax expenditure shapes its effectiveness at bringing about the targeted behavior. Low-salience expenditures make for ineffective subsidies: they reduce revenues without changing behavior. At the other extreme, hyper-salient expenditures can bring about targeted behaviors at lower revenue costs; they deliver more bang for the government's buck.[5]

Second, understanding taxpayer perceptions adds important context to the existing literatures on the CD and HMID. If taxpayer perceptions are mostly accurate, prior research that studies the effect of tax changes on aggregate behavior correctly identifies taxpayers' sensitivity to a change in the price of a subsidized good. However, if taxpayers systematically misperceive CD and HMID subsidy rates, studies that ignore taxpayer

4. Faulhaber (2012), see supra.

5. The welfare implications of tax expenditure salience also depend on the pricing of the tax subsidy in relation to what is optimal. For example, when the subsidy rate is too high, low salience taxes can mute the behavioral distortion that would otherwise result. Of course, a better policy would be to simply levy a fully salient subsidy at the optimal level, which would avoid providing a windfall to taxpayers who engage in the targeted behavior despite underestimating the tax subsidy.

perceptions are unlikely to identify taxpayers' underlying price elasticities. Consequently, they may be a poor guide to the potential of (a better designed) tax program to bring about the targeted behavior.

Third, understanding tax expenditure salience can shed light on the effects of potential reforms. Both candidates in the 2012 presidential election proposed altering the structure of itemized deductions in the tax code, either by capping the total amount of deductions a taxpayer may claim or by limiting the top rate at which charitable contributions and housing consumption may be deducted. Accurately predicting the effect of such changes requires knowledge of how taxpayers currently perceive the deductions' incentives as well as how those perceptions would change following the reform. Similarly, discovering that a tax expenditure has low-salience might point towards utilizing informational campaigns or simplifying the program rules to make its incentives easier to understand. In contrast, if a tax expenditure is fully salient or hyper-salient, the benefits of such measures would be more limited.

Fourth, understanding taxpayer perceptions of a tax expenditure is crucial for assessing the expenditure's effect on welfare. In particular, if tax expenditures are not fully salient, they may induce welfare costs by driving taxpayers to make budgeting mistakes (Chetty et al., 2009). For example, taxpayers who over-estimate the tax benefits associated with the HMID may spend more on housing consumption than if they perceived the incentives correctly. Thus assessing a tax expenditure's effect on welfare requires understanding how taxpayers perceive the expenditure in addition to simply knowing how the expenditure affects behavior.

Finally, although much of our discussion focuses on the market salience of the CD and HMID—the notion that taxpayer perceptions of those programs affects decisions about donating to charity and taking out mortgages—our analysis speaks to questions of political salience as well.[6] In the same way that misperceptions about tax incentives may shape the effect of tax expenditures on economic behavior, such misperceptions may also shape taxpayer's political perceptions of the CD and HMID. For example, Slemrod (2006) suggests that taxpayers' flawed perceptions of the estate tax played an important role in fostering political support for the tax's repeal

6. See Gamage and Shanske (2011) and Schenk (2010) for helpful discussions on the distinction between market and political salience.

during the Bush administration. Consequently, understanding taxpayer perceptions of the CD and HMID may help explain patterns of political support for those programs.

To investigate the salience of the CD and HMID, we surveyed taxpayers to learn their perceptions of the tax savings associated with making charitable contributions and taking out home mortgages. In essence, we follow the methodology of Fujii and Hawley (1988) except that we focus on income tax expenditures rather than marginal tax rates. Although there are well-known disadvantages to relying on survey data of this sort,[7] our approach offers a straightforward and direct method for gaining information about what taxpayers are thinking. We also provide survey evidence regarding the salience of the standard deduction, which indirectly affects the applicability of the CD, HMID, and many other tax expenditures.

We find mixed evidence regarding the salience of the CD and HMID. Along two dimensions, the CD has low salience. Almost half of eligible taxpayers are unaware of the deduction's availability, and among those who are eligible, the majority under-estimate the magnitude of the subsidy available to them. This finding directly contradicts the conventional wisdom that taxpayers strongly associate charitable giving with tax benefits.[8]

By contrast, we document substantial heterogeneity regarding taxpayer perceptions of the HMID. Not all taxpayers eligible for the deduction are aware of their eligibility and a sizable fraction of ineligible taxpayers falsely believe themselves to be eligible. As with the CD, eligible taxpayers tend to under-estimate the subsidy rate associated with the HMID.

The remainder of the paper proceeds as follows. Section 2 introduces the notion of tax expenditure salience and provides background information on the CD and HMID. Section 3 describes the survey we administer to learn about taxpayer perceptions of those deductions. In Section 4, we present the results of our main analysis as well as several important robustness checks. Section 5 turns to distributional patterns, and investigates the incidence of

7. For example, taxpayers may inaccurately report their financial behavior, either inadvertently or by design (e.g. to appear more charitable). Additionally, because the highest income taxpayers account for a disproportionate amount of charitable contributions but make up a relatively small fraction of the population, our results may lack external validity for that important group.

8. E.g. Faulhaber, p. 1309.

taxpayer mistakes across different groups. Section 6 considers the general applicability of the survey evidence presented here and concludes.

2. Background

2.1. Tax Expenditure Salience

To better understand the role taxpayer perceptions play in mediating the effect of a tax expenditure on behavior, it is important to distinguish between the *true subsidy rate*—the actual effect of a tax expenditure on the after-tax price of the targeted behavior—and *the perceived subsidy rate*—the tax savings as understood by taxpayers when making their decisions. A tax expenditure has *low-salience* when the perceived subsidy rate is below the actual subsidy rate, *full-salience* when the two rates are approximately equal, and is *hyper-salient* when the perceived subsidy rate exceeds the actual subsidy rate.

A taxpayer's perceived subsidy rate may diverge from her true subsidy rate in two distinct ways. First, taxpayers might make *eligibility mistakes*: errors about whether they qualify for a particular tax subsidy. Second, taxpayers might make *magnitude errors*: mistakes about the amount of the savings associated with a particular subsidy for which they qualify.

Taxpayers may make these errors in ways that either amplify or reduce the behavioral effect of the tax expenditure. With respect to eligibility mistakes, a taxpayer who is eligible for the CD may falsely believe that she is not eligible, undermining the influence of the expenditure on her charitable giving decisions. We refer to errors in this direction as *false-negative* mistakes. On the other hand, taxpayer errors may also magnify the behavioral effects of an expenditure, if ineligible taxpayers falsely believe themselves to be eligible and engage in more of the targeted behavior as a result (these are *false-positive* mistakes). For example, a taxpayer who falsely believed himself eligible for the CD might choose to donate more money to charity by virtue of that false belief.

Magnitude errors too may either amplify or reduce the behavioral effects of a tax expenditure. An unmarried itemizing taxpayer with taxable income of $65,000 faces a marginal tax rate of 25%. Because this taxpayer is eligible for the CD, her true subsidy rate is 25 cents on the dollar (after tax, it costs the taxpayer only 75 cents to donate one dollar to charity). But if the taxpayer under-estimates the actual subsidy (e.g. by confusing her marginal and average tax rates), the perceived price of charitable giving will exceed 75 cents, dampening the incentive effects of the tax expenditure. On the other hand, if the taxpayer over-estimates the subsidy rate associated with the CD (e.g. by confusing the deduction with a tax credit), that error will push her propensity to donate in the opposite direction.

Thus eligibility and magnitude errors may shape the effect of tax expenditures on behavior. At the end of the day, taxpayers make decisions based on their perceptions of an activity's costs. To the extent that a tax expenditure has low salience, the subsidy has a muted effect on taxpayer behavior even though its effects on the federal budget remain quite real. In contrast, when ineligible taxpayers falsely believe themselves to qualify for an expenditure, or when eligible taxpayers over-estimate the magnitude of the subsidy rate, the tax expenditure will be hyper-salient. A hyper-salient expenditure results in more bang for the government's buck: taxpayers engage in more of the targeted behavior than they would if their perceptions of the subsidy were accurate. On the other hand, hyper-salient expenditures create an attendant welfare loss to taxpayers by driving them to make budgeting mistakes.[9]

2.2. Charitable Giving and the Charitable Deduction

A long empirical literature investigates the effectiveness of the CD. Because of the deduction, an itemizing taxpayer facing marginal tax rate t who makes a \$1 donation forgoes less than \$1 of other consumption, as the donation reduces her tax liability by t dollars. In other words, the CD reduces the effective price of a one-dollar donation to $(1 - t)$ dollars. Because the CD encourages charitable donations by reducing their price, researchers have traditionally assessed the deduction's effectiveness by attempting to measure the price-elasticity of charitable donations.[10] The

9. Taxpayers who contribute more to charity because they falsely perceive themselves to be eligible for the CD experience a welfare loss because they cannot spend that money on purchases that have higher marginal utility. See Chetty et al. (2009) and Goldin (2012).

10. Of course, our argument below is that if the CD is less than fully salient, it is taxpayers' perceptions of the deduction in addition to their price sensitivity that shapes the CD's effect on behavior.

more sensitive charitable giving is to price, the greater the optimal tax subsidy for charitable giving (Saez, 2004).

Numerous studies have attempted to estimate the price elasticity of CDs, drawing on a variety of econometric techniques. In general, these studies attempt to link variation in a taxpayer's after-tax cost of charitable giving to differences in observed giving behavior. Early studies considered variation in the effective price of charitable donations for a cross-section of a population stemming from differences in federal marginal tax rates. These studies consistently identified price elasticities in the range of −1.1 to −1.3, although the tight link between income and marginal tax rates gives rise to identification concerns (see e.g. Clotfelter 1985 or Andreoni 2006).

More recent studies have relied on panel data following a taxpayer's giving behavior over time, often exploiting variation in marginal tax rates from federal policy changes such as the tax reforms in the 1980s (Randolph, 1995; Barrett et al., 1997; Auten et al., 2002). These studies are much less consistent in their findings; various studies identify long-run price elasticities ranging from −0.5 to −1.26, with differences in methodology translating into large differences in results. The most recent studies are no closer to reaching a consensus. Karlan and List (2007) conduct a randomized trial in which subjects face different costs of charitable giving based on a randomly assigned matching rate, and find a very small elasticity of donations, in the range of 0 to −0.3. Yet a careful observational study by Bakija and Heim (2010) utilizing state and federal variation in tax rates finds an elasticity range of −0.7 to −1.4, depending on whether the tax-induced price change is permanent or transitory. All in all, the CD literature suggests that taxpayers' charitable contributions respond to tax-induced changes in the cost of giving, but there is no consensus as to the magnitude of these effects. Yet without knowledge of the CD's salience, these findings conflate the own-price elasticity of charitable giving with taxpayer perceptions of the incentives associated with the CD. That is, the less that taxpayers perceive the deduction's incentives, the less they will adjust their charitable giving in response to a change in the subsidy rate, for any degree of price sensitivity.

2.3. Home Mortgage Interest Deduction

The HMID is one of the most controversial provisions of the income tax code (Glaeser and Shapiro, 2003). The HMID makes consumption of debt-financed owner-occupied housing cheaper than other forms of consumption. A lengthy literature estimates the elasticity of home consumption to this tax benefit.[11] This literature finds elasticity estimates on the order of −0.8 (Poterba, 1992). This estimate implies that a family earning $50,000 spends 23% more on housing expenditures as a result of the HMID, a dramatic effect.

But as with the CD elasticity literature, these findings on the HMID conflate the own-price elasticity of housing consumption with changing taxpayer perceptions of the incentives created by the HMID. This is unfortunate, because the elasticity estimates are frequently used in estimating the welfare costs of the HMID. A better understanding of the salience of the HMID will improve our understanding of its welfare consequences.

3. Survey Design and Validation

Our paper utilizes survey evidence to measure taxpayer perceptions of the tax code. This section describes the survey and compares the survey answers with other data to shed light on its representativeness and reliability.

3.1. The Survey

In July 2011, we conducted an online survey to elicit taxpayer perceptions of the CD and HMID. In order to focus on those individuals most likely to understand the tax expenditures, we restricted our sample to those respondents who self-identified as being the family member responsible for half or more of the financial decisions in their household. We obtained data from 887 respondents who met this criterion. The survey was administered through YouGov, a consumer research company. YouGov applies a "matched random sample technique." This means that YouGov solicits people to take surveys for pay and collects exhaustive demographic information for its panel. YouGov then selects a sample that is representative of the 2006 American Communities Survey along standard demographic variables.[12]

11. The HMID elasticity question was considered "old" in 1992. See Poterba (1992) and also Poterba and Sinai (2008).

12. For more details on the "matched random sample technique, see http://projects.iq.harvard.edu/cces/book/sample-design.

This sampling method is widely applied in political science and is considered imperfect but useful.[13] In order to ensure that our sample included a sufficient number of mortgage holders who took the standard deduction, we oversampled 2:1 from the 25 states where mortgage holders were least likely to itemize. All quantities reported below are weighted to produce nationally representative estimates. The text of the survey questionnaire is reproduced in the Appendix.

3.2. Summary Statistics: Examining the Quality of the Survey Data

In this subsection, we compare our survey responses with micro data concerning the same issues to get a sense of the sample population as well as the reliability of the survey responses.

4. Summary Statistics

Table 1 displays summary statistics for the survey sample as well as demographic characteristics for the July 2011 Current Population Survey (CPS). After accounting for the oversampling of states with low state income taxes, the survey population appears reasonably representative of the nation as a whole in terms of its observable characteristics. Income in both samples is centered at $45,000, with the distribution in the survey slightly compressed relative to the CPS. The age distributions are similar as well. The survey contains slightly more married respondents and slightly

13. One validation survey of the YouGov design concluded that "although the opt-in Internet sample we analyze does have some bias, the bias is probably not so great as to vitiate the gains of inexpensive, large, and targeted samples that Internet technology make possible, especially if the bias can be minimized through future improvements in the sampling methodology. We argue, therefore, for the use of opt-in Internet samples that are attentive to sample quality, and further suggest that all researchers engaged in survey work, regardless of method, evaluate the biases inherent in their samples before wholeheartedly embracing results."A survey article summarizing the quality of data from online survey companies such as YouGov concluded that "internet surveys hold promise of doing much to allay 'specification search' concerns, while very significantly expanding possibilities for high quality observational and experimental research" (Clarke et al., 2008). YouGov political polls derived from their sample of internet survey takers performed as well as the median poll in forecasting the results of the 2012 presidential election, missing the ultimate voting results by an average of 2.6%. See http://fivethirtyeight.blogs.nytimes.com/2012/11/10/which-polls-fared-best-and-worst-in-the-2012-presidential-race

Table 1. Representativeness of Survey Sample

	Survey	CPS
Married (%)	56	50
College graduate (%)	24	30
Income		
25th percentile	$27,500	$22,500
50th percentile	$45,000	$45,000
75th percentile	$75,000	$87,500
Age (years)		
25th percentile	36	36
50th percentile	53	50
75th percentile	61	63
Race/ethnicity		
White (%)	67	81
Black (%)	12	13
Hispanic (%)	12	

fewer college graduates. The survey also appears similar to the CPS in terms of racial composition.[14] The similarity of the survey respondents' demographic information to that of the population at large is reassuring, but not surprising; the sample has been selected to be representative of the overall population.

4.1. Standard Deduction

The standard deduction has the potential to play a large role in the salience of the CD and HMID. Taxpayers taking the standard deduction do not enjoy the benefit of the tax expenditures, while taxpayers who itemize deductions enjoy a subsidy for charitable giving and mortgage interest payments. Knowledge of the applicability of the standard deduction therefore provides important context for the data analysis of CD and HMID that follows.

Approximately 53% of survey respondents report taking the standard deduction (Table 2). By contrast, the IRS reports that 67% of all income tax returns in 2009 took the standard deduction.[15] The survey sample therefore

14. In comparing the survey to the CPS in this regard, note that "white" in the CPS refers to both Hispanic and non-Hispanic whites, whereas "white" in the survey refers to non-Hispanic whites only.

15. http://www.irs.gov/uac/SOI-Tax-Stats—Individual-Income-Tax-Returns

Table 2. Standard Deduction Filing Rates by Income

Income category	Fraction that report taking the standard deduction in survey	Fraction taking the standard deduction according to the IRS
All income	0.52	0.65
0–$30,000	0.74	0.90
$30,000–$50,000	0.69	0.70
$50,000–$100,000	0.42	0.44
$100,000–	0.15	0.13

appears to include a disproportionate fraction of itemizers relative to the population. Note, however, that 11% of respondents did not know whether they itemized or took the standard deduction, and it is plausible that standard deduction filers, who do not need to keep track of itemized deductions, would be over-represented in this group. Moreover, a disproportionate number of respondents who did not answer the standard deduction question has below average income, which is associated with a higher likelihood of taking the standard deduction. These factors may explain why the percentage of survey respondents taking the standard deduction is below the numbers reported by the IRS.[16]

Other characteristics of the survey respondents' answers to the standard deduction question demonstrate a significant amount of knowledge of their itemizing status. Table 2 compares the sample's reported use of the standard deduction by income category and compares that with the same income category's use of the standard deduction as reported by the IRS. The table shows that survey respondents' likelihood of taking the standard deduction decreases with income in a way that is broadly similar to the relationship between income and the use of the standard deduction reported by the IRS. And even after controlling for income, survey respondents' reported likelihood of taking the standard deduction decreases in a quantitatively and statistically significant fashion as the estimated value of itemized deductions increases. The tight relationship between self-reported standard deductions and known predictors of the probability of using the standard deduction reassures us that the survey respondents' answers on this issue are reasonably accurate.

16. We investigate the high fraction of itemizers in the sample in Section 2.3.

Table 3. Charitable Donations by Income

Annual income	Income donated to charity: survey respondents (%)	Income donated to charity: CBO aggregate data (%)	Income donated to charity: survey respondents with outliers trimmed (%)
Under $50,000	3.0	2.1	1.7
$50,000–$100,000	4.4	2.2	2.7
$100,000–$300,000	2.4	2.4	2.4

4.2. Charitable Donations

Survey respondents report giving more to charity on average than do comparable individuals in aggregate data compiled by the CBO.[17] As Table 3 demonstrates, survey respondents with income below $100,000 report donating amounts constituting more than 3% of their income. These figures exceed the slightly greater than 2% of income charitable giving figure reported by the CBO for almost all income groups other than the very wealthy. The discrepancy between the survey and the population data is attributable to a few outlier figures for self-reported charity. When donations as a percentage of income are capped at 100% of income, the survey average donation percentages are more consistent with the aggregate data.[18]

With this background in mind, the next section examines the accuracy of individual perceptions of the tax benefits associated with charitable giving and the payment of home mortgage interest.

5. How Accurate are Taxpayer Perceptions of the CD and HMID?

5.1. Charitable Deduction

To estimate the frequency of eligibility mistakes, we compared respondents' itemizer status with their perceptions of the tax benefits associated with charitable donations. Table 4 shows that while 72% of respondents identified their CD eligibility correctly, a sizable minority of

17. See http://www.cbo.gov/ftpdocs/124xx/doc12480/10-18-charitableTestimony.pdf, at p. 6.

18. In all cases, the survey averages are very sensitive to the treatment of outliers. Unfortunately, median charitable giving numbers by income category are not available in the CBO's report.

Table 4. CD Eligibility Mistakes

	Answer category		
Filing status	Correct	False-negative[a]	False-positive[b]
Standard deduction	0.89		0.11
	(0.02)		(0.02)
Itemizers	0.54	0.46	
	(0.03)	(0.03)	
All filers	0.72	0.23	0.05
	(0.02)	(0.02)	(0.01)

[a] A false-negative mistake occurs when an eligible taxpayer perceives no tax savings associated with the targeted behavior.
[b] A false-positive mistake occurs when an ineligible taxpayer perceives positive tax savings associated with the targeted behavior.

Table 5. CD Magnitude Errors

	Perceived subsidy rate					
Tax bracket	No effect	10–20	20–40	40–60	100	200
10	0.78	0.20	0.00	0.00	0.02	0.00
15	0.46	0.48	0.05	0.00	0.00	0.01
25	0.47	0.37	0.09	0.05	0.02	0.00
28	0.27	0.51	0.18	0.00	0.00	0.04
33 and 35	0.22	0.20	0.42	0.16	0.00	0.00

itemizers (46%) made “false-negative” mistakes—that is, they reported that charitable donations have no effect on their tax liability despite being eligible for the deduction. In contrast, only 11% of standard deduction filers made “false-positive” mistakes, in which ineligible taxpayers reported that charitable contributions reduce their tax liability.[19]

Table 5 homes in on magnitude errors. Taxpayers’ actual subsidy rates are a function of their tax bracket, which in turn is a function of their taxable income. All taxpayers face a marginal tax rate somewhere between 0%

19. It is possible that some taxpayers who report that giving to charity does not reduce their taxes are aware of their eligibility for the CD but do not plan on claiming the tax benefit, e.g., because they do not want to bother keeping the receipts or because they believe that claiming the tax benefit would reduce the moral value of their contribution. From a policy standpoint, such taxpayers react to the expenditure as if they were unaware of their eligibility for it, in that the subsidy plays no motivational role in their giving behavior, except that such taxpayers do not make the budget allocation mistakes exhibited by unaware taxpayers.

and 35%, so they face an actual subsidy rate between those amounts as well. For example, a single taxpayer with taxable income of $75,000 falls into the 25% marginal tax bracket, and consequently faces an actual subsidy rate of 25 cents for each dollar of charitable giving. To assess magnitude errors, Table 5 classifies the respondents by tax bracket and reports the percentage of itemizers in that bracket who report a given subsidy rate.[20] Because tax brackets are based on taxable income rather than gross income, we estimate taxable income based on the taxpayer's reported gross income and deductions.[21]

The results in Table 5 provide additional evidence that eligible taxpayers underestimate the value of the CD subsidy. Only 9% of taxpayers facing the 25% marginal tax rate correctly identify the amount of the tax subsidy to be in the 20–40% range. Thirty-seven percent perceive the subsidy to between 10% and 20%, and 47% believe that giving to charity has no effect on their taxes. Although the fraction of respondents correctly identifying the tax subsidy is greater among higher income taxpayers, that fraction is only 42% for the top two tax brackets, with 22% of taxpayers in those brackets perceiving no tax effect of charitable contributions and 20% identifying the value of the subsidy to be in the 10–20% range. Finally, in each tax bracket, relatively few taxpayers over-estimate the true subsidy rate.

Taken together, Tables 4 and 5 suggest that taxpayers systematically underestimate the size of the subsidy associated with the CD; a large

20. For states that impose state tax liability on the basis of federal taxable income, the subsidy rate associated with a tax expenditure is the actually the sum of the federal and state marginal tax rates. To the extent that respondents accurately accounted for state income taxes in their survey answers, our approach would under-estimate their true tax bracket and falsely suggest that taxpayers were over-estimating the subsidy rate. However, we find the opposite, namely that most taxpayers under-estimate the true subsidy rate.

21. In particular, we estimate respondents' taxable income in several steps. First, we estimate personal exemptions by imputing household size from the July 2011 Current Population Survey. For taxpayers who take the standard deduction, estimated taxable income is simply reported income minus personal exemptions and the applicable standard deduction. For itemizers, computing taxable income also requires estimating respondent's deductions. Respondents report the amount of property taxes that they pay and the amount that they give to charity. To compute HMID, we estimate annual mortgage interest payments from information on mortgage length, monthly payments, and how many years the respondent has owned the house. Finally, to compute the amount deductible for state taxes, we estimate state taxes paid from the respondent's income, deductions, and the applicable tax laws (rates, standard deduction, and personal exemptions from the respondent's state).

Table 6. HMID Eligibility Mistakes

	Answer category		
Filing status	Correct	False-negative[a]	False-positive[b]
Standard deduction	0.61		0.39
	(0.03)		(0.03)
Itemizers	0.82	0.18	
	(0.03)	(0.03)	
All filers	0.71	0.09	0.20
	(0.02)	(0.01)	(0.02)
Standard deduction	0.68		0.32
(with mortgage)	(0.05)		(0.05)

[a] A false-negative mistake occurs when an eligible taxpayer perceives no tax savings associated with the targeted behavior.
[b] A false-positive mistake occurs when an ineligible taxpayer perceives positive tax savings associated with the targeted behavior.

fraction of eligible taxpayers do not believe that they receive any tax savings from charitable donations, and of those who are aware, the magnitude of perceived subsidy rate tends to be less than the magnitude of the actual subsidy rate.

5.2. Home Mortgage Interest Deduction

Table 6 shows the prevalence of eligibility mistakes concerning the HMID deduction. Similar to the CD results, 71% of respondents answer correctly, but the type of eligibility mistakes among those who answer incorrectly is more evenly distributed here between false-negatives and false-positives. In particular, 9% of respondents make false-negative mistakes compared with 20% of respondents who make false-positive mistakes.

One possible explanation of the relatively large number of false-positive mistakes here is that survey respondents who take the standard deduction are merely answering under the (reasonable) assumption that if they were to begin paying interest on a mortgage, they would then start itemizing their taxes, and thus collect the benefit. However, that explanation is rendered less likely by the fact that the fraction of false-positives remains large when we restrict our analysis to those standard deduction filers who already have a mortgage, as shown in Table 6.[22]

22. One important possibility is that taxpayer perceptions of the HMID become more accurate at the time they make important housing decisions (e.g., by consulting

Table 7. HMID Magnitude Errors

	Perceived subsidy rate					
Tax bracket	No effect	<10	10–20	20–30	30–40	40 or more
10	0.46	0.28	0.18	0.02	0.05	0.02
15	0.17	0.38	0.38	0.07	0.00	0.00
25	0.16	0.25	0.25	0.21	0.07	0.06
28	0.12	0.30	0.16	0.26	0.16	0.00
33 and 35	0.04	0.10	0.42	0.30	0.14	0.00

Table 7 investigates magnitude errors concerning the HMID by taxpayers eligible for the benefit. As in Table 5, Table 7 breaks down taxpayers' perceived subsidy rates by their tax bracket. As before, a substantial fraction of taxpayers perceive the subsidy rate to be lower than it really is. For example, 38% of taxpayers in the 15% bracket perceived the subsidy rate to be less than 10%, and 17% failed to identify any tax subsidy at all. The story is similar in the higher tax brackets. It is notable that higher-income taxpayers do perceive the subsidy rates to be higher than lower-income taxpayers perceive, but both groups perceive the rates to be lower than they truly are. One difference from the CD results here is that there is some evidence of hyper-salience among taxpayers along the magnitude margin: that is, a non-trivial fraction of eligible taxpayers overestimate their subsidy rate. For example, 7% of taxpayers in the 25% bracket perceive the subsidy rate to be in the 30–40 range, and another 6% perceive that the subsidy rate is over 40%.

From Tables 6 and 7, it appears that different taxpayers have quite different misperceptions of the HMID deduction. A sizable minority of ineligible filers falsely believe themselves to be eligible. Although most eligible filers correctly identify themselves to be eligible for the tax savings, a majority

experts). Although this concern is always a limitation of survey data that is not asked at the exact time the relevant decision is being made, it is likely less of a problem for most charitable contributions decisions (which arise frequently) than for decisions about housing consumption (which may prompt taxpayers to correct their beliefs). That being said, it is important to keep in mind that the HMID incentives are also designed to shape more on-going decisions such as whether to refinance one's mortgage or take out a home equity loan; to the extent that taxpayers are unaware that there are tax implications of such decisions, they may be less likely to seek out tax advice in the first place. Additionally, as discussed above, day to day perceptions of the HMID may play an important role in shaping political support for the subsidy.

of eligible taxpayers at each income level perceive subsidy rates below the true subsidy rates. Thus the HMID appears to have low-salience for some who are eligible and hyper-salience for some who are not. Unlike the CD, most of the low-salience is on the magnitude rather than eligibility margin.

5.3. Perceptions of Itemizer/Non-Itemizer Status

An important limitation of the analysis presented thus far is that it hinges on the accuracy of respondents' self-reported itemizing status. If respondents answered the question incorrectly, it could generate the appearance of eligibility mistakes when none actually existed. We attempted to mitigate this problem in two ways when designing the survey: First, we restricted our sample to individuals who report making half or more of their household's financial decisions, a group who is likely to have dealt with the choice of itemizing versus taking the standard deduction at some point in the past. Second, when asked about whether they itemize or take the standard deduction, we allowed respondents to answer: "I don't know," increasing the likelihood that those who did report their itemizer status did not simply guess randomly.

Of course, even with these safeguards, it is still possible that some of the eligibility mistakes we observe stem from respondents misreporting their itemizer status. To account for this possibility, we constructed an alternate measure for whether or not a respondent itemized by comparing the estimated value of their itemized deductions with the standard deduction.[23] Using predicted itemizer status, we repeated the eligibility mistake analysis described above in Sections 5.1 and 5.2. As Tables 8 and 9 reveal, the results are similar to before for false-negatives: almost half of itemizers make false-negative mistakes regarding the CD, and approximately 20% do the same for the HMID. The fraction of respondents making false-positive mistakes, however, increases by approximately 10 percentage-points for each type of deduction, which suggests that a sizable fraction of taxpayers may be overestimating the size of the subsidies as a result of misperceiving their itemizing status.

23. As before, we estimate the tax benefits associated with itemizing by computing the most important itemized deductions (HMID, CD, property taxes, state income taxes) and comparing the value of those deductions to the value of the standard deduction.

Table 8. CD Eligibility Mistakes (Predicted Itemizers)

	Answer category		
Filing status	Correct	False-negative[a]	False-positive[b]
Predicted itemizer	0.52	0.48	
	(0.04)	(0.04)	
Predicted standard deduction filer	0.79		0.21
	(0.02)		(0.02)

[a] A false-negative mistake occurs when a taxpayer whose income and deductions data makes us predict that they itemize (and benefit from the CD) perceives no tax savings associated with giving to charity.
[b] A false-positive mistake occurs when a taxpayer whose income and deductions data makes us predict that they take the standard deduction (and do not benefit from the CD) perceives tax savings associated with giving to charity.

Table 9. HMID Eligibility Mistakes (Predicted Itemizers)

	Answer category		
Filing status	Correct	False-negative[a]	False-positive[b]
Predicted itemizer	0.78	0.22	
	(0.03)	(0.03)	
Predicted standard deduction filer	0.51		0.49
	(0.03)		(0.03)

[a] A false-negative mistake occurs when a taxpayer whose income and deductions data makes us predict that they itemize (and benefit from the HMID) perceives no tax savings associated with paying home mortgage interest.
[b] A false-positive mistake occurs when a taxpayer whose income and deductions data makes us predict that they take the standard deduction (and do not benefit from the HMID) perceives tax savings associated with paying home mortgage interest.

Tables 8 and 9 also provide information about the salience of the standard deduction, which determines eligibility for many deductions other than CD and HMID. For example, deductions for healthcare expenses and employee business expenses, among many others, accrue only to itemizers.[24] We estimate that approximately 70% of all income tax filers, and 82% of itemizers, report their standard deduction or itemizer status correctly. In sum, our results suggest that taxpayers have a reasonably good knowledge of their filing status, though errors are common enough to lead to substantial misallocations if taxpayers behave according to their perceived itemizer/non-itemizer status, rather than their actual status.

24. Note that not all itemizers are eligible to deduct these expenses.

Table 10. CD Eligibility Mistakes (Treat "Don't Know" as Standard Filer)

	Answer category		
Filing status	Correct	False-negative	False-positive
Itemizer	0.54	0.46	
	(0.03)	(0.03)	
Standard deduction filer	0.88		0.12
	(0.02)		(0.02)

Finally, recall from Table 2 that our survey population includes disproportionately many taxpayers who report itemizing, relative to the overall population. If this pattern merely reflects random sampling error, it is unlikely to bias our results. If, however, the pattern emerges from standard deduction filers inaccurately reporting themselves as taking the standard deduction, our analysis would overestimate the frequency of false-negative eligibility mistakes.[25] In addition to imputing each taxpayers' itemizing status (described above), we check the robustness of our results in two ways. First, many of the 11% of respondents who were unable to answer whether or not they itemize may in fact be standard deduction filers.[26] To address this possibility, we repeat the eligibility mistake analysis, treating the "I don't know" group as standard deduction filers. Tables 10 and 11 show that the results are largely unchanged by this reassignment. Second, recall from Table 2 that the discrepancy between the number of itemizers in our sample and those in the general population arose primarily from respondents with incomes below $30,000. Tables 12 and 13 repeat the analysis, dropping these potentially biased groups. Whereas the HMID results are similar to before, the CD eligibility mistake analysis highlight that many of the false-negative mistakes are being made by low-income taxpayers, whereas middle-income and upper-income taxpayers are more likely to make false-positive mistakes on the CD.

25. That is, standard deduction filers who falsely believed themselves to be itemizers would be correct in their belief that they receive no benefit from the CD and HMID.

26. Respondents who were unable to report their itemizing status were disproportionately low-income, which is associated with taking the standard deduction. Additionally, it seems plausible that many standard deduction filers, who do not need to compute itemized deductions, may simply be unaware that they have made the election.

Table 11. HMID Eligibility Mistakes (Treat "Don't Know" as Standard Filer)

	Answer category		
Filing status	Correct	False-negative	False-positive
Itemizer	0.82	0.18	
	(0.03)	(0.03)	
Standard deduction filer	0.62		0.38
	(0.03)		(0.03)

Table 12. CD Eligibility Mistakes (Exclude <\$30,000)

	Answer category		
Filing status	Correct	False-negative	False-positive
Itemizer	0.85	0.15	
	(0.03)	(0.03)	
Standard deduction filer	0.56		0.44
	(0.04)		(0.04)

Table 13. HMID Eligibility Mistakes (Exclude <\$30,000)

	Answer category		
Filing status	Correct	False-negative	False-positive
Itemizer	0.85	0.15	
	(0.03)	(0.03)	
Standard deduction filer	0.56		0.44
	(0.04)		(0.04)

5.4. Distributional Analysis

Thus far, we have documented the presence of significant numbers of eligibility mistakes for both the CD and HMID. In this section, we turn from examining mistakes at the aggregate population level to considering the distribution of those mistakes for different groups.

Table 14 reports the prevalence of eligibility mistakes for various demographic groups. Several features of the table are notable. First, the frequency of false-negative mistakes is substantially smaller for respondents with a college degree, whereas a college degree appears to make little difference for false-positive mistakes. Second, the frequency of any mistake tends to be higher for whites compared to blacks and Hispanics. Third, the fraction of

Table 14. Incidence of CD and HMID Mistakes by Demographic Group

	Fraction of false-negative mistakes among itemizers on CD[a]	Fraction of false-negative mistakes among itemizers on HMID[a]	Fraction of false-positive mistakes among itemizers on CD[b]	Fraction of false-positive mistakes among itemizers on HMID[b]
All itemizers	0.46	0.18	0.11	0.39
Education				
No college degree	0.53	0.22	0.13	0.38
College degree	0.30	0.10	0.10	0.43
Race/ethnicity				
White	0.46	0.20	0.10	0.39
Black	0.35	0.12	0.12	0.30
Hispanic	0.43	0.11	0.19	0.28
Income ($)				
0–30	0.71	0.46	0.15	0.26
30–50	0.53	0.20	0.09	0.36
50–100	0.48	0.19	0.08	0.54
100+	0.31	0.05	0.15	0.52

[a]A false-negative mistake occurs when an eligible taxpayer perceives no tax savings associated with the targeted behavior.
[b]A false-positive mistake occurs when an ineligible taxpayer perceives positive tax savings associated with the targeted behavior.

false-negative mistakes declines monotonically with income, whereas the fraction of false-positive mistakes actually appears to increase as income rises. Even for those with incomes above $100,000, Table 14 shows that almost one in three itemizers believed that charitable giving has no tax benefit. The frequency of false-negative mistakes in this income range is particularly significant, as Table 3 showed that taxpayers in this income range are disproportionately responsible for charitable donations.[27]

Because many of the demographic factors in Table 14 are highly correlated, we also analyzed the distribution of eligibility using multivariate

27. Intriguingly, the average charitable contribution of itemizers in this income range who correctly identify the existence of the CD subsidy is $6,479, whereas the average contribution of itemizers with similar income who make false-negative mistakes is only $858. However, it is important to emphasize that we are unable to identify the direction of causation behind this result: it could be that high income individuals who make false-negative mistakes are less likely to donate because they underestimate the tax benefit, or it could simply be that individuals make false-negative mistakes because they have no plans to donate to charity in the first place and do not take the trouble to learn about the tax effects.

Table 15. The Incidence of False-Negative Mistakes

	(1) CD	(2) CD	(3) HMID	(4) HMID
College	−0.234**	−0.202**	−0.122*	−0.146*
	(0.076)	(0.073)	(0.060)	(0.059)
Log income	−0.124**	−0.059	−0.081	−0.050
	(0.042)	(0.044)	(0.044)	(0.041)
Age	−0.041**	−0.033**	−0.034*	−0.029*
	(0.013)	(0.013)	(0.013)	(0.014)
Age^2	0.000*	0.000*	0.000*	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Black	−0.069	−0.071	−0.046	−0.054
	(0.080)	(0.082)	(0.090)	(0.092)
Hispanic	−0.026	−0.043	−0.054	−0.023
	(0.126)	(0.122)	(0.078)	(0.069)
Log charity		−0.067***		
		(0.015)		
Log monthly mortgage payment				−0.022*
				(0.010)
N	340	340	337	337

Dependent variable indicates making a "false-negative" mistake. Heteroskedasticity robust standard errors reported in parentheses. All specifications include state fixed effects.
Log Charity = Log(1 + Charity), Log Mortgage = Log(1 + Mortgage).
* $P < 0.05$.
** $P < 0.01$.
*** $P < 0.001$.

regressions. Table 15 reports the results for false-negative mistakes. For ease of interpretation, we employ a linear probability model in which the dependent variable takes on a value of 1 when the respondent makes a false-negative mistake and 0 otherwise.[28] Each specification includes state fixed effects to account for the possibility that individual characteristics or behavior are associated with variation in state tax regimes. Columns 1 and 3 show the coefficients associated with various demographic variables. Notably, it appears that college education and high income status appear to exert independent negative effects on the likelihood of making a false-negative mistake. Older respondents are less likely to make false-negative mistakes, but the small positive coefficient on age-squared suggests that the reduction occurs at a declining rate.

To investigate whether error rates differ for taxpayers with different levels of engagement in the targeted activity, Columns 2 and 4 of Table 15, respectively, add in measures of charitable giving and mortgage interest

28. The results are qualitatively unchanged when estimated using a probit model.

Table 16. The Incidence of False-Positive Mistakes

	(1) CD	(2) CD	(3) HMID	(4) HMID
College	−0.007	−0.015	−0.051	−0.059
	(0.047)	(0.047)	(0.077)	(0.076)
Log Income	−0.006	−0.024	0.172***	0.191***
	(0.026)	(0.029)	(0.044)	(0.045)
Age	0.005	0.004	0.002	0.005
	(0.009)	(0.009)	(0.014)	(0.014)
Age^2	−0.000	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Black	0.084	0.093	0.101	0.086
	(0.064)	(0.061)	(0.099)	(0.098)
Hispanic	0.081	0.079	−0.156	−0.142
	(0.073)	(0.073)	(0.101)	(0.094)
Log Charity		0.016*		
		(0.007)		
Log Monthly Mortgage Payment				−0.021*
				(0.011)
N	373	373	371	371

Dependent variable indicates making a "false positive" mistake.
Heteroskedasticity robust standard errors reported in parentheses.
All specifications include state fixed effects.
Log Charity = Log(1 + Charity), Log Mortgage = Log(1 + Mortgage).
* $P < 0.05$.
** $P < 0.01$.
*** $P < 0.001$.

payments.[29] The coefficients on charitable donations and mortgage interest are negative and statistically significant. Although it is impossible for us to identify the direction of causation, these negative coefficients are consistent with the hypothesis that those who have the most to gain by taking advantage of the deduction are most likely to be aware of its existence. Notably, the coefficient on income declines in magnitude in Columns 2 and 4 (relative to Columns 1 and 3), suggesting that income does not have a direct effect on false-negative error rates. In contrast, the coefficient on college education remains large in magnitude and statistically significant.[30]

29. The survey measures charitable donations by asking respondents how much they donate to charity in a typical year (see Appendix for survey text). Respondents who make small donations in most years, but occasionally make large donations, might also have an incentive to learn the correct CD rate.

30. A similar analysis of the incidence of magnitude errors suggests fewer distributional patterns on that margin.

Table 16 undertakes a similar distributional analysis for false-positive mistakes. Most interestingly, the distribution of false-positive mistakes appears to vary less systematically with demographic variables than did the distribution of false-negative mistakes. One pattern is that higher income does appear to reduce the likelihood of making false-positive mistakes regarding the CD, but actually appears to increase the likelihood of such mistakes on the HMID. Additionally, whereas higher monthly mortgage payments are associated with fewer false-positive mistakes, higher CDs are actually associated with a greater number of false-positive mistakes. This result is striking, because it is consistent with the hypothesis that individuals who overestimate the tax benefits associated with charitable giving are more likely to donate to charity as a result. Although we are unable to rule out reverse causation, it is worth noting that a likely candidate for reverse causation—that individuals who donate more are more likely to understand the tax benefits—would generate a result in the opposite direction from what we observe.

6. Conclusion

This paper investigated taxpayer understanding of two important tax expenditures: the CD and HMID. Although surveys are not always the perfect means to study the determinants of taxpayer behavior, they can provide a helpful starting point when other sources of evidence are unavailable. Our findings demonstrate that salience is not simply an issue for obscure programs such as hybrid car subsidies, or programs that involve the poor, such as the EITC. Instead, our results suggest that imperfect understanding of tax expenditures, even prominent ones, is deep-rooted. In particular, our results suggest a number of important insights for understanding the CD and HMID.

Regarding the CD, taxpayers appear to markedly underestimate the tax savings associated with charitable donations. This result is notable given the conventional wisdom of a strong association between CDs and tax savings. The CD's low salience suggests the expenditure is an ineffective way to promote charitable giving; it provides only a muted incentive to those who underestimate the CD's subsidy rate and entirely fails to incentivize the 46% of taxpayers eligible for the deduction who falsely believe the subsidy rate to be zero.[31] Additionally, the fact that even high-income filers appear to drastically under-estimate the CD subsidy rate suggests that limiting the rate at which top bracket filers can deduct charitable contributions would not reduce deductions by as much as one would otherwise assume.

Turning to the HMID, our results suggest that the deduction could better promote housing consumption by correcting the misperceptions of the taxpayers who under-estimate the subsidy rate, although the potential gains from doing so are smaller than in the case of the CD because of the smaller number of taxpayers in this category. For the sizable group of taxpayers for whom the HMID is hyper-salient, however, the welfare story is more complicated. On the one hand, the hyper-salient subsidy promotes housing consumption at lower cost to the fisc—taxes are not actually reduced when housing is purchased by ineligible filers. On the other hand, the mistakes caused by hyper-salience have real welfare costs to the taxpayers who act on those misperceptions. For example, low-income households may suspect that the "tax advantages" associated with home ownership justify what would otherwise be an imprudent housing purchase. If this household ultimately takes the standard deduction, the tax advantages will never materialize, possibly leading to default and foreclosure. All in all, the fact that so many taxpayers appear to misunderstand the HMID's incentives (in both directions) is worrisome because it suggests the presence of widespread budgeting mistakes.

Our findings also provide important context for applying the results of the existing literature on the CD and HMID. Taxpayers' lack of perception of the CD incentives suggests that previous studies estimating the effect of tax changes on behavior measure a quantity that is substantially less than taxpayers' price elasticity of charitable donations. As such, policymakers must consider salience before applying those studies to non-tax incentive programs or to proposed CD reforms.[32] Whereas the HMID results suggest

31. In addition to simply failing to promote the intended behavior among taxpayers who underestimate its incentive effects, the CD may still drain revenue to the extent that taxpayers who donate to charity end up claiming the deduction on their return (e.g. after being prompted by TurboTax).

32. One possibility for raising a tax expenditure's salience would be an informational campaign to promote taxpayer awareness of the expenditure's true incentives. However, there are so many different kinds of tax expenditure that campaigns attempting to raise their salience may simply confuse taxpayers rather than enhance the quality

that previous research on housing consumption elasticities identified by the deduction is less skewed in one particular direction, our findings highlight the dangers of drawing welfare conclusions on the basis of that evidence. Even if taxpayer misperceptions about the HMID incentives were to cancel out in the aggregate, the fact that so many taxpayers have mistaken beliefs suggests the deduction generates a substantial welfare cost in the form of budgeting errors. Thus measuring the HMID's welfare effects by using estimated price elasticities may dramatically overstate the subsidy's benefits, even if the aggregated price elasticities are themselves correct.

Finally, our results shed new light on the role of the standard deduction. Many argue that the "standard deduction is justified on grounds of simplifying both tax administration and taxpayer recordkeeping" (Graetz and Schenk, 2009). However, the standard deduction may also interact with tax salience in a constructive manner. If those with low incomes are less likely to be aware of CD and HMID than high income individuals who itemize deductions, then CD and HMID are inefficient subsidies for low income individuals. It would be better to simply lower taxes for this group and target their charitable giving or homeownership through other means.

The standard deduction accomplishes exactly this goal. Instead of randomly and inefficiently providing subsidies to low income charitable givers and home-owners who are unaware of the subsidy, the standard deduction lowers income tax bills for all low income individuals and targets the CD and HMID subsidies towards the groups for whom the subsidies are most likely to be salient and effective.

Several caveats should be kept in mind when interpreting the results presented here. Taxpayer perceptions and beliefs measured at the time of the survey are unlikely to provide a perfect guide to their perceptions and beliefs at the time they make the relevant decision. Even if someone gets the answer wrong on our survey, this does not mean that they will get it wrong when they make an actual spending decision, when advisers or personal research may clear up uncertainties.

This concern, while important to bear in mind, should not be overstated. Day-to-day misperceptions matter because people effectively make ongoing

of decision making. Moreover, the existence of factors such as the standard deduction, the Section 68 haircut and other features of the tax code guarantee that almost no tax expenditure applies simply and generally, further limiting this type of approach.

decisions in which tax perceptions are a factor. If we presume there is no reason to sell a house because we overestimate the tax benefits, we may not explore the possibility of a sale, and therefore never have our misperceptions corrected. Put differently, taxpayer perceptions about tax expenditures shape the initial decision whether to receive tax advice. In addition, concern about the difference between taxpayer's perceptions at the time of the survey versus at the time of making financial decisions is more acute for the HMID than for the CD; financial advisors or even real estate agents may help correct taxpayers' false beliefs (Arlen et al., 2002), and other home-buying taxpayers will likely invest the resources to determine the correct tax treatment on their own. In contrast, the data provided by the survey is probably a reasonably accurate characterization of taxpayer perceptions for charitable contribution decisions, as seeking specialized financial advice is uncommon except for the largest gifts.

Additionally, for both the CD and HMID, the snapshot of taxpayers' perceptions measured by the survey may provide a good guide to the *political* salience of the tax expenditures, that is, the perceptions and belief that shape taxpayers' political support for the subsidies. After all, individuals rarely hire tax planners when deciding how to vote. Because the survey captures a snapshot of taxpayer perceptions at an arbitrary point in time (with respect to charitable and mortgage decisions), it provides insight into the day-to-day beliefs that shape the formation of taxpayers' political opinions. All in all, however, one should be cautious before applying our results to contexts in which individuals are likely to obtain expert advice or otherwise invest significant resources in learning about the tax code.[33]

A second important point to keep in mind is that our findings should not be generalized beyond the CD and HMID. We chose to focus on the CD and HMID because of their size and prominence. Other tax incentives are buried deeper in the tax code (such as the capital gains treatment rules) or interact in complicated ways with other provisions (such as the AMT),

33. Although many individuals receive some form of expert assistance in filing their tax returns, the relevant type of expert assistance in the tax expenditure context is advice regarding the activity targeted by the tax code—i.e. advice regarding the tax implications of charitable contributions or home mortgages. Further research investigating how various forms of expert advice (e.g. real estate brokers, TurboTax prompts, information from charities, etc.) affect taxpayers' perceptions would be particularly valuable for assessing the generalizability of the results presented here.

and it is difficult to predict how the resulting incentives will be understood by taxpayers or whether they will even be noticed at all. Indeed, the differences in the pattern of eligibility mistakes we observe between the CD and HMID—despite the similarity in their designs—highlights the dangers of extrapolating our results to other tax expenditures. That being said, our results certainly caution against adopting the neoclassical assumption of full salience as the starting point when analyzing other tax expenditures.

Appendix: The Survey Questionnaire

1. What portion of your family's financial decisions do you make? (e.g., paying bills, making important purchases, etc.) (screener question)
For all of these questions, please estimate the answers to the best of your ability. You do not need to go to the trouble of consulting your records.

2. In a typical year, how much money do you donate to charity?

3. How does giving money to charity affect your income taxes?
Giving money to charity reduces the amount of income taxes I owe to the government
Giving money to charity raises the amount of income taxes I owe to the government
Giving money to charity does not change the amount of income taxes I owe to the government

[If a is selected for question 3]
4. If you give an extra $100 to your favorite charity, about how much do you save in income taxes?
My income taxes would go down by 10 to 20 dollars.
My income taxes would go down by 20 to 40 dollars.
My income taxes would go down by 40 to 60 dollars.
My income taxes would go down by about 100 dollars.
My income taxes would go down by about 200 dollars.

[If b is selected for q. 3]
4. If you give an extra $100 to your favorite charity, about how much do your income taxes increase?
My income taxes would go up by 10 to 20 dollars.

My income taxes would go up by 20 to 40 dollars.
My income taxes would go up by 40 to 60 dollars.
My income taxes would go up by about 100 dollars.
My income taxes would go up by about 200 dollars

5. Do you own your home?
Yes
No [If no, skip questions 5 – 9]

[If answer to q. 5 is "Yes"]
6. For how long have you owned your home?
0–5 years
6–10 years
11–20 years
More than 20 years

[If answer to q. 5 is "Yes"]
7. Do you have a mortgage on your home?
Yes
No

[If answer to 7 is "Yes"]
8. About how much is your monthly mortgage payment?
$0–$499
$500–$999
$1,000–$1,499
$1,500–$1,999
$2,000–$2,499
More than $2,500

[If answer to 7 is "Yes"]
9. What type of mortgage do you have?
Less than 15 years
15 years
16–29 years
30 years
More than 30 years

[If answer to q. 7 is "Yes"]

10A. How does paying interest on a home mortgage affect your income taxes?

Paying interest on a home mortgage reduces the amount of income taxes I owe to the government

Paying interest on a home mortgage raises the amount of income taxes I owe to the government

Paying interest on a home mortgage does not change the amount of income taxes I owe to the government

[If answer to question 5 is "No" or if answer to question 7 is "No"]

10B. How would paying interest on a home mortgage affect your income taxes?

Paying interest on a home mortgage would reduce the amount of income taxes I owe to the government

Paying interest on a home mortgage would raise the amount of income taxes I owe to the government

Paying interest on a home mortgage would not change the amount of income taxes I owe to the government

[If answer to 10.A or 10.B. is "reduce"]

11. Suppose that you make mortgage interest payments of $10,000 per year, by how much would these payments reduce your income taxes?

Mortgage interest payments of $10,000 per year would reduce my income taxes by less than $1000.

Mortgage interest payments of $10,000 per year would reduce my income taxes by $1000–$2000.

Mortgage interest payments of $10,000 per year would reduce my income taxes by $2000–$3000.

Mortgage interest payments of $10,000 per year would reduce my income taxes by $3000–$4000.

Mortgage interest payments of $10,000 per year would reduce my income taxes by more than $4000.

12. What are the annual property taxes that you owe on your home?

0–$2,000

$2,000–$4,000

$4,000–$6,000
More than $6,000

13. When your file your income taxes, do you usually itemize deductions or do you take the standard deduction?
I usually itemize my deductions.
I usually take the standard deduction.
I don't know.

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