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AN ALTERNATIVE TAX TREATMENT OF PRIVATE SCHOOL ENROLLMENT

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ABSTRACT

Approximately 10 percent of school-age children in the United States are enrolled in private schools, relieving the financial burden on public school systems, and the taxpayers who support them, of the cost of their education. At present, the tax code does not allow families who provide this financial relief an income tax deduction, even though such relief is a gift to governments for exclusively public purposes and thus analogous to a charitable donation. Using the Public Use Microdata Sample of the American Community Survey and the NBER Internet Taxsim calculator, this paper estimates that granting families who enroll their children in private schools an income tax deduction equal to the per-pupil expenditures in their public school district would cost the federal government an average of $7.75 billion per year over the 2006 – 2010 period. This amount is less than one percent of federal income tax revenues. Because private school enrollment, public school expenditures, the likelihood of itemization, and marginal tax rates increase with taxpayer income, the dollar benefits of this change are positively related to income. At the margin, high-income taxpayers would receive about 35 cents in federal and state tax relief for each dollar of per-pupil expenditures foregone.

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I. Introduction

In the United States, about 10 percent of elementary and secondary school-age children are educated in private schools, which through their accreditation meet the public requirement that these students receive an adequate education.[1] Private schools provide a choice for parents who value a different educational experience for their children. By paying out of pocket for their children's private education, these families relieve a financial burden on the taxpayers at the local, state, and federal level who are obliged to provide the resources to pay for public education. If private schools did not exist, then public schools – and the tax collections to support them – would have to be about 10 percent larger nationwide than the current $600 billion spent on public education each year.[2]

The federal tax code allows as a deduction from taxable income the amount of contributions to charitable organizations, where charitable organizations include governments at all levels, provided that the contribution is made for exclusively public purposes.[3] The simplest tax deductible donation would be a cash gift to the government entity. However, the same public purpose is served if a local government is relieved of the financial cost of educating 10 percent of the school-age children within its jurisdiction as if it received an equivalent amount as a cash donation. At present, the latter would entitle the donors to claim an income tax deduction, while the former would not.[4]

Tax policy discussions regarding the individual income tax code typically do not involve concepts such as the public expenditures foregone by private education of students, but there is no reason in principle that they cannot. Indeed, recent education policy reforms have begun

[1] Snyder and Dillow (2012) report in the *Digest of Education Statistics 2011* (Table 2) that there were 5.49 million students in private school out of total elementary and secondary enrollments of 54.89 million in 2009.
[2] The statement assumes that the students currently in private schools could be educated for the same average per-pupil costs as the students currently in public schools. Dixon (2012) reports in *Public Education Finances: 2010* (Table 1) that total expenditures in 2009-10 were $603 billion, with about 10 percent of that total being capital outlays. Snyder and Dillow (2012) present data (Table 64) from the U.S. Department of Education's "Schools and Staffing" survey showing tuition charges of at least $45 billion at private schools (excluding financial aid and expenditures financed outside of tuition) in 2007-08.
[3] See Section 170(c)(1) of the Internal Revenue Code at http://www.law.cornell.edu/uscode/text/26/170.
[4] Note that the "public purposes" describes what the government entity does with the donated funds, not the motivations of the taxpayer who makes the donation.

to incorporate per-pupil spending amounts into voucher plans targeted at low-income students. For example, the State of Indiana introduced a program, called "Choice Scholarships," in the 2011-12 academic year, in which low-income families could qualify for vouchers to help offset private school tuition. The amount of the voucher is tied to the per-pupil state funding for the student's school district.[5] The information required to calculate the value of such vouchers is a subset of the enrollment, revenue, and expenditure data provided annually to the U.S. Census Bureau by every school district in the country through the Annual Survey of Government Finances.

Educational vouchers provide a link between education policy and tax policy. When an educational voucher is used to obtain educational services outside of the home school district, it is analogous to a refundable tax credit in an amount related to per-pupil expenditures. It makes no substantive difference whether the school district pays the alternative school directly or the taxpayer pays the school and claims the payment as a refundable credit against taxes paid to the government entity that funds the school district.

A tax deduction for expenditures saved through private education can also be considered in relation to vouchers. Suppose that all families with school-age children were issued vouchers in an amount equal to the per-pupil expenditures in their school district. Further suppose that 90 percent of them (matching the current fraction of school-age children in public schools) take their vouchers to the public schools to which the school district assigns them and redeem them for educational services. The other 10 percent do not redeem them, but instead return them to the school district unclaimed. By construction, the total expenditures on public schools in this hypothetical would equal total current spending on public schools. The act of donating the vouchers by the 10 percent of students in private schools enables public school districts to reduce the expenditures they must make on public

[5] The program is described at http://www.doe.in.gov/improvement/school-choice/choice-scholarships and the voucher amounts are listed in http://www.doe.in.gov/sites/default/files/school-choice/2012-03-07-estimatedscholarshipamounts.pdf. An earlier example of such programs is the D.C. Opportunity Scholarship Program, which was created in 2004 to provide scholarships for low-income students (particularly those whose public schools are identified as needing improvement) to attend private schools. Scholarships can be up to $12,205 for high school and $8,136 for elementary and middle school in the 2012-2013 academic year. See http://www.dcscholarships.org.

education and thus increases the revenues available to their sponsoring governments for public purposes.

The key difference between recognizing private school decisions as donated vouchers and actually implementing a voucher program derives from the different level of government at which they are executed and from which they draw public funds. Decisions to implement voucher systems in which the state and local monies follow the student must be made state-by-state or even locality-by-locality. These funds that follow a student to a private school necessarily leave the public school district. The choice to allow that to happen has to be made at the level of the taxing authority. In the short term, when the fixed costs of operating public schools cannot be reduced easily, this may make the public schools less cost-effective (in turn, heightening political arguments for more and larger vouchers). The history of school voucher programs is one of contention and lack of widespread success, in part because of the implications that voucher programs have for the use of local public school funding.[6]

In contrast, recognizing the value of donated vouchers as tax deductions is a decision that can be made at the federal level and that directly impacts only the revenues collected by the federal government (and any state governments that choose to conform to or adopt this new definition of taxable income at the federal level). Individual taxpayers derive benefits from this policy change to the extent that the donated vouchers increase their total deductions. The benefits to these taxpayers are the reduction in federal and state taxes due, which is approximately the product of the size of the donated vouchers and the taxpayers' marginal tax rates.

The purpose of this paper is to consider the change in the amount and distribution of federal and state tax revenues that would occur if donated vouchers were accorded the same tax treatment as other charitable donations. The analysis combines data from two main sources. The first is the Public Use Microdata Sample of the American Community Survey (ACS) from 2006 – 2010. These data represent a 5-percent sample of the U.S. population over that 5-

[6] Bearse, Cardak, Glomm, and Ravikumar (2011) present a model that illustrates the challenges that voucher proposals have had at the ballot box. Forman (2007) provides a historical account of the rise and fall of school vouchers, focusing on religious, racial, and political considerations.

year period. The ACS contains the responses to specific questions on the presence of school-age children and whether they are enrolled in public or private school. The ACS has geographic data at the level of a Public Use Microdata Area (PUMA), an area containing approximately 100,000 people with boundaries that conform to counties where possible. The second data source is the information from the Annual Survey of Government Finances for the same years, which contains information on enrollments, revenues, and expenditures at the school district level.

The combination of these two datasets makes it possible to impute a distribution of per-pupil expenditures to the school-age children in the ACS who attend private schools. That is, students in private school can be matched to a distribution of public-school expenditures in their geographic area. These combined data are then used as inputs to the NBER Internet Taxsim program, which is an algorithm for computing federal and state income tax liabilities based on a subset of the data reported on the individual 1040 form. Comparing tax liabilities with and without per-pupil expenditures treated as charitable donations gives the tax cost of changing policy to recognize donated public school vouchers as tax deductions. The main results show that the aggregate value of donated vouchers was about $48 billion per year between 2006 and 2010 (in constant 2010 dollars). Were they applied as charitable donations for tax purposes, federal revenues would have fallen by $7.75 billion per year, and state tax revenues would have fallen by another $1.21 billion.

The remained of the paper is organized as follows. Section II describes the multiple sources of data used to calculate voucher amounts and their tax consequences. Section III presents the baseline tax calculations, while Section IV presents the main results on the tax costs of donated vouchers. Section V presents results based on alternative assumptions, and Section VI considers some possible dynamic response to the tax change and their cash flow implications. Section VII relates the donated vouchers to broader tax policy considerations, and Section VIII briefly concludes.

II. Data

The Census Bureau compiles data on per-pupil expenditures at the public school district level as part of its Annual Survey of Government Finances via the F-33 survey form filed by all public school districts. Aggregate data for public school systems with 10,000 or more enrollments are reported and described in Dixon (2012) for the most recent year (2010). The underlying data for all elementary-secondary (ELSEC) school districts can be downloaded from the Census Bureau's website.[7]

Estimating the value of donated vouchers requires a dataset of households that is representative of the U.S. population, that includes precise information on private school enrollment of school-age children, that includes information on income that is sufficient to estimate the marginal tax rate on donated vouchers, and geographic identifiers at the most disaggregated level to create the best possible match with public school educational expenditures.

The dataset that best satisfies these criteria is the Public Use Microdata Sample (PUMS) of the American Community Survey (ACS). This study uses the annual records in the 2006 – 2010 PUMS, each of which contains about one percent of the total housing units in the nation, or approximately 1.3 million housing units representing some 3 million person records.[8] The geographic identifier in the PUMS is a Public Use Microdata Area (PUMA), which is a contiguous geographical area that contains at least 100,000 persons and does not cross state boundaries.[9]

[7] See http://www.census.gov/govs/school/.

[8] The PUMS datasets are more fully described (and the data are downloadable) at http://www.census.gov/acs/www/data_documentation/public_use_microdata_sample/.

[9] Since 1990, PUMAs have been delineated by State Data Centers as a unique type of geographic area for the tabulation and dissemination of PUMS files. A brief history of the use of PUMAs is available at http://www.census.gov/geo/puma/puma_history.pdf. As discussed in that history, for the 2000 Census (and the ACS data used here), PUMAs could consist of a single county or an aggregation of one or more counties, census tracts, or minor civil divisions in the New England states. Additionally, an incorporated place with a minimum population of 100,000 persons could be defined as a PUMA. The precise rules and recommendations for delineating PUMAs in the 2000 Census are available at http://www.census.gov/geo/puma/puma_guide.pdf.

A. Matching School Districts to PUMAs

School-age children in the ACS can be linked to the PUMA in which they live. All school districts in the ELSEC data are identified by name, by their unique identifier in the National Center for Education Statistics (NCESID), and by their county. The matching procedure of school districts to PUMAs first links the school district to its county and then links its county to a PUMA. Correspondence files between geographical units, including PUMAs and counties, are available from the Census Bureau.[10] The outcome of this matching procedure is to match an observation in the ACS to all the school districts in its PUMA or its county, whichever is larger.

Except for areas that are densely populated and have a large public school district (e.g. the New York City public schools), a PUMA will include more than one school district. When imputing per-pupil spending to children in the ACS, the analysis uses the enrollment-weighted mean or decile of the distribution of per-pupil spending across all school districts in the PUMA. When a PUMA includes one or more counties and contains the entirety of any county for which it contains a part, the match is precise, in that the distribution of per-pupil spending in the PUMA is formed by taking the distribution of per-pupil spending across all of the school districts in those constituent counties. When a PUMA is wholly contained within a county, and when the county includes more than one school district, then the match is not precise, in that the distribution of per-pupil spending includes all of the school districts in the county, some of which are not in the PUMA. All PUMAs that are wholly contained within the same county will have the same distribution of per-pupil spending.[11]

When a county's population is split across more than one PUMA and the county contains more than one school district, it is necessary to apportion the county's school district enrollments to each PUMA. Table 1 shows an example using data from Limestone and Madison

[10] See http://www2.census.gov/census_2000/datasets/PUMS/FivePercent/.

[11] An alternative approach would be to use the geographic correspondence engine at the Missouri Data Center (http://mcdc2.missouri.edu/websas/geocorr2k.html) to link the school districts directly to a PUMA without using the county as an intermediate step, particularly in the case of unified (as opposed to elementary- or secondary-only) school districts for which the data are good. Even in such cases, a school district may span more than one PUMA, requiring an allocation to PUMAs based on a variable like the population in the 2000 Census, as is done below.

Counties in Alabama in 2009. PUMA 300 contains all of Limestone County and 43 percent of Madison County (based on population counts from the 2000 Census). The other 57 percent of Madison County is in PUMA 200, which contains no other areas. Thus, the mean or percentiles of per-pupil spending in PUMA 200 can be calculated based on the three school districts in Madison County, using the enrollments as weights. For PUMA 300, these three school districts, with enrollments scaled back to 43 percent of their respective totals, and the two school districts in Limestone County comprise the distribution of possible per-pupil spending. The last two columns of the table show the adjusted enrollments for each school district-PUMA combination and the average per-pupil spending in each PUMA.

B. Defining Per-Pupil Expenditures

Per-pupil expenditures, as reported in Dixon (2012) and shown for the five school districts in Table 1, include all current expenditures as a ratio to enrollments measured in the fall of the school year. However, not all current expenditures are appropriate for a voucher system that would serve the typical child in a district. For example, of the $603 billion in current spending on elementary and secondary schools in 2009-10, $74 billion was financed by the federal government. Federal monies in elementary and secondary education are typically allocated for low-income or other at-risk populations. The same is true for a sizable portion of $258 billion of financing that comes from state sources, particularly with regard to funding for special education programs.[12] A sensibly designed voucher system would not base the voucher amount for a typical student on per-pupil expenditures calculated for populations that include atypical students.

The adjusted measure of per-pupil expenditure used in the main analysis below starts with total current spending on elementary and secondary programs in the district and makes two subtractions. The first subtraction is all revenue flowing to the district from federal sources for current expenditures. This quantity includes federal revenues administered through the state for such purposes as compensatory (Title I), children with disabilities, bilingual education, and child nutrition. It does not include impact aid, which is revenue for capital projects that are

[12] See Dixon (2012, Table 1) for these figures.

not included in the initial measure of current spending. The second subtraction is the additional revenues flowing to the district from the state that are designated for compensatory and basic skills programs, bilingual education, special education, and school lunch programs. This subtraction does not include other state funds flowing to the district, such as general formula assistance.[13]

Table 2 presents data on enrollments and per-pupil spending for taxpayers in the ACS with children enrolled in private schools. Students are matched both by geography (PUMA) and by the grade level of school district (elementary, secondary, or unified) based on the grade level range reported in the ACS.[14] The table pools data for all five years, and per-pupil spending is in constant 2010 dollars. Taxpayers are separated into groups based on the level of their Adjusted Gross Income (AGI), with the groups corresponding roughly to those used in tabulations published by the Internal Revenue Service (IRS) in its annual Statistics of Income publications.[15] The first column of Table 2 shows that in 2006 – 2010, an average of 5.61 million school-age children were enrolled in private school, representing 10.5 percent of all school-age children. The next column shows that this percentage rises steadily with income, from 6.1 percent for taxpayers with AGI of less than $50,000 to 38.5 percent for taxpayers with AGI of more than $500,000.

The next two columns show average per-pupil spending for each AGI group. Two measures of per-pupil spending are presented: the first includes all current expenditures and the second is adjusted to exclude the federal and state funds that would not likely be part of the vouchers. In these tabulations, households are assigned the average per-pupil spending across school districts in their PUMA. Total per-pupil spending is $10,625 for taxpayers with less than $50,000 of AGI, and this spending amount does not vary systematically with income

[13] Using the variable names in the ELSEC dataset, the adjusted expenditures are equal to TCURELSC – (TFEDREV – B10) – (C05 + C06 + C07 + C10).

[14] Students are distinguished by grade range in the ACS as Kindergarten, grades 1 – 4, grades 5 – 8, and grades 9 – 12. School districts in the ELSEC data are identified as elementary (K – 6), secondary (grades 7 – 12), or unified (grades K – 12). The distribution of public schools for those in grades K – 4 includes elementary and unified districts. The distribution of public schools for those in grades 9 – 12 includes secondary and unified districts. The distribution of public schools for those in grades 5 – 8 includes elementary, secondary, and unified districts.

[15] The definition of a taxpaying unit and the method of calculating its AGI in the ACS are described in the next subsection.

for AGI levels below $500,000. Per-pupil spending for taxpayers with AGI above $500,000 is about 14 percent higher, at $12,119. Adjusting expenditures to remove federal and other targeted state funds lowers per-pupil spending by 15.5 percent across all AGI levels.

The final two columns show total and adjusted per-pupil spending when households are matched to school districts in their PUMAs based on income. Specifically, households in the ACS are assigned to their household income decile by state and year. School districts are ranked by total per-pupil spending within each unique county-year pairing. Each household is then matched to the school district whose per-pupil expenditures are at the same decile as its decile in the household income distribution. The effect of income-matching households to school districts is to lower per-pupil spending for taxpayers with AGI below $50,000 and to increase per-pupil spending at higher income levels. Because higher income households are more likely to send children to private school, income-matching raises the estimate of overall per-pupil spending in this sample by about 5 percent. The distribution summarized in the last column is the one used for the main estimates below. On average, each child in private school will entitle the taxpayer to claim another $9,384 in charitable donations as an income tax deduction.

C. Calculating Tax Liabilities in the ACS

The ACS is a representative sample of the U.S. population, consisting of a sample of housing unit addresses and a sample of persons living in group quarters facilities. Both samples are derived from the Census Bureau's Master Address File (MAF).[16] The ACS contains a housing record for the household, defined as all persons living at the sampled housing unit, and a person record for each member of the household (or each person living in a group quarters facility). Because households may include unrelated individuals, multiple generations of related individuals, or different subfamilies of a larger family, it is often necessary to allocate the members of a household into separate taxpaying units.

[16] See U.S. Census Bureau (2009) for a detailed discussion of the design and methodology of the American Community Survey.

Each household has one reference person, usually the person in whose name the home is owned or rented. When a household includes a subfamily – a married couple with or without never-married children under 18 years old or one parent with one or more never-married children under 18 years old – that subfamily is identified as such in the ACS and becomes its own taxpaying unit. Among the remaining members of the household, the spouse of the reference person, and any of their children or other relatives whom they could claim as dependents for tax purposes are grouped together in a taxpaying unit. All other household members are treated as separate, single taxpaying units.[17]

Internet Taxsim (version 9) is a program available from the National Bureau of Economic Research designed to calculate federal and state income tax liabilities from data typically found in household surveys.[18] There are 21 inputs for each taxpaying unit, which are defined in the first column of Table 3. The second column of the table describes the procedure used to calculate each input item from the ACS data, including the specific variables used. While most data items are straightforward, there are some important concerns.

First, all income items are top-coded, with $1,000,000 caps per person for each of wages; self-employment income; retirement income; the sum of interest, dividends, and net property income; and all other income. Other income items have $100,000 limits. These top-coded values will cause the aggregate amounts of income reported, and thus aggregate tax liability, to be too low, particularly at the highest income levels. However, because most of these top codes occur well beyond the income thresholds for the top marginal tax rates, the top-coding of income should not substantially affect the calculated marginal tax rates paid on additional itemized deductions, such as those for donated vouchers.

Second, there is no information in the ACS about a number of possible inputs to Taxsim. In the determination of Adjusted Gross Income (AGI), data are unavailable about alimony paid, the adjustments for contributions to IRAs or Keoghs, and for self-employment taxes paid.

[17] There are some remaining ambiguities about the classification of children who are non-relatives of the reference person when there are other non-relative adults present. These children have been classified as dependents of the reference person in the calculations presented here.

[18] The program is described in detail at http://users.nber.org/~taxsim/taxsim-calc9/index.html. See Feenberg and Coutts (1993) for background on the development of the Taxsim program.

Among itemized deductions, there is information available only for mortgage interest paid, property taxes paid, and (via Taxsim's own calculations) state income taxes paid. Charitable donations are not available in the ACS. Because the tax deduction for charitable donations is limits the amount of the deduction to 50 percent of a taxpayer's AGI, charitable donations are imputed to all taxpayers who itemize deductions as a share of AGI based on estimates of this ratio from the IRS Statistics of Income data by year and AGI range.[19] Donated vouchers are added to these imputed donations in the relevant simulations below. The absence of data on other itemized deductions will tend to overstate taxable income and thus tax liabilities.

Third, although taxes are filed on a calendar-year basis, income is reported in the ACS over the 12 months preceding the interview. This difference will tend to overstate income and tax liabilities when income is falling and understate income and tax liabilities when income is rising. The sample period includes the years leading up to and following the Great Recession, and thus periods of rising and falling income.

The tax calculations shown below begin with a baseline sample of all taxpaying units in the ACS. The Taxsim program is used to calculate tax liabilities and other intermediate quantities, like AGI. In this framework, donated vouchers are added to itemized donations that are not preferences for the Alternative Minimum Tax. For each policy change that allows for donated vouchers, the appropriate changes are made to itemized deductions and new tax liabilities are calculated. The impact of the policy change can be calculated as the difference in tax liabilities between each new scenario and the baseline.

[19] Specifically, the data from the Internal Revenue Service, Statistics of Income, Historical Table 2 are used for each year. These publications are the source of the data presented and described in Table 4 below. For each published AGI range, the ratio of total charitable contributions to total AGI is computed. This ratio is then multiplied by the ACS taxpayer's AGI, and the product is imputed to the taxpayer as a charitable donation, which is taken as a tax deduction if the taxpayer itemizes (based on the value of other deductions). For the year 2009, for example, the ratios of donations to AGI are 10.40% for AGI under $50,000, 4.24% for AGI between $50,000 and $75,000, 3.47% for AGI between $75,000 and $100,000, 2.90% for AGI between $100,000 and $200,000, and 3.29% for AGI over $200,000.

III. **Baseline Tax Calculations**

Table 4 presents aggregate summary statistics from the Taxsim calculations for the baseline sample of all taxpayers, with no deductions for donated vouchers. The calculations are shown by year and AGI range and are compared with values published by the Internal Revenue Service in its annual Statistics of Income files.[20] The first two pairs of columns show the number of returns in millions and the share of these returns that are filed as joint returns. The number of returns generally corresponds well between the two data sources, with more taxpaying units identified in the ACS than actually file in the SOI. The correspondence is weakest in the AGI levels above $200,000. The more finely disaggregated categories in the SOI 2010 indicate that, due to the top-coding of incomes in the ACS, there are far fewer taxpayers with AGI above $500,000 in the ACS compared to the SOI. The share of joint returns is higher in the ACS in most years and AGI ranges, in part because the algorithm for assigning taxpaying units in the ACS does not allow for married couples to file separately.

Because the AGI ranges are bounded and the number of returns is similar across the ACS and SOI, so too is the aggregate sum of AGI reported (in billions of current dollars) for the AGI ranges below $200,000. In these ranges, there are more instances of overstated AGI, in part because the ACS does not have data on the adjustments to income that go into AGI. In the top AGI range, the consequences of top-coding of AGI in the ACS are evident. For AGI levels over $200,000, the share of AGI from the SOI that is found in the ACS is only 48 percent in 2006, but it rises each year to 73 percent in 2009 before falling back to 59 percent in 2010. The tabulations for 2010 make clear the problems of top-coding, as the ACS finds only $9 billion of the more than $900 billion of AGI for those with AGI over $1 million that year. The cyclical pattern follows the business cycle, as the ACS is unable to capture the disproportionate increases in income at the highest levels during expansions.

[20] The Statistics of Income data are drawn from Historical Table 2 of the SOI Bulletin, available at http://www.irs.gov/taxstats/article/0,,id=171535,00.html. The published tabulations for the year 2010 include more detailed categories for AGI than for the years 2006 – 2009, and these additional categories are reflected in the table.

The next two pairs of columns show the share of returns with itemized deductions and the aggregate amount of those deductions (in billions of current dollars). As noted above, the ACS has limited data on itemized deductions (even with charitable donations imputed), and so it is not surprising that the share is lower in the ACS than in the SOI. The aggregate amounts of itemized deductions are also lower in the ACS, with the most severe discrepancies in the highest and lowest AGI ranges.

The final two pairs of columns tabulate taxable income and federal income tax. The patterns mimic those found in AGI. Taxable income and tax liabilities are similar across the ACS and SOI for AGI levels between $50,000 and $200,000, though generally higher in the ACS. The ACS reports lower taxable income and tax liabilities in the highest AGI range. There is also lower income tax at AGI levels below $50,000, but this cannot be attributed to lower taxable income in the ACS for these income levels. Overall, the Taxsim calculator applied to the ACS captures 50 – 70 percent of the tax liability in the top AGI range and about 75 percent of the tax liability in the aggregate compared to the SOI data.

The Taxsim program also calculates state tax liabilities. Table 5 shows the aggregate tax payments, average tax payments, and marginal income tax rates at the federal and state levels, by AGI range. (Taxpayers in states with no income tax systems are averaged in with zero state tax liabilities and marginal tax rates.) Consistent with the design of the ACS to reflect a 5-percent sample of the US population over the 2006 – 2010 period, the five years of data have been combined in this table, with dollars now expressed in constant 2010 dollars. The AGI ranges, now defined in constant 2010 dollars as well, have a top category of "Over $500,000." Aggregate state amounts are 27 percent of aggregate federal taxes. By AGI range, the ratio of state to federal tax liabilities is declining with income. Average income tax amounts rise with income at both the federal and state levels. Among taxpayers with AGI above $200,000, federal marginal tax rates are no higher for those with AGI above $500,000 than for those with AGI between $200,000 and $500,000. State marginal tax rates rise with income across all of the AGI categories. At the highest income levels, combined marginal tax rates are about 37 percent, with 31 – 32 percentage points at the federal level and 5 – 6 percentage points at the state

level. Across all income levels, the marginal tax rates average about 11 percent and 3 percent at the federal and state levels, respectively.

IV. Tax Costs of Donated Vouchers

The aggregate tax costs of allowing tax deductions for donated vouchers are shown in Table 6. In these calculations, all students in private school are assigned vouchers equal to the adjusted, income-matched per-pupil expenditures for their year, grade level, state, and PUMA. These unused vouchers are treated as charitable donations for income tax purposes. These initial calculations pertain just to the population of students currently enrolled in private school – the question of a dynamic response is considered in Section VI below. The first two columns show how many taxpayers are affected and how many children are covered – about 3.8 million taxpayers and about 5.6 million school-age children per year averaged across the five years of the sample. The vouchers cannot lower tax liabilities if taxpayers do not itemize their deductions. The third column shows the fraction of taxpayers who itemize their deductions (including the vouchers). Above $50,000 of AGI, almost all taxpayers are itemizing deductions when vouchers are available to be donated. The fourth column shows the fraction of taxpayers who switch to itemizing their deductions due to the availability of donated vouchers. For those above $50,000 of AGI, this fraction declines with AGI. Below $50,000 of AGI, 57 percent of taxpayers are not itemizing donations, even with the opportunity to deduct the donated vouchers.

The fifth column of the table shows the aggregate value of vouchers that appear as deductions, which average $47.9 billion across the five years of the sample. According to the SOI, over the same five years, charitable contributions appearing as tax deductions averaged $180 billion (in constant 2010 dollars), suggesting that allowing donated vouchers to be used as tax deductions could increase total tax deductions for charitable contributions by 27 percent. The next two columns of the table show how much federal income tax is paid by year and AGI group when donated vouchers can be taken as tax deductions and the amount by which tax liabilities have been lowered by these vouchers. The tax cost at the federal level averages $7.75 billion per year across the five years and $1.21 billion at the state level. This is the tax

cost of donated vouchers for students currently enrolled in private school. Taken together, the total tax cost of donated vouchers is therefore $8.96 billion in constant 2010 dollars.

As shown in Table 5, aggregate federal tax liabilities averaged $807.9 billion per year over the same time period as calculated in the ACS. Thus, allowing donated vouchers to be treated as income tax deductions would reduce federal tax liabilities by about 1 percent. Comparing across AGI ranges, donated vouchers reduce tax liabilities by about a third for taxpayers with AGI between $50,000 and $100,000, by 17 percent for those with AGI between $100,000 and $200,000, by 7.6 percent for those with AGI between $200,000 and $500,000, and by 3.3 percent for those with AGI above $500,000.[21]

Table 7 shows the average voucher amounts and tax reductions at the taxpayer level. The first column shows the average number of children in private school in this subsample of taxpayers with at least one child enrolled. Private school enrollments per taxpayer rise with income around a mean of 1.5 students per taxpaying unit, from 1.4 students at AGI levels below $50,000 to 1.6 students at AGI levels above $200,000. The income gradient for average voucher amounts shown in the second column is also positive, as it multiplies the income gradient for enrollments with the income sensitivity of per-pupil expenditures that is higher at the highest income levels, as shown in Table 2. Finally, the income gradients for the dollar value of the average tax reductions in the middle two columns multiply the rising voucher amounts with the progressive marginal tax rates shown in the last two columns. The average federal income tax reduction for taxpayers with AGI over $500,000 is $5,833, or about four times the $1,450 for taxpayers with AGI between $50,000 and $100,000.

Figure 1 shows how this average federal tax loss per taxpayer varies across states for the year 2010. The largest average tax losses are concentrated in the Northeast, followed by the Midwest and the Northern Plains states. Lower average tax losses are found in the South and the Mountain West. On average, the federal and state tax reductions total $2,400 per

[21] With average tax revenues calculated to be $219 billion per year at the state level, the state tax loss for the policy would be about a half a percent. Noting from Table 4 that aggregate tax liabilities in the ACS understate those as reported in the SOI, the percentage tax losses are in reality even smaller. Similarly, the 3.3 percent figure for the top AGI group is also overstated, since the SOI indicates that it is the top AGI group in which income in the ACS is understated. At the state level, the deductions offset a smaller share of tax liability.

taxpayer, or given the average of 1.5 private school enrollments per taxpayer, $1,600 per child enrolled in private school. A policy of allowing tax deductions for donated vouchers therefore has the same static tax cost as a policy that grants refundable vouchers of $1,600 for each child enrolled in private school.

V. Alternative Specifications

The main results shown in Tables 6 and 7 are based on voucher amounts that are income-matched to the student's household income, adjusted to exclude all federal and some state educational funds, and subject to the 50-percent of AGI limit on tax deductions for charitable donations. Table 8 presents alternative calculations that make the opposite assumption along each of these three dimensions. The first three columns repeat the main results from Table 6, to which these alternative calculations can be compared.

The second three columns show the impact of removing the 50-percent of AGI limit on tax deductions. There is no estimated effect on the amount of the vouchers that can be deducted for AGI levels above $200,000, because the 50-percent of AGI limit was not binding at these income levels in the main simulations for vouchers that are around $12,000 per student.[22] At lower AGI levels, and particularly for AGI levels below $50,000, the limit was binding in more cases in the main simulations and lowered the amount of vouchers that could be deducted against income. With the limit removed, total vouchers donated increase from $47.89 billion to $52.63 billion, but because marginal tax rates are so low at these AGI levels, the impact on the federal tax loss is negligible.

The next three columns show the corresponding figures when households are assigned vouchers based on the average per-pupil spending in their PUMA rather than the school district with per-pupil spending at the same decile of expenditures as the household is in the income distribution. Removing this positive correlation between income and the amount of the voucher lowers the total value of the donated vouchers by about 6 percent. Because the

[22] Recall that charitable donations other than vouchers have been imputed as a share of AGI using the Statistics of Income data. The use of an average share for all taxpayers in a given year and AGI range understates the number of taxpayers who give very high percentages of their income to charities and would thus not be able to fully utilize the vouchers.

reductions in voucher amounts are larger for taxpayers' with higher incomes and the tax schedule is progressive, tax costs of the vouchers are reduced by more than 6 percent – roughly 9 percent at the federal level and 7 percent at the state level.

The final three columns show the corresponding figures when vouchers are still income-matched but are not adjusted to remove federal monies for current spending and state funds for special education and other targeted programs. This change raises the aggregate value of the vouchers by about 16 percent and the tax losses at the federal and state levels by about 18 and 20 percent, respectively. Unadjusted vouchers average $55.8 billion per year and generate tax losses of $9.16 billion and $1.45 billion at the federal and state levels, respectively. The former is about 1 percent of federal income tax revenues as reported in the Statistics of Income.

VI. Possible Dynamic Effects of Tax Deductibility on School Spending and Tax Revenues

The calculations presented in Tables 4 – 8 are static estimates of the impact of tax deductions for the charitable donation of education vouchers in that they do not consider possible tax-induced changes in the number of vouchers or their magnitudes. The change in tax policy can be expected to have two principal consequences for federal revenues. The first is an increase in the number of students in private school. The second is a change – with positive and negative elements – in voter preferences for per-pupil spending in public schools.

A. Changes in the Number of Students in Private Schools

The tax deduction for donated vouchers can be expected to increase the demand for private schools, particularly by giving a tax incentive of 35 cents on the dollar of donated vouchers for the highest income taxpayers.[23] Table 9 shows the analogous data from Table 6 in a scenario in which all school-age children enroll in private school and thus donate their vouchers. Aggregate voucher amounts now approximate all current spending on public elementary and secondary education (other than the amounts excluded via the adjustments),

[23] Private schools may respond to increased demand by raising tuition, but doing so will not increase the tax costs of the vouchers, which are based on per-pupil spending in the public schools.

and the aggregate tax losses are $46.63 billion at the federal level and $8.22 billion at the state level. These are the direct revenue losses associated with a full response to the new policy.

However, there are indirect revenue gains that will occur if the new tax incentives begin to shift enrollments from public schools to private schools. As students start donating their vouchers rather than using them, other state and local taxes can be reduced to support lower public school expenditures. Since the amount of such taxes, when levied on property or income (even if paid by corporations), is also a deduction from federal income taxes, the net effect will be far less than the direct effect.

While a full dynamic analysis of the tax consequences of donated vouchers is beyond the scope of the present paper, it is possible to gauge the net revenue loss when a student switches from public to private school with some rough calculations. Suppose that a public school student is picked at random to switch from public to private school.[24] The expected marginal tax rate on the donated voucher is the weighted average marginal tax rate on all taxpayers with students in public schools who itemize deductions (when the voucher is donated), with the dollar-weight equal to the sample weight multiplied by the size of the taxpayer's vouchers. Across all students in Table 9 (who were not also in Table 6), these rates are 17.05 and 4.14 percent at the federal and state levels, respectively, for a combined marginal tax rate of 21.19 percent. The marginal tax rate on the reduction in state and local taxes is the weighted average marginal tax rate on all taxpayers in Table 4, with dollar-weight equal to the sample weight multiplied by the amount of state and local taxes paid. The marginal tax rate for this calculation is zero if the taxpayer does not itemize deductions. These rates are 15.92 and 3.72 percent at the federal and state levels, respectively, for a combined marginal tax rate of 19.64 percent.

[24] Dynarski, Gruber, and Li (2009) estimate the price elasticity of demand for private schools using sibling discounts at Catholic schools. Their estimates show that the magnitude of the elasticity declines with income, from -0.44 for the lowest income tercile to -0.27 for the middle tercile to -0.09 for the highest income tercile. The decline in the elasticity serves to offset the increase in financial incentives (as shown in Table 7) at higher income levels, suggesting that a student chosen at random is a reasonable starting point in this hypothetical calculation. See Figlio and Stone (2001) for a detailed analysis of local public policy factors that influence migration from public to private schools.

When a student is induced to switch from public to private schools by the tax incentive, the full amount of the voucher becomes a tax deduction. However, the lower tax deductions for state and local taxes occur only to the extent that the school district reduces expenditures due to the decline in enrollment. Over the long term, an assumption of a full dollar-for-dollar reduction might be a reasonable assumption, as school districts (particularly those that are growing) have time to make staffing and other decisions based on smaller enrollments.[25] It is unlikely to be possible in the short term, unless the new tax deductibility induces so much switching to private schools that widespread consolidation is possible. In addition, there is no direct revenue loss in the school district when a student donates a voucher – the revenue losses occur at the federal and state level, not the district level. This is different from voucher programs in which the state and local money follows the student out of the district, which puts direct pressure on the public school to reduce expenditures to avoid presenting local taxpayers with a higher total budget request.

Suppose that each dollar of vouchers donated by a student moving from public to private school results in a reduction of $X < 1$ in actual expenses at the school district level. The total change in cash flows to governments at all levels is $X + 0.1964*X – 0.2119$, i.e. the reduction in expenses plus the reduction in the tax deductions that finance those expenses minus the tax deductions for the donated vouchers. Note that this change in cash flows will be positive for values of $X > 0.177$. The reason that X can be so low is that the tax incentive is inducing families to pay for private education with their own resources, rather than relying on the public school district to bear the full cost of educating their children. With a sufficiently large value of X, and with enough students switching to private schools, the revenue gain on those who switch to private schools could be large enough to cover the tax costs of the donated vouchers by students currently enrolled in private schools, i.e. the $9 billion in annual revenues shown in Table 6.[26]

[25] Recall that these expenditures are for current operations only – by construction, the vouchers do not include capital outlays.

[26] The question of whether tax incentives for private school enrollment could be self-financing was the subject of an active debate between Martinello and West (1988, 1991) and Frey (1991a, 1991b) in a series of papers focused on tax credits for private school tuition. The models in these papers assumed a dollar-for-dollar offset of credits

B. Changes in Political Economy

Tax deductibility of donated vouchers will provide more of a reason for taxpayers with school-age children in private schools to support higher per-pupil spending in their public school systems. At the top of the AGI distribution, the marginal tax rates are 30 – 32 percent at the federal level and another 3.5 percent on average across the states. This means that high-income taxpayers would share about 35 cents on the dollar with higher per-pupil expenditures in their public schools, compared to zero in the absence of the tax deduction for donated vouchers. This should cause them to approve higher expenditures than presently, bringing their voting interests more in line with those taxpayers with school-age children in the public schools. This will attenuate, but not eliminate, the "Ends Against the Middle" problem associated with markets in which public and private alternatives exist and policies are determined by voting (Epple and Romano, 1996). This change in voter preferences, if it translates into higher per-pupil spending, will increase the tax losses to the federal government, even if no additional students enroll in private schools, since the state and local taxes that support these higher per-pupil expenditures are also tax deductions on the federal income tax return.

VII. Discussion

The possibility of extending tax deductions to taxpayers who forego their entitlement to public services raises several issues of design. This section explores four such issues in the context of current discussions about tax policy.

A. Alternative Concepts on Which To Base Voucher Amounts

The use of per-pupil spending as the basis for the tax benefit provided to taxpayers who forego public education compares favorably to two other quantities that may enter discussions

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against public school expenditures (i.e. X = 1) but did not consider the tax consequences of these lower expenditures on itemized deductions of state and local taxes (i.e. the 0.1964*X revenue increase). At issue in this debate was the elasticity of supply of private schools, and specifically the extent to which private schools would charge higher tuition in response to the credits. That same issue is relevant in the present context, since higher private school tuition will limit the movement of students from public to private schools in response to the tax deduction for donated vouchers.

of how to recognize the public value of private school enrollments. The first is the taxpayer's local tax payments in support of the public schools. The problem with using local tax payments as a basis for tax relief is that the payment of local taxes is a condition of owning property or having income in the jurisdiction, not a condition of sending children to the public school. Homeowners or residents of the jurisdiction who have no school-age children must still pay these taxes.

The second alternative is the taxpayer's tuition payment to the private school.[27] A problem arises here if the tuition exceeds per-pupil spending in the public school district. What would such an excess represent? If it represents a relative inefficiency, in that the private school delivers no better educational services but does so at a higher cost, then there is little reason to include this excess as if it were a cost to the taxpayer that has been eliminated. If it represents payment for better educational services, then it is a private transaction with largely private rather than public benefits, and thus presents a weak case for tax subsidy.

A stronger case can be made that the tax deduction for donated vouchers should be limited to the lesser of the per-pupil spending in the public school district and the actual amounts expended on private school. The tax deduction for the donated voucher could then be reformulated as a tax deduction for private school expenses up to the amount of the voucher. A disadvantage to this modification is that it does not recognize that in some cases, lower private school expenditures reflect efficiency improvements and the amount of the voucher better reflects the size of the savings to the public sector.

However, the modification has several advantages. First, it makes the policy more consistent with traditional tax concepts in which deductions are permitted for actual, rather than counterfactual, expenditures.[28] Second, it protects against multiple deductions for the same educational services. For example, suppose that a student attending a private school receives financial aid and as a result pays less than the voucher amount. The ability of the

[27] Basing tax relief on the value of private school tuition, in the form of tuition tax credits, was an idea made popular by its endorsement in the Coleman Report (Coleman et al. 1981). See also Catterall and Levin (1982).
[28] In so doing, the modification would disallow most of the tax deduction to taxpayers who homeschool their children, a change which is consistent with the principle that a charitable deduction cannot be claimed for the value of one's own services donated to a charity.

school to offer financial aid is likely to due to prior, tax-deductible contributions made to the school, whether through a religious sponsor of the school or other philanthropy. The only portion of the cost of that student's education that has not already been taken as a deduction is the portion that the student pays. Limiting the new tax deduction to the lesser of the voucher and actual expenses prevents "double deducting."

Third, without some cap on individual deductions, widespread utilization of the tax deduction in a school district could lead to artificially high per-pupil expenditures on a very small number of public school students, with those high costs in turn inflating the value of the donated vouchers. To see the potential problem, let α be the fraction of students in public school, V be the per-pupil expenditures in the public school, T be the amount of the tuition, and τ be the marginal tax rate on the funding for public school expenditures or donated vouchers. The average cost of educating a student, net of tax deductions, is

(1) $$C = \alpha V(1-\tau) + (1-\alpha)T - (1-\alpha)\tau V,$$

if donated vouchers are fully deductible. The first term is the cost of the public school expenditures, net of the tax deduction for state and local taxes that fund public schools. The second term is the direct cost of the private school tuition, and the final term is the tax deduction for the donated vouchers. The marginal cost of educating students, net of tax, when per-pupil expenditures increase is therefore:

(2) $$\frac{\partial C}{\partial V} = \alpha(1-\tau) - (1-\alpha)\tau = \alpha - \tau,$$

which can be negative if the public school enrollments are low and the marginal tax rate is high. That is, the citizens in the locality would face no cost disincentive to increasing per-pupil expenditures in the public schools, because those direct costs only apply to a share α of the students but the tax deductions at rate τ are applicable to all of the students. Capping the amount of the deductions at the private school tuition expenditures paid eliminates this extreme scenario by changing the last term in the first equation to $(1 - \alpha)\tau T$ and thus the derivative in the second equation to $\alpha(1 - \tau)$, which is never negative.

Implementing a policy of tax deductions for donated vouchers may therefore require limiting the deduction to the lesser of the voucher and actual expenditures paid to private schools. This modification can only serve to reduce the static estimates of the tax costs of donated vouchers discussed in Sections IV and V. An estimate of the magnitude of that reduction and its distribution across households requires additional data on the geographic variation in private school tuition and is an extension left for future work.

B. Relationship of Tax Deductions for Donated Vouchers to Current Tax Reform Ideas

The policy change to allow a tax deduction for donated vouchers may seem out of step with current policy discussions about tax deductions. Recent proposed reforms are focused instead on limiting the extent to which tax deductions and other tax expenditures erode the tax base, with the idea that a larger base can generate the same revenue with lower marginal tax rates. A good example is the "Illustrative Individual Tax Reform Plan" put forth in the Simpson-Bowles Commission in 2010, which would eliminate itemized deductions in general and change the tax reduction for charitable giving to a 12 percent non-refundable tax credit available above a floor of 2 percent of AGI.[29]

While it is likely that the next major tax reform will offer less tax relief for charitable donations and tax expenditures in general, this does not undermine the main argument presented here. The rationale for extending the tax deduction for charitable donations to donated vouchers is to give equal tax treatment to all contributions to governments that are made for exclusively public purposes. If there are provisions in a reformed tax code that recognize charitable donations, then they can recognize the value of donated vouchers. If the tax code is changed to make that recognition less valuable, then the tax treatment of donated vouchers can be restricted alongside the tax treatment for all other charitable donations.

[29] See Figure 7 in Section 2.1 of The National Commission on Fiscal Responsibility and Reform (2010). Feldstein, Feenberg, and MacGuineas (2011) describe a proposal to not eliminate any individual tax expenditures (including the tax deduction for charitable donations) but to impose a cap on the tax reductions from all such tax expenditures at 2 percent of AGI. The Congressional Budget Office (2011) analyzed the revenue consequences of changes in the tax treatment of charitable donations. Cordes (2011) simulates the potential effects on nonprofit organizations of scaling back the charitable deduction and reviews the various rationales for providing a tax subsidy to charitable contributions.

C. Progressivity of Tax Benefits of Donated Vouchers

In addition to new concerns about whether the tax deduction for charitable donations will continue, there are more standard concerns about the progressivity of the tax treatment of charitable donations that would also apply to donated vouchers. Table 7 shows a familiar pattern in that the percentage reductions in taxes are higher for the lower income beneficiaries of the policy change, but the largest dollar benefits go to those with higher incomes. In the current, heated climate over tax policy and looming changes, there would seem to be no room for a proposal that is not a progressive change. CBO (2011) summarizes concerns about progressivity as follows:

> The subsidy for charitable giving is concentrated among high-income taxpayers to an even greater extent than donations are … The difference in the tax subsidy occurs because higher-income people are more likely to itemize deductions (and thus to receive a tax subsidy for donations) and because higher-income people generally pay higher marginal tax rates and thus receive a larger subsidy (relative to other itemizers) per dollar of donation (pages 4 – 5).

There are three sources of a positive relation between income and the tax benefit noted in the paragraph – that the likelihood of itemizing rises with income, that marginal tax rates rise with income, and that the size of the deduction rises with income. The first two are features of the tax code and are present for all tax deductions. If the tax code had no standard deduction, so that taxpayers could only deduct from their taxable income costs (like a charitable donation) that they actually incurred, and if marginal tax rates did not rise with income, then these issues would not arise. It is because the tax code already includes a standard deduction and progressive tax rates that any potential change to tax deductions will have positive income sensitivity.[30] Maintaining these features of the tax code does not present a rationale for distorting the definition of a tax deduction to not include legitimate cases in which the income earned provides no direct benefit to the taxpayer and thus would ordinarily not be taxed by an income tax.

[30] See Pappas (2011) for a more detailed discussion.

That the third source of positive income sensitivity is present for private school enrollments is confirmed by the patterns of enrollment and voucher amounts by AGI in Table 7 and by Figure 2, which shows that households with school-age children in private school are found disproportionately at higher income levels than households with school-age children not in private schools or households without school-age children.[31]

Among all tax deductions, donated vouchers fare well in the extent to which they are truly charitable. For example, consider a taxpayer with school-age children in private school who makes a gift to that private school, above and beyond the tuition payments. It is a deduction because it is made for educational purposes, but it can clearly benefit the taxpayer's children alongside all the other children in the school. As another example, consider a taxpayer with children in the public school who pays property taxes to support the school. This is a deduction because state and local taxes are deductible, but with children in the public school, the payments benefit the taxpayer's children alongside all the other children in the school. By comparison, donated vouchers relieve the tax burden on every state and local taxpayer. The taxpayer who donates them benefits in no specific way due to having school-age children but only as one taxpayer among many in the jurisdiction.

D. Can All Public Expenditures Be Made into Vouchers?

There are many services provided by subnational governments for which private alternatives exist. It is worth considering whether education presents a unique case for donated vouchers, or whether the case extends more generally. To fix ideas, consider a community that operates a swimming pool during the summer months. There are several similarities with public education that can be identified. First, there will be members of the community who opt not to use the community pool, but instead decide to build their own pool or join a private club that offers a pool. Second, those who spend money on a private alternative to the community pool will commit a significant amount of their own resources to fund it. Third, if enough people opt for private alternatives to the community pool, then the

[31] Table 2 also shows that there is a positive relationship between average per-pupil spending and income at the highest levels of income. The main results in Tables 6 and 7 based on income-matched per-pupil spending build in a correlation between income and voucher amounts.

community may decide to build a smaller pool or to build fewer pools. Fourth, to the extent that the community pool is funded by state or local tax revenues or transfers from a non-profit that is itself funded by charitable donations, then the federal government is already incurring a tax cost to fund the pool via the tax deductions taken for state and local taxes or for charitable donations.

These similarities suggest that it would be possible to create "pool vouchers." The locality would start by calculating the value of all public monies that went into operation of the pool. User fees would be excluded, but funding from local tax revenues or charitable donations to a community foundation that supports the pool would be included. The voucher amount would equal the ratio of this quantity to the population whose residence entitles them to use the pool. Those residents who agreed not to use the pool would be credited with having donated a "pool voucher" and be able to take it as an income tax deduction.

There are two important differences between school vouchers and pool vouchers. The first is that the right to public education at zero tuition is guaranteed constitutionally at multiple levels of government, while localities are not obligated to provide community pools. If there is a net cost to the federal government for allowing donated vouchers to be deducted, priority might be given to private alternatives that offset mandatory public expenditures. Second, school vouchers are about $10,000 per student, whereas pool vouchers are likely to be at least two orders of magnitude smaller, since the vouchers depend on the per-person spending saved and not the amount spent on the private alternative (i.e. the pool in the backyard).

VIII. Conclusion

This paper considers a policy change that would remove an inconsistency in the way charitable donations are defined for tax purposes. At present, approximately 10 percent of school-age children are enrolled in private schools, relieving the financial burden on public school districts of the cost of educating them. If school districts distributed vouchers for educational services, the families that pay for private schools rather than redeeming their vouchers for educational services would have donated their vouchers back to their school

districts. At present, the tax code does not recognize these donated vouchers as the contributions to governments for exclusively public purposes that they are. The main results presented above suggest that recognizing donated vouchers as tax deductions for taxpayers who enroll their children in private schools would cost the federal government an average of $7.75 billion over the 2006 – 2010 period, or less than one percent of federal income tax revenues. At the margin, high-income taxpayers would receive about 35 cents in federal and state tax relief for each dollar of these donated vouchers. Depending on the number of students who switch from public to private school and on the expenditure reductions in public schools that can be achieved with lower enrollments, total cash flows to the combination of federal, state, and local governments could increase, as taxpayers are induced by the new tax incentive to use their own funds to purchase education privately rather than obtaining it from the public system. Evaluating the revenue impact of such a policy change in a more comprehensive framework is an avenue for future research.

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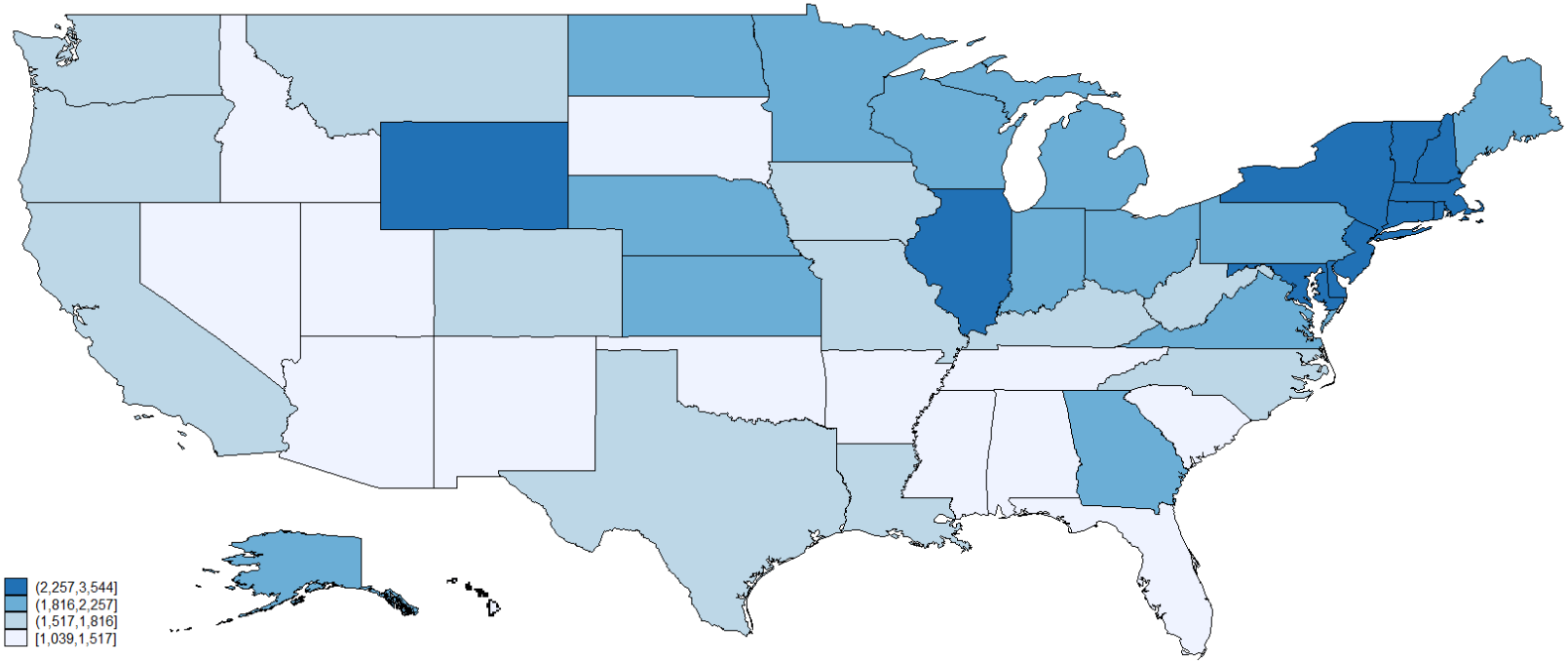
Figure 1: Average Costs per Taxpayer of Allowing Tax Deductions for Donated Vouchers, 2006-2010



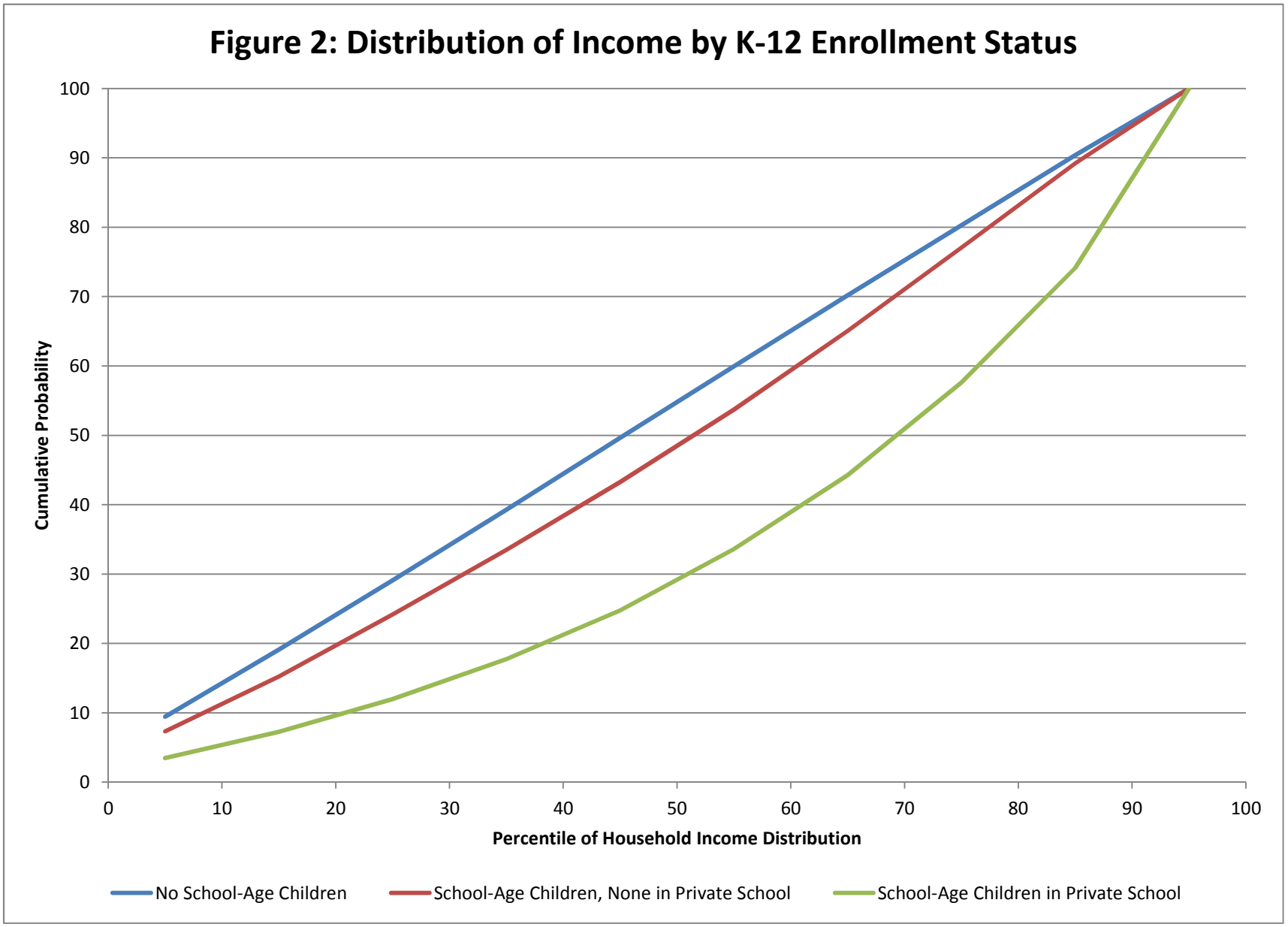


Figure 2: Distribution of Income by K-12 Enrollment Status
Cumulative Probability
0
10
20
30
40
50
60
70
80
90
100
Percentile of Household Income Distribution
No School-Age Children
School-Age Children, None in Private School
School-Age Children in Private School

Table 1: Allocating School Districts to Public Use Microdata Areas Using Counties

Public Use Microdata Area	County (FIPS Code)	School District (NCES ID)	Per-Pupil Spending	Total Enrollment	Share of County in this PUMA	Adjusted Enrollment	PUMA Average Per-Pupil Spending
200	Madison (1089)	Madison City (100008)	$8,622	8,466	57%	4,833	
200	Madison (1089)	Huntsville City (101800)	$10,056	23,205	57%	13,246	$9,121
200	Madison (1089)	Madison County (102220)	$8,238	19,785	57%	11,294	
300	Limestone (1083)	Athens City (100120)	$10,041	3,071	100%	3,071	
300	Limestone (1083)	Limestone County (102100)	$8,457	8,702	100%	8,702	
300	Madison (1089)	Madison City (100008)	$8,622	8,466	43%	3,633	$9,034
300	Madison (1089)	Huntsville City (101800)	$10,056	23,205	43%	9,959	
300	Madison (1089)	Madison County (102220)	$8,238	19,785	43%	8,491	

Notes: School spending and enrollment data pertain to the year 2009 and are from the Annual Survey of Government Finances. Correspondence between Counties and Public Use Microdata Areas (PUMAs) and the population figures (from the 2000 Census) used to determine the share of the county in each PUMA are from the Census Bureau.

Table 2: Public School Per-Pupil Spending by AGI Range

AGI Range	Annual Enrollment	Share of Total Enrollment	Average District		Income-Matched District	
			Total	Adjusted	Total	Adjusted
< 50k	1.52	6.1%	10,625	8,993	10,152	8,615
50-100k	1.75	10.9%	10,455	8,842	10,790	9,091
100-200k	1.52	16.1%	10,640	8,976	11,803	9,909
200-500k	0.70	27.9%	10,498	8,858	12,081	10,228
> 500k	0.12	38.5%	12,119	10,245	13,963	11,838
All	5.61	10.5%	10,592	8,951	11,120	9,384

Notes: Sample includes all taxpayers in the American Community Survey 2006 - 2010 with K-12 students enrolled in private schools. Enrollments in the first column are in millions. Per-pupil expenditures are from the Annual Survey of Government Finances. The "Average District" assigns each student the enrollment-weighted mean per-pupil expenditure across school districts in the taxpayer's Primary Use Microdata Area (PUMA). The "Income-Matched District" uses the taxpayer's household income decile to assign each student the per-pupil expenditures for the school district with the corresponding decile of per-pupil expenditures among all school districts in the taxpayer's PUMA. Adjusted Vouchers exclude federal monies for current spending and state funds for special education and other targeted programs. The dollar figures in the last four columns are in constant 2010 dollars.

Table 3: Taxsim Inputs and Corresponding Variables from the American Community Survey

Taxsim Input	ACS Counterpart
Year	First four digits of household identifier variable (SERIALNO)
State	Converted from state ANSI codes (ST) to the alphabetical list, 1 - 51, required by Taxsim
Marital Status (Single, Joint, or Head of Household)	Coded based on Relationship to Reference Person (RELP), Subfamily Relationship (SFR), and the presence of dependents
Number of Dependents	Coded based on age (AGEP), school enrollment status (SCHG), and personal income level (PINCP) of members of taxpaying unit
Number of Age 65+ taxpayers	Coded based on age (AGEP) of taxpayer and spouse, if present
Wage income of primary taxpayer	Sum of Wage (WAGP) and Self-Employment (SEMP) income from the person record for the taxpayer
Wage income of secondary taxpayer	Sum of Wage (WAGP) and Self-Employment (SEMP) income from the person record for the taxpayer's spouse, if present
Dividend Income	Set to zero. All dividends are included in the next item.
Interest and Other Property income	Sum of interest, dividends, and net rental income (INTP) from the person records of all members of the taxpaying unit. This item could include, but does not due to unavailability of data, net alimony and subtractions for adjustments like IRAs, Keoghs, and the Self-Employment tax.
Pensions	Sum of all retirement income (RETP) from the person records of all members of the taxpaying unit.
Gross Social Security Benefits	Sum of all social security income (SSP) from the person records of all members of the taxpaying unit.
Non-taxable transfer income	Sum of all public assistance (PAP) and supplemental security income (SSIP) for all members of the taxpaying unit.
Rent Paid	Monthly Rent (RNTP x 12) for any taxpayer who is the reference person. Zero otherwise.
Property Tax Paid (AMT Preference)	Annual value of property taxes paid (TAXP, midpoint of interval) for any taxpayer who is the reference person. Zero otherwise.
Taxes paid other than state income taxes	Set to zero. Taxsim uses its own calculated state income tax as an itemized deduction.
Child care expenses	Set to zero. Data are not available.
Unemployment Compensation benefits	Set to zero. Data are not available.
Number of dependent children under 17	Coded based on ages of all dependents
Mortgage interest paid	Monthly mortgage payment (MRG x 12) plus second mortgage payments (SMP, not x 12), with adjustments for taxes (MRGT, TAXP) and insurance (MRGI, INSP) for any taxpayer who is the reference peson. Zero otherwise. In Taxsim, this item includes charitable donations, which are not observed in the ACS, but are imputed as a share of AGI from SOI data by year and AGI class. Donated vouchers are added to this item.
Short term capital gain or loss	Set to zero. Data are not available.
Long term capital gain or loss	Sum of all other income (OIP) from the person records of all members of the taxpaying unit.

Table 4a: Comparisons of Aggregate Tax Characteristics Across American Community Survey and IRS Statistics of Income

Year and AGI Range	Number of Returns		Share of Joint Returns		Adjusted Gross Income		Share of Returns with Itemized Deductions		Amount of Itemized Deductions		Taxable Income		Federal Income Tax	
	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI
2006														
< 50k	94.4	93.2	23.4%	21.5%	1,802.3	1,808.8	11.0%	17.3%	176.2	255.3	844.0	843.2	51.0	87.5
50-75k	19.3	18.7	61.9%	59.2%	1,197.8	1,150.5	45.8%	56.9%	166.7	195.7	787.4	740.2	100.2	94.3
75-100k	11.7	11.1	77.2%	77.0%	1,019.2	959.9	65.0%	74.2%	162.5	175.0	714.8	660.7	100.9	90.8
100-200k	13.1	12.1	85.6%	84.3%	1,741.2	1,606.6	79.8%	88.3%	289.0	300.9	1,304.5	1,181.1	237.8	209.2
> 200k	3.6	4.1	85.8%	84.7%	1,161.3	2,419.6	87.3%	94.6%	156.9	317.2	978.8	2,090.7	262.0	541.8
All	142.1	139.2	40.4%	38.3%	6,921.8	7,945.5	28.4%	35.6%	951.3	1,244.1	4,629.7	5,516.0	751.8	1,023.6
2007														
< 50k	92.9	105.6	22.7%	20.1%	1,787.0	1,849.0	10.7%	15.3%	181.4	269.9	820.7	848.1	50.2	87.8
50-75k	19.5	19.4	59.8%	56.5%	1,214.3	1,192.0	44.1%	55.0%	169.6	203.4	791.3	761.1	101.5	97.1
75-100k	12.2	11.7	75.6%	75.0%	1,065.0	1,014.1	62.4%	72.0%	168.8	184.4	742.0	694.0	104.3	94.7
100-200k	14.3	13.5	85.2%	83.4%	1,913.7	1,790.9	78.9%	86.9%	319.9	335.4	1,426.1	1,311.7	256.7	228.8
> 200k	4.2	4.6	84.0%	84.4%	1,384.4	2,718.6	85.9%	94.4%	184.9	361.0	1,167.4	2,345.2	311.4	604.4
All	143.2	154.7	40.3%	36.2%	7,364.5	8,564.7	28.7%	33.1%	1,024.6	1,354.1	4,947.5	5,960.1	824.1	1,112.9
2008														
< 50k	92.6	94.3	21.7%	20.4%	1,781.0	1,769.3	9.5%	15.9%	166.3	271.5	809.5	816.5	44.2	83.8
50-75k	19.8	19.2	57.6%	54.9%	1,229.1	1,183.1	39.8%	51.8%	161.3	195.2	796.9	750.4	101.4	95.8
75-100k	12.6	11.8	74.3%	74.0%	1,100.6	1,018.0	57.8%	68.7%	167.2	181.6	764.0	692.3	106.6	94.4
100-200k	15.4	13.8	84.7%	83.6%	2,057.9	1,840.6	76.1%	85.7%	339.3	349.7	1,528.4	1,336.7	272.9	233.6
> 200k	4.5	4.4	84.6%	85.5%	1,500.7	2,367.4	85.1%	95.3%	202.6	362.1	1,254.1	1,987.9	334.7	532.1
All	144.9	143.5	39.8%	37.5%	7,669.3	8,178.4	27.3%	34.2%	1,036.7	1,360.1	5,152.9	5,583.8	859.8	1,039.8

Notes: Sources of data are the Internal Revenue Service Statistics of Income and the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). The number of returns are in millions. All dollar amounts are in billions of current dollars.

Table 4b: Comparisons of Aggregate Tax Characteristics Across American Community Survey and IRS Statistics of Income

Year and AGI Range	Number of Returns		Share of Joint Returns		Adjusted Gross Income		Share of Returns with Itemized Deductions		Amount of Itemized Deductions		Taxable Income		Federal Income Tax	
	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI	ACS	SOI
2009														
< 50k	95.1	93.8	22.1%	21.6%	1,775.8	1,892.0	8.7%	15.8%	157.1	249.4	769.6	767.0	-0.3	76.5
50-75k	19.5	18.8	57.0%	55.1%	1,211.6	1,152.9	38.0%	50.2%	153.7	184.3	776.6	723.7	86.2	89.3
75-100k	12.4	11.4	74.1%	73.8%	1,079.8	986.8	55.6%	67.0%	160.9	173.5	742.7	667.5	94.7	88.8
100-200k	15.3	13.5	84.6%	84.1%	2,055.2	1,800.1	74.8%	84.9%	336.2	334.8	1,519.3	1,304.8	258.3	221.4
> 200k	4.4	3.9	85.3%	86.5%	1,428.9	1,969.3	82.1%	95.9%	194.1	308.7	1,187.3	1,632.0	313.1	440.5
All	146.7	141.5	39.6%	38.0%	7,551.3	7,801.0	25.7%	33.3%	1,001.9	1,250.7	4,995.5	5,095.1	752.1	916.5
2010														
Negative	18.7	3.1	11.7%	26.5%	-0.7	-187.6	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.2
0-25k	48.3	57.5	18.6%	14.1%	601.2	716.4	4.0%	8.0%	31.8	68.5	143.3	153.6	-39.3	13.2
25-50k	31.8	34.4	33.5%	30.7%	1,178.4	1,241.2	21.9%	26.3%	144.4	142.2	637.5	646.1	37.7	66.2
50-75k	19.0	18.9	56.6%	53.9%	1,180.4	1,165.2	40.1%	50.5%	166.7	179.4	762.5	745.3	85.0	92.7
75-100k	12.1	11.7	73.1%	72.8%	1,054.5	1,009.5	57.8%	67.7%	162.5	167.6	729.9	693.9	93.8	93.1
100-200k	14.9	14.1	84.4%	83.5%	2,002.8	1,876.7	75.8%	85.3%	289.0	336.4	1,485.1	1,378.2	252.6	234.9
200-500k	3.9	3.5	84.5%	86.4%	1,156.6	983.4	82.7%	95.8%	132.6	164.3	953.2	781.4	244.6	192.6
500k-1M	0.3	0.6	92.1%	85.5%	186.5	372.0	96.1%	97.2%	23.6	54.0	157.4	312.2	48.1	89.7
Over 1M	0.0	0.3	96.6%	83.1%	8.7	919.0	98.4%	97.9%	0.7	121.4	7.3	795.8	2.3	219.5
All	149.0	144.0	38.6%	37.3%	7,368.3	8,095.7	25.7%	32.8%	951.3	1,233.7	4,876.4	5,506.7	724.9	1,002.1

Notes: Sources of data are the Internal Revenue Service Statistics of Income and the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). The number of returns are in millions. All dollar amounts are in billions of current dollars.

Table 5: Summary Tax Statistics for Baseline Sample, 2006 - 2010

AGI Range	Number of Taxpayers (Millions)	Adjusted Gross Income (Billions)	Aggregate Income Tax (Billions)		Average Income Tax		Marginal Income Tax Rate (Percent)	
			Federal	State	Federal	State	Federal	State
< 50k	92.33	1,717.5	20.9	24.1	226.4	260.5	4.87	2.06
50-100k	32.56	2,313.4	194.0	61.2	5,958.1	1,879.4	18.43	4.30
100-200k	15.76	2,099.2	268.5	69.8	17,036.4	4,431.8	25.07	4.92
200-500k	4.09	1,200.4	252.1	49.4	61,698.5	12,094.6	32.10	5.19
> 500k	0.43	277.4	72.4	14.5	166,876.6	33,472.8	31.05	6.04
All	145.17	7,608.0	807.9	219.0	5,565.3	1,508.9	10.95	2.97

Notes: Source of data is the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). All dollar amounts are in constant 2010 dollars.

Table 6: Annual Aggregate Tax Costs of Allowing Tax Deductions for Donated Vouchers, 2006 - 2010

AGI Range	Number of Taxpayers	Number of Private K-12 Students	Fraction Itemizing	Fraction Switching to Itemizing	Donated Vouchers	Federal Income Tax	Federal Tax Loss Due to Vouchers	State Income Tax	State Tax Loss Due to Vouchers
< 50k	1.08	1.52	43%	25%	8.85	-2.43	-0.23	0.16	-0.08
50-100k	1.17	1.75	93%	32%	15.44	3.40	-1.69	2.05	-0.36
100-200k	1.01	1.52	99%	15%	15.01	14.63	-3.08	4.42	-0.48
200-500k	0.44	0.70	100%	13%	7.20	28.16	-2.32	5.48	-0.24
> 500k	0.07	0.12	99%	2%	1.40	12.27	-0.42	2.48	-0.05
All	3.77	5.61	81%	23%	47.89	56.04	-7.75	14.58	-1.21

Notes: Source of data is the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). Numbers of taxpayers and students are in millions. All dollar amounts are in billions of constant 2010 dollars.

Table 7: Average Costs per Taxpayer of Allowing Tax Deductions for Donated Vouchers, 2006 - 2010

AGI Range	Average Number of Private K-12 Students	Average Voucher Amounts	Average Federal Tax Reduction	Average State Tax Reduction	Average Marginal Federal Tax Rate	Average Marginal State Tax Rate
< 50k	1.40	8,174	-216	-75	2.1	0.8
50-100k	1.50	13,220	-1,450	-311	10.8	2.3
100-200k	1.51	14,936	-3,060	-480	20.6	3.3
200-500k	1.60	16,384	-5,288	-551	32.1	3.6
> 500k	1.62	19,232	-5,833	-613	30.2	3.5
Total	1.49	12,712	-2,057	-322	14.1	2.3

Notes: Source of data is the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). All dollar amounts are in constant 2010 dollars. Marginal Tax Rates are in percentage points.

Table 8: Annual Aggregate Tax Costs of Allowing Tax Deductions for Donated Vouchers, 2006 - 2010, Alternative Definitions

	Main Results (Table 6)			No 50% AGI Limit on Donations			Adjusted Vouchers, Average District			Unadjusted Vouchers, Income-Matched		
AGI Range	Donated Vouchers	Federal Tax Loss Due to Vouchers	State Tax Loss Due to Vouchers	Donated Vouchers	Federal Tax Loss Due to Vouchers	State Tax Loss Due to Vouchers	Donated Vouchers	Federal Tax Loss Due to Vouchers	State Tax Loss Due to Vouchers	Donated Vouchers	Federal Tax Loss Due to Vouchers	State Tax Loss Due to Vouchers
< 50k	8.85	-0.23	-0.08	13.10	-0.24	-0.09	8.99	-0.24	-0.08	9.77	-0.29	-0.10
50-100k	15.44	-1.69	-0.36	15.88	-1.70	-0.37	15.03	-1.64	-0.35	18.03	-2.01	-0.43
100-200k	15.01	-3.08	-0.48	15.05	-3.08	-0.48	13.61	-2.78	-0.44	17.83	-3.63	-0.58
200-500k	7.20	-2.32	-0.24	7.20	-2.32	-0.24	6.23	-2.01	-0.21	8.50	-2.74	-0.29
> 500k	1.40	-0.42	-0.05	1.40	-0.42	-0.05	1.21	-0.37	-0.04	1.65	-0.50	-0.05
All	47.89	-7.75	-1.21	52.63	-7.76	-1.23	45.07	-7.03	-1.13	55.77	-9.16	-1.45

Notes: Source of data is the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). All dollar amounts are in billions of constant 2010 dollars. The "Average District" assigns each student the enrollment-weighted mean per-pupil expenditure across school districts in the taxpayer's Primary Use Microdata Area (PUMA). The "Income-Matched District" uses the taxpayer's household income decile to assign each student the per-pupil expenditures for the school district with the corresponding decile of per-pupil expenditures among all school districts in the taxpayer's PUMA. Adjusted Vouchers exclude federal monies for current spending and state funds for special education and other targeted programs.

Table 9: Annual Aggregate Tax Costs of Allowing Tax Deductions for All Vouchers, 2006 - 2010

AGI Range	Number of Taxpayers	Number of K-12 Students	All Vouchers	Federal Income Tax	Federal Tax Loss Due to Vouchers	State Income Tax	State Tax Loss Due to Vouchers
< 50k	15.13	25.00	123.61	-35.34	-3.22	2.04	-1.11
50-100k	9.60	16.07	138.84	29.69	-15.16	16.17	-3.25
100-200k	5.59	9.41	92.53	79.24	-18.69	23.64	-2.90
200-500k	1.44	2.52	26.48	87.42	-8.44	17.52	-0.87
> 500k	0.17	0.31	3.75	27.91	-1.13	5.71	-0.11
All	31.93	53.30	385.20	188.90	-46.63	65.07	-8.22

Notes: Source of data is the author's tabulations of the American Community Survey 2006 - 2010 using the NBER Internet Taxsim calculator (version 9). Number of taxpayers is in millions. All dollar amounts are in billions of constant 2010 dollars.