

Tax Subsidies for Asset Development

An Overview and Distributional Analysis

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Introduction

This comprehensive overview of asset-building subsidies administered through the federal tax code ranges from homeownership subsidies to tax preferences for college saving to tax expenditures for retirement saving. The goal of this paper is not to recommend specific policies. Rather, it summarizes the literature on various tax-based asset-building subsidies, highlights key lessons on the effectiveness of existing and some alternative subsidies, examines the extent to which they lead to increased net saving, and quantifies the distribution of tax benefits provided. By addressing all major tax-based asset-building subsidies in one place, the document is a comprehensive resource on the universe of tax-based asset-building subsidies.

Although most subsidies for asset development operate through the tax code, some do not. A review of all asset-building policies—such as Pell Grants and education spending—is beyond the scope of this report.¹

These tax-based asset-building programs cover a formidable territory. To examine the distribution of these benefits, we use the Urban-Brookings Tax Policy Center microsimulation model, which allows quantification by income level.² Here, too, examination across all major tax-based asset-building policies allows one to see how various parts of the landscape fit together.

Asset-development subsidies account for 30 percent of all federal tax expenditures and totaled \$383.9 billion in 2013, with the largest expenditures for housing and retirement savings.³

Despite these costs, this review makes clear that existing homeownership subsidies have limited effectiveness and are poorly designed to incentivize homeownership. Retirement subsidies have limited effects on total retirement savings, including funds outside of formal retirement accounts. Evidence is also mixed on whether higher education subsidies increase college enrollment and completion.

The distribution of these subsidies limits their effectiveness: many higher-income taxpayers can simply shift saving into tax-preferred forms, while many low- and middle-income families for whom the policies are intended can make limited or no use of the subsidies.

Most asset-accumulation incentives come in the form of deductions from income or deferred taxation, and the bulk of benefit is directed at upper-income families (Woo, Rademacher, and Meier 2010). Thus, deductions and deferrals are typically worth more to taxpayers with higher marginal tax rates, and can be worth little or nothing to taxpayers who do not claim itemized deductions. Since most low-income taxpayers do not claim itemized deductions and have low marginal tax rates, the tax-based saving expenditures provide little incentive to accumulate assets.

For instance, about 70 percent of the tax savings from the mortgage interest and property tax deductions accrue to the top income quintile, 8 percent to the middle quintile, and almost nothing to the bottom two quintiles.⁴ Similarly, roughly 70 percent of the tax benefits for employer-based

¹ The line between tax preferences and budget outlays is not always clear. For example, the earned income tax credit, which offers taxpayers a benefit that can exceed their tax liability, is classified as both a reduction in taxes and a budget outlay. For the purposes of this paper, we distinguish between those subsidies administered through the tax code and those administered elsewhere.

² Our distributional estimates, like almost all distributional estimates of taxes and tax preferences, stratify taxpayers by their current-year income. Of course, taxpayers do not remain in a single income group for life, leading some economists to consider the lifetime incidence of taxes instead of the incidence in any single year. See Fullerton and Rogers (1991) for more detail on the lifetime incidence of taxes.

³ Technically, tax expenditures are not additive since they interact (e.g., taking more of one may reduce the value of another). Nonetheless, this type of additive exercise gives some order of magnitude of their size and influence.

⁴ Households in the bottom income quintile have incomes below \$23,570, households in the middle income quintile have incomes between \$45,475 and \$76,234, and households in the top income quintile have incomes above \$129,219 (2013 dollars).

retirement savings and 65 percent of subsidies for individual retirement accounts (IRAs) accrue to the top income quintile, with the fourth quintile picking up much of the rest.

On the higher education front, the partially refundable American Opportunity Tax Credit (AOTC) benefits people across the income distribution, while deductions for educational expenses primarily benefit higher-income taxpayers, and student loan interest deductions benefit middle- and upper-income taxpayers. In summary, tax expenditures for asset development exhibit both limited efficacy and a distribution of benefits that seems to belie their purpose.

The rest of the report is organized as follows. Section II provides background on how asset subsidies are delivered through the tax code and defines asset subsidies. Sections III, IV, and V describe the subsidies and review evidence on their justification and empirical efficacy for homeownership, retirement, and higher education subsidies, respectively, while section VI describes what is known about other account-based savings vehicles. Section VII presents potential reforms to tax-based wealth subsidies, and section VIII concludes.

Background

Much of the federal support for asset development is delivered through the tax code in the form of tax expenditures.⁵ Tax expenditures effectively serve as substitutes for direct outlay programs in providing assistance or subsidies for some activity to households and businesses; as a consequence, tax expenditures are often referred to as “spending through the tax code.” Unlike spending appropriations, tax expenditures are not subject to annual review and approval. Because they show up in the budget as tax cuts rather than spending increases, they mislead some into thinking they imply smaller government, even when identical in effect to a similarly designed direct spending program.

Tax expenditures take several forms: deductions, exclusions, exemptions, credits, preferential rates, and deferred liabilities.

- **Deductions.** When filing their taxes, US taxpayers have the option of claiming either a standard deduction (in 2013, \$6,100 for individuals and \$12,200 for married couples) or “itemizing” their deductions.⁶ Whichever form of deduction is taken is subtracted from adjusted gross income (AGI, the sum of various sources of taxable income) to arrive at taxable income. Filers who itemize report the value of deductible items such as certain state and local taxes, mortgage interest payments, and charitable contributions. In general, households will itemize if the total value of their deductions exceeds that of the standard deduction.⁷ Once the itemized deductions surpass the standard deduction, the additional value of the deduction is the tax rate levied on an additional dollar of income times the amount of the deduction. For example, a \$100 deduction for a tax filer in the 35 percent tax bracket would save the household \$35 in taxes.⁸

⁵ The formal definition of tax expenditures is set by the Congressional Budget and Impoundment Control Act of 1974 as “revenue losses attributable to provisions of the Federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability” (JCT 2013, 4). The concept of spending-like tax subsidies was first developed by Stanley Surrey, a Treasury official in the 1960s. Since then, the concept has been incorporated into government budget accounting in the United States and abroad (Surrey and McDaniel 1985).

⁶ The mortgage interest deduction and other itemized deductions are limited for high-income taxpayers through the Pease provision, which reduces itemized deductions by 3 percent of AGI over designated levels. That is, for each dollar in income above a particular threshold, itemized deductions are reduced by 3 cents. Itemized deductions cannot be reduced by more than 80 percent in total. The calculations in this document account for the limitation on itemized deductions.

⁷ Some items, such as student loan interest, tuition, and moving expenses, are deducted during the calculation of AGI and function more like exclusions.

⁸ Adding more complication, about 4 million taxpayers, mostly in high-income households, are subject to the alternative minimum tax (AMT), which restricts or removes certain deductions and exemptions, including the deduction for state and local property taxes discussed in this review.

- **Exclusions and exemptions.** As the name implies, exclusions are excluded from a taxpayer's AGI altogether and usually are not even reported on the tax return. Exemptions generally are not taxed altogether. The best-known exemption, the personal exemption, is reported on tax returns but then effectively deducted from tax, with some rare exceptions. An exemption's value is calculated in the same manner as a deduction: marginal tax rate times the value of the exclusion. Examples of major exclusions are employer and employee payments for employer-provided health insurance and retirement accounts. Employer payments for some of these benefits are also excluded from payroll tax, creating an additional tax expenditure. However, some excluded items (particularly most retirement saving and pensions that concern us here) really represent deferrals from tax: deposits are excluded in the year they are made but taxable when eventually withdrawn and paid out. The value of deferral is different from complete exclusion. Under some circumstances, deferral of earnings from tax in retirement accounts is equivalent to complete exclusion from tax of the return on the investments but not the original earnings themselves.
- **Credits.** Direct reductions in tax, rather than in income subject to tax, come in the form of credits. Thus, a taxpayer will typically calculate tax before credits and subtract available credits to determine tax after credits. The credits are provided sometimes simply as dollar amounts (the child credit) and sometimes as a portion of subsidized activity (child care expenses, education) and need. Credits can also be phased in and out with income, refundable (available to those with no net tax liability) or nonrefundable. The value of nonrefundable credits is limited to the taxpayer's pre-credit tax liability. If refundable, the balance that exceeds the tax liability is refunded to the taxpayer by the IRS during tax filing season.
- **Preferred rates and deferred liabilities.** Preferred rates occur when some form of income is taxed at a lower rate than "ordinary income," such as a cash wage, is taxed. Many view the lower rates given to capital gains and dividend income as one such tax preference. Deferred liabilities allow taxpayers to postpone payment of tax on a particular form of income.

Debate about tax reform typically draws attention to tax expenditures. Some attack tax subsidies on the basis that they are inefficiently designed and favor high-income groups, while others defend them as valuable support for taxpayers or legitimate adjustments based on ability to pay taxes (box 1). High-profile tax reform proposals (Bowles-Simpson, Domenici-Rivlin) sometimes seek to eliminate some or most tax expenditures while redesigning others to be more cost-effective. In multiple budget submissions, the Obama administration proposed limiting the value of certain tax expenditures by capping the rate applied to all itemized deductions, although, like most presidential administrations, it also proposed adding or expanding other tax expenditures.

Some critique tax expenditures' advantageous location (or absence) in the annual budget process. Tax expenditures operate much like mandatory spending, such as Social Security, in the budget process: as mostly permanent fixtures of the law, both bypass the need for annual appropriations by Congress, giving them de facto priority over other spending (Batchelder and Toder 2010; CBO 2013).

Tax expenditures do not exist just in the individual income tax code. Corporations and non-corporate businesses receive a credit for research and experimentation and can defer US corporate tax liability on profits earned by overseas subsidiaries until those profits are repatriated. For the most part, this review focuses on tax expenditures within the individual income tax system, although some corporate tax expenditures benefiting individual business owners and partnerships could be considered asset-building subsidies.

Box 1. Balancing Principles of Efficacy and Fairness

Many of the criticisms of tax policies toward asset development relate to their ineffectiveness for large portions of the population. But in designing policy, other principles such as fairness must also be considered. Fairness, in turn, involves consideration of both progressivity and equal justice, which are not the same. For instance, one can throw money off a roof in a poor area of the city; such a “progressive” policy would not provide equal justice. One can also provide an equal benefit to persons making \$1 million only and meet the standard of equal justice in a regressive policy.

Equal Justice versus Progressivity

Many tax provisions related to asset development, particularly deductions, have been designed partly to define who are equals, or have equivalent tax bases on which an equal tax should be assessed. Sometimes referred to as horizontal equity rather than equal justice, the issue arises, say, when considering how to tax a person with \$50,000 of income and \$10,000 of interest expense. Should the person be taxed just as a household with \$50,000 of income and no interest expense or one with \$40,000 of income and no interest expense? If the latter, the provision is not necessarily regressive just because those with more income tend to have more interest expense. With or without a deduction, the overall progressivity of the tax system can be set by adjusting the rate schedule.

Progressivity versus Effectiveness

Tax incentives for asset development generally do not apply to low- and moderate-income households. That often serves as an indictment of those policies. If a goal of a set of policies is to increase the well-being of households because of the additional protection that wealth provides, then the exclusion of those most needing the protection means that those programs fail to serve that purpose. But this criticism applies mainly to their effectiveness or efficiency, not progressivity per se.

When Congress grants an additional incentive to low- and moderate-income households, it decides not just to distribute more to them but to distribute it through a particular subsidy or incentive—and, in the case of incentives, that the benefit should go only to those who opt to use it. Each of these choices of policy design, not just any one of them, must be justified in its own right. If the goal is merely to increase progressivity, for instance, cash welfare can serve that purpose. Or an increase in the standard deduction, a provision that gives predominately lower-income users more deductions than they could obtain if they itemized various homeownership tax breaks, might be more progressive than extending saving incentives to them.

In 2012, tax expenditures administered through the individual income tax totaled \$1.1 trillion, while corporate tax expenditures amounted to \$148 billion.⁹ In recent years, the magnitude of tax expenditures has approached the total amount of revenue collected. That is, the federal government has forgone almost as much in tax expenditures as it has collected in receipts.

Tax expenditures for asset accumulation totaled \$384 billion in 2013, about 30 percent of all federal tax expenditures (table 1 and appendix A). The largest asset-building tax expenditures are for housing and retirement savings. Three tax expenditures—the mortgage interest deduction, deductions for state and local property taxes, and the exclusion of imputed rental income—make up the majority of housing tax expenditures. Exclusions for contributions to pensions and retirement accounts comprise the majority of retirement savings.¹⁰

⁹ Simply summing the cost of individual tax expenditures to derive a total may slightly misrepresent the total cost of tax expenditures because of interactions between individual expenditures. For example, Burman, Geissler, and Toder (2008) find that in 2007 summing the total cost of tax expenditures would understate the total cost by about 8 percent.

¹⁰ The Congressional Budget and Impoundment Act of 1974 requires that both the Treasury and the Congressional Budget Office compile a tax expenditure budget each year to inform policymakers of their presence and size. For this review, we use JCT's estimates where possible, since the most recent tax expenditure budget provided by the Treasury Department does not incorporate the effects of the American Taxpayer Relief Act, passed in January 2013.

Defining just what constitutes an asset-building subsidy as opposed to an ordinary consumption subsidy quickly becomes a highly subjective exercise. The term “asset-building” generally carries a positive connotation, and advocates can apply the word to policies they support even where the correlation may be limited. Some would consider only those subsidies that support direct financial saving and homeownership. Others would include support for acquiring human capital through education and training, not just financial and physical capital. Even broader definitions would include income supports, such as health care, or public goods, such as highways, on the grounds that these supports enable families to work and save more of their own income.

For this review, we apply a definition similar to that applied by Woo and colleagues (2010), which includes direct saving, homeownership, small business development, and higher education. Income supports such as the earned income tax credit and child and dependent care tax credit are not included, though they may promote a basic level of consumption or greater rewards from work, which may or may not be used to save.

Table 1. Total Individual Income Tax Expenditures for Asset Development by Asset Category, 2012–2017

2013 Dollars (billions)	Fiscal Year					
	2012	2013	2014	2015	2016	2017
Asset category						
Homeownership ^a	187.2	195.7	198.0	205.5	215.2	222.0
Retirement & Income Security	143.7	147.5	155.7	166.1	179.7	190.3
Education	32.4	31.9	35.9	37.6	37.8	37.6
Small business development	5.6	5.2	5.1	4.9	4.8	5.0
Other savings ^b	3.3	3.6	3.9	4.1	4.3	4.6
Total	372.2	383.9	398.6	418.2	441.9	459.5
Addendum: capital gains provisions						
Special rates for capital gains & dividends	110.0	160.8	89.7	110.7	113.8	118.8
Step-up basis for capital gains at death	38.4	42.8	47.6	49.7	52.4	55.2
Carryover basis of capital gains on gifts	5.6	13.2	(1.4)	(3.5)	1.5	2.0
Total individual income tax expenditures	1,108.6	1,214.2	1,169.8	1,254.1	1,343.6	1,408.3

Source: Authors' calculations based on data from, Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years, 2012-2017*; OMB, *Analytical Perspectives FY2014*; and CBO's February 2013 economic baseline.

a. Homeownership category includes Treasury estimate for the exclusion of net imputed rental income for owner-occupied housing. The most recent Treasury tax expenditure budget does not incorporate the effects of the American Taxpayer Relief Act of 2012, so projections differ from current tax law.

b. Other savings includes tax expenditures for employment-related stock purchase and ownership plans, health savings accounts, and deferral of interest on U.S. savings bonds.

Further, to be classified as asset-building, a subsidy must flow directly to households based on their engagement in a subsidized activity.¹¹ For example, deducting a charitable contribution to an educational institution would not qualify since the deduction value does not flow directly to those receiving education; however, deducting one's own tuition expenses would qualify.

There is disagreement over whether the lower rates applied to capital gains and dividends (currently 20 percent) constitute tax expenditures. Both the Joint Committee on Taxation (JCT) and the Office of Management and Budget (OMB) include special rates for capital income in their accounting. JCT estimates a cost of \$160.8 billion for 2013. However, others argue that the special treatment of such income represents a practical concession on the part of tax policymakers (Marron and Toder 2013). Under a pure income tax baseline, capital gains would be taxed (and losses deducted) as they accumulated; however, taxing them in this manner could require owners to sell and repurchase assets and incur transaction costs. If capital gains were instead taxed at ordinary rates as they were realized, a pure income tax baseline would require an adjustment to remove fictitious gains due to inflation. Accounting for inflation, however, would be administratively difficult both for filers and tax collectors. Additionally, many view capital income taxation as an unfair form of double taxation, since the profits used to pay dividends and repurchase stocks are also taxed at rates as high as 35 percent at the corporate level.¹² As a result, special lower rates for capital gains can be seen as a crude compromise to sidestep these issues. Marron and Toder classify this as a “tax policy choice” and exclude it from their definition of government spending substitutes. We take a similar approach, though unlike Marron and Toder we view the tax-deferred buildup in retirement savings accounts and pensions as a tax expenditure designed to incentivize retirement saving and therefore include them in our analysis.

Two key questions for evaluating tax expenditures are how effective the tax expenditures are at achieving their desired goal and which taxpayers benefit from the tax expenditures. The remainder of this review is devoted to these two questions, focusing on the major tax incentives for asset development.

Homeownership

The current federal tax code affords three major tax subsidies for homeownership that are reported on tax returns: the mortgage interest deduction on owner-occupied homes, the deduction for state and local taxes paid on owner-occupied property, and the exclusion of capital gains on the sale of an owner-occupied home. The mortgage interest deduction allows taxpayers to deduct mortgage interest on up to \$1 million in debt used to purchase or refinance a primary or secondary home. Taxpayers may also deduct interest paid on up to \$100,000 in home equity loans. These limits are not indexed to inflation and have been constant since 1988. Taxpayers may also deduct many types of state and local taxes paid, including property taxes.¹³ Unlike the mortgage interest deduction, there is no cap on the amount of deductible property taxes taxpayers may claim.¹⁴ A third major tax expenditure for housing is the capital gains exemption on the sale of an owner-occupied home. Taxpayers who have lived in a primary residence for at least two of

¹¹ The criteria for our calculations draw on work by Woo et al. (2010) and Steuerle, Carasso, and Reynolds (2008). Descriptions of individual income tax expenditures can be found in Congressional Research Service (2012).

¹² Burman (1999) reviews many of the arguments both in favor and against capital income taxation.

¹³ The mortgage interest and property tax deductions are itemized deductions. Under the individual income tax, taxpayers deduct the larger of the standard deduction—\$12,200 for married filers and \$6,100 for single filers in 2013—or the sum of their itemized deductions. (The largest itemized deductions are for state and local taxes paid, mortgage interest, and charitable contributions.) Taxpayers whose combined itemized deductions are less than the standard deduction do not claim the mortgage interest and property tax deductions, and thus do not directly benefit from these provisions.

¹⁴ State and local taxes paid, including property taxes, are not deductible under the alternative minimum tax (AMT)—a parallel tax system with different parameters and treatment of deductions than the regular income tax. In 2010, 4.1 million taxpayers were subject to the AMT, with a disproportionate share coming from high-tax states such as California, New York, and New Jersey (“Alternative Minimum Tax Tables 2013,” Urban-Brookings Tax Policy Center, accessed November 30, 2013, <http://www.taxpolicycenter.org/numbers/displayatab.cfm?Simid=476>).

the five years before the sale can deduct up to \$500,000 (\$250,000 if single) in capital gains; these limits are not indexed to inflation.

It is worth noting that tax expenditures for owner-occupied housing are largely a by-product of long-standing tax law that allowed taxpayers to deduct many forms of interest and taxes paid, not the outcome of a conscious effort to design pro-homeownership policies.

- **Mortgage interest.** Based on the simple notion that income includes net interest (interest received less interest paid), taxpayers have been allowed to deduct mortgage interest since the inception of the income tax in 1913, when all consumer interest could be deducted. Other forms of interest deductibility have gradually been disallowed over time, including in 1986 when interest on consumer debt, such as credit cards and auto loans, was disallowed.
- **Property taxes.** Similarly, property taxes have always been deductible under the income tax, with the justification that income for federal tax purposes would be net of state taxes paid. This is often justified under the notion that individuals have no discretion over whether to pay state and local taxes, though others argue that taxpayers receive benefits for their state and local taxes, hence their income is not reduced precisely by the amount of such taxes paid. Certainly, many state and local taxpayers make payments in excess of benefits received.
- **Capital gains.** Gains from the sale of a home were taxed until 1951, when a law was passed allowing the deferral of taxes if the gains were used to purchase another home. In 1997, the deferral was converted into an exclusion and the allowable gains that could be shielded from tax were substantially expanded.

Economists often note that the “true” housing subsidy is the exclusion of imputed rent on owner-occupied homes.¹⁵ The rationale for this assertion is that investment in housing should be taxed like any other investment, in which profits—revenue less expenses—are taxed. With owner-occupied housing, imputed rent is the revenue, and mortgage interest and property taxes paid are the housing expenses. (For those not used to this concept, an easy way to understand imputed rent is to consider a person and a neighbor each owning a house and renting to each other, paying taxes on rent less interest and property tax and other expenses paid.) Thus, if housing were treated analogously to other investments, imputed rent less deductible expenses would be taxed. In practice, imputed rent is difficult to tax and thus economists often mainly cite mortgage interest and property tax deductions as tax preferences for homeownership.¹⁶ Exclusion of capital gains on the sale of owner-occupied homes is often counted as a third major tax expenditure.

Homeownership tax expenditures involve substantial lost revenue. The JCT placed the aggregate cost of these three provisions at \$121.3 billion in 2013. The mortgage interest deduction was estimated to cost \$69.7 billion this year, followed by the property tax deduction at \$27.8 billion and the capital gains exclusion at \$23.8 billion. JCT lists eight other tax expenditures for housing, but these expenditures combined equaled just \$7.8 billion in 2013 (JCT 2013). Although these numbers appear high, they relate to the very high value of owner-occupied real estate, which the Financial Accounts of the United States (formerly Flow of Funds) estimates as \$18.6 trillion. A very large percentage of national wealth is in homes.

Tax expenditures for homeownership are often justified on the basis of the benefits of homeownership (referred to by economists as “positive externalities”).¹⁷ These benefits typically

¹⁵ Jackson (2005) provides an accessible overview of the optimal tax treatment of housing.

¹⁶ The mortgage interest deduction has been justified on the grounds that it extends the benefits from the exclusion of imputed rent to those homebuyers who must use debt financing to purchase a home. Toder (2013) provides an example of a taxpayer in the 28 percent tax bracket who purchases a home by selling taxable bonds paying a 5 percent rate of interest. This taxpayer will sacrifice 3.6 percent (i.e., $0.05 \times (1 - 0.28)$) in financial returns to purchase the house. In the absence of the mortgage interest deduction, that same taxpayer would simply pay the prevailing interest rate, 5 percent, if purchasing that same home with a mortgage. The mortgage interest deduction allows that taxpayer to deduct the mortgage payments, dropping the cost of purchasing that home to 3.6 percent—equal to the cost if purchased without a mortgage.

¹⁷ See Lerman and McKernan (2008) for a review of the benefits and costs of homeownership.

fall into two categories: spillover effects and benefits of higher wealth accumulation.¹⁸ Spillover effects refer to changing behavior due to homeownership, such as more engaged civic participation and lower crime. The reasoning is that when residents are investors in their homes, they become investors in their communities and have better incentives to help improve the quality of life in a particular neighborhood or city. At a minimum, they care more about appearance and upkeep of the home. Homeownership is also justified on the basis of wealth accumulation. If households undersave, due to myopia or other behavioral reasons, then homeownership is a potential vehicle by which to induce higher wealth accumulation.

The exclusion of capital gains on owner-occupied housing is justified on the basis that it is incenting not just homeownership, but other factors.¹⁹ The capital gains exclusion reduces the cost of mobility, especially with respect to labor decisions. The exclusion also weakens the “lock-in” effect—the notion that individuals hold onto assets when the sale is taxed—and thereby keeps households from remaining in homes that they might otherwise sell.²⁰ Lastly, the exclusion eases the compliance burden, which arises from the difficulty in determining the basis of the housing investment. Without the exclusion, sellers of houses that accrue capital gains would have to record not only the original price of the house when purchased, but also all incremental improvements to the property. The gain would then be calculated as the difference between the sales price and the adjusted basis of the home. By exempting most owner-occupied housing capital gains from taxation, homeowners are generally free from recording changes to the basis for tax purposes.

Still, the size of the gains to homeownership is not clear. Some research suggests that some real or potential owners face negative effects from these incentives that include both reduced labor force mobility, which some attribute as a cause of persistently high unemployment, and reduced mobility among disadvantaged groups, which causes households to remain in depressed or impoverished communities.²¹ In one respect, these studies accord with others outlining benefits of homeownership: in both cases, homeownership causes a stronger bond with the community, but whether that bond is positive or negative depends on individual circumstances.²²

While the social value of homeownership is debatable, existing subsidies for homeownership clearly are poorly designed to incentivize it. None of the current subsidies directly subsidize purchasing, owning, or building equity (wealth) in a home; instead, they subsidize costs associated with homeownership. The mortgage interest deduction provides a subsidy for incurring debt used to purchase an owner-occupied home, and the deduction for home equity loans subsidizes borrowing against the value of the house. The property tax deduction provides a subsidy for residing in a home with higher property taxes, which results from living in a high-tax jurisdiction or from owning an expensive home. The capital gains exclusion for owner-occupied housing explicitly rewards the sale of an appreciated home. Despite the vast sums annually devoted to promoting homeownership, none of these provisions are narrowly targeted to explicitly reward building up equity in a home.²³

¹⁸ A third, less frequently cited benefit is the stability homeownership provides in terms of housing payments. Some analysts note that homeownership provides protection against rent increases.

¹⁹ Including, for example, the critique that returns to capital include inflation, leading some to propose that only capital gains net of inflation be taxed. See Burman, Wallace, and Weiner (1997) and Gravelle and Jackson (2007) for discussion of the merits of excluding capital gains from the sale of an owner-occupied home.

²⁰ Cunningham and Engelhardt (2008) find that the expanded exclusion of capital gains on owner-occupied housing significantly improved mobility.

²¹ For example, Head and Lloyd-Ellis (2012) find a significant link between homeownership and unemployment. Lerman and Zhang (2013), on the other hand, find that homeowners in poor neighborhoods during the Great Recession were not locked out of jobs because of immobility; homeowners fared better in the job market than renters.

²² See Rohe et al. (2001) for a discussion of the conflict between neighborhood stability and individual mobility.

²³ See Harris, Steuerle, and Eng (2013) for an evaluation of tax-based policies that would more directly subsidize homeownership.

Current subsidies for homeownership also tend to subsidize ongoing costs of homeownership but not the costs incurred immediately after purchase and immediately before sale, which can be a large portion of the total cost of owning a home. In the United States, buying and selling a home is expensive. Homebuyers pay real estate transactions taxes, mortgage fees, title insurance, and real estate broker fees. In 2001, fees paid to a mortgage lender or broker averaged about \$3,500, while title fees averaged \$1,200 per loan. The median real estate commission paid by the seller was 5.5 percent of the sale price of the house (Woodward 2008). In a sample of 23 cities, Harris (2013) finds that transaction costs range from 6.29 percent in St. Louis to 11.44 percent in Philadelphia. The study also finds that for short-lived housing investments, transaction taxes make up the most significant share of housing costs.

In addition to being regressive, tax expenditures for homeownership suffer other flaws. The mortgage interest deduction induces excessive leverage by lowering the cost of debt financing. Indeed, prior research has found that homeowners with sufficient financial assets to repay their mortgage still carry mortgages because of the tax benefits from doing so (Poterba and Sinai 2011). One reason is that they can borrow against their house, take interest deductions, and then invest in non-housing assets whose returns are partially or fully excluded from tax. Housing subsidies also may lead to overconsumption of housing, with households choosing to live in more expensive homes than they would otherwise. The positive benefits to homeownership have not been shown to carry over to marginal purchases of second homes or new additions. Lastly, tax expenditures for homeownership lead to underinvestment in non-housing industries by drawing resources toward residential housing and away from other investments like small businesses and financial assets.

The property tax deduction, along with deductions for other state and local taxes paid, also leads to distortions in subnational government behavior. While the incidence of the property tax is not straightforward, several studies have found that the deduction of state and local taxes paid leads to both higher local government spending and a shift toward deductible forms of taxation, such as income and property taxes (Gade and Adkins 1990; Holtz-Eakin and Rosen 1988; Metcalf 2011). Thus, while the property tax deduction is regressive in isolation, it induces more progressive taxation at the subnational level (Metcalf 2011).

Distributional estimates²⁴

Current subsidies for housing provide the largest subsidies for high-income homeowners. This primarily occurs for three reasons. One, like other deductions, itemized deductions for housing are only available to taxpayers whose total itemized deductions exceed the value of the standard deduction. Two, the value of a deduction for any particular taxpayer is based on the taxpayer's marginal tax rate, with the deduction being worth more for taxpayers in higher tax brackets. These two factors provide high-bracket taxpayers a very high subsidy for incurring mortgage interest or property tax liability, while low-bracket taxpayers receive a lesser subsidy, or more commonly, none at all. Finally, the capital gains exclusion on housing tends to benefit upper-income taxpayers more because wealthier taxpayers tend to own more expensive houses and thus receive larger gains on their homes, all else equal.

Quantitative estimates by prominent microsimulation models confirm the unequal distribution of tax incentives for homeownership. Estimates by economists at the Joint Committee on Taxation, Treasury's Office of Tax Analysis, and the Urban-Brookings Tax Policy Center all show a high concentration of benefits at the top of the income distribution. CBO (2013) estimates that the mortgage interest deduction increases after-tax income by 1.1 percent for the top income quintile but by 0.3 percent or less for the bottom three quintiles. Cole, Gee, and Turner (2011) estimate that taxpayers in the top decile paid 35 percent of the mortgage interest expense but reaped 86 percent of the benefit of the mortgage interest deduction. Toder, Harris, and Lim (2011) find that the mortgage interest and property tax deduction raises after-tax income for the top income quintile by 1.7 percent, compared with just 0.6 percent for the middle-income quintile and does not change after-tax income for the bottom quintile.

²⁴ See box 2 for a guide to interpreting the distributional tables found throughout this study.

Box 2. A Quick Guide to TPC's Distributional Tables

Tables 2 through 10 show estimates of the distribution of benefits for select individual income tax expenditures for asset building in calendar year 2013. The Urban-Brookings Tax Policy Center (TPC) is one of a handful of research organizations which analyze the revenue and distributional consequences of proposed and existing federal tax policies. TPC uses the Urban-Brookings Tax Policy Center Microsimulation Model, which draws from IRS, Census, and other data sources to estimate the distribution of federal income, corporate, payroll, and estate taxes among other US tax units for specified calendar years.

TPC's distribution tables are framed as showing the impact of a real or hypothetical "proposal" relative to some chosen baseline. When examining the effect of the existing tax expenditures, the resulting summary tables frame the results as the effects of repealing that provision. While counterintuitive, the current benefits of a tax expenditure can be derived by "reversing the sign" of the change in after-tax income or average federal tax change. For example, in table 2 below, the mortgage interest deduction currently raises after-tax income for the top quintile by 1.1 percent (as repealing the provision would reduce incomes by that amount), with an average reduction in federal tax liability of \$2,410 for households in the fifth quintile. Note that households not claiming the tax benefit are included in these averages, so while percentage changes in after-tax income may seem low, they can be very high for specific households claiming those benefits.

The third column, Share of total federal tax change, can be thought of as the current distribution of benefits from a particular income tax provision. For instance, in table 2, the fourth quintile currently receives about 19.2 percent of the benefits from the mortgage interest deduction.

The tables appearing in this report are abbreviated forms of the TPC model's output. The full tables and a more extensive guide to reading them can be found in appendix B.

Table 2. Distributional Effects of Repealing Mortgage Interest Deduction, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	0.1	2
Second quintile	-0.1	1.4	30
Middle quintile	-0.4	7.6	183
Fourth quintile	-0.7	19.2	569
Top quintile	-1.1	71.7	2,410
All	-0.7	100.0	474
Addendum			
80–90 percent	-1.2	22.0	1,471
90–95 percent	-1.4	17.1	2,322
95–99 percent	-1.5	23.4	3,936
Top 1 percent	-0.5	9.2	6,116
Top 0.1 percent	-0.1	1.1	6,884

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

Like the mortgage interest deduction, the property tax deduction is worth more to taxpayers in upper-income groups. The deduction for property taxes paid raises after-tax income by 0.4 percent for taxpayers in the top income quintile, and this benefit declines steadily down the income distribution (table 3). Combined, the mortgage interest and property tax deductions raise after-tax income by 1.4 percent for the top quintile and by 0.5 percent for the middle quintile; they are worth almost nothing to those in the bottom two quintiles.

Table 3. Distributional Effects of Eliminating the Deduction for State and Local Property Taxes, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	0.1	1
Second quintile	0.0	1.6	14
Middle quintile	-0.2	7.9	77
Fourth quintile	-0.3	20.7	250
Top quintile	-0.5	69.7	955
All	-0.3	100.0	193
Addendum			
80–90 percent	-0.5	23.6	643
90–95 percent	-0.6	18.6	1,030
95–99 percent	-0.3	12.9	885
Top 1 percent	-0.4	14.7	3,960
Top 0.1 percent	-0.2	3.9	10,392

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

What we don't know

Economists are generally in agreement that the true tax preference for owner-occupied housing is the exclusion for owner-occupied rent. Given that the taxation of owner-occupied rent poses administrative challenges, the major tax preferences for owner-occupied housing are generally accepted to be the deductions for mortgage interest and property taxes paid, in addition to the exclusion for capital gains on owner-occupied property. As shown above, major microsimulation models agree that these tax preferences accrue primarily to those in top income brackets. Economists also appear to agree that these preferences are poorly designed as incentives for homeownership, partly because they incent more expensive homes and more leverage, often to cover non-housing consumption, by home-owning households.

There is little agreement beyond these few but important points. Perhaps most importantly there is disagreement on whether homeownership fundamentally carries social benefits. Similarly, it is not clear whether homeownership should be evaluated on its ability to strengthen ties to the community and improve civic behavior. In our view, the literature often ignores and discounts too heavily the social benefits of true home ownership (or building up net equity) as a vehicle for wealth accumulation. Perhaps because we don't know how to measure the full value of homeownership, there is little agreement on whether and how to incent homeownership.

At the same time, our own work has shown that paying off a mortgage and holding onto a home is the primary way by which low- and middle income (or wealth) households accumulate wealth. As a behavioral matter, it seems to work best for them, regardless of whether a researcher finds that some combination of stocks, bonds, and other financial assets theoretically would provide a better reward relative to the risk.

Little work has been done on the effect of homeownership tax preferences on housing prices; the work that has been published tends to be theoretical, rather than empirical. In particular, it has not been rigorously shown whether tax preferences for homeownership have led to changes in housing prices—a phenomenon known as capitalization. This ambiguity means that while we know who benefits from the tax preferences for homeownership, we do not know the extent to which these preferences influence housing values.

In addition, little is known about the opportunity cost of homeownership. While the magnitude of owner-occupied housing investment is well-measured by government agencies, little is known about the effect of owner-occupied housing investment on other forms of investment, such as financial securities and, in particular, small business investment. If low and moderate income individuals who save would otherwise save in bank saving accounts, for instance, their rate of return on average would be much lower than if they saved (and remained) in a house for an extended period.

Retirement Saving and Investment

The private pension system in the United States offers a complicated variety of plans for retirement saving and provides favorable tax treatment for contributions by both employers and employees. The general rule is that contributions to such plans, and the income earned within such plans, are excluded from taxation when earned but the income that is built up is taxed upon withdrawal. Like most tax deferrals, they are worth the most to those in the highest tax brackets and to those who can contribute the most. However, there are many variations on these themes that derive from different limits, options and possible Social Security (FICA) tax breaks as well, which will be described only briefly here.

There are two major plan families, defined benefit and defined contribution plans. Defined benefit plans were traditionally funded mainly or only by employer contributions, although today newer plan participants, including many state and local government workers, are being counted upon to make substantial contributions. In these traditional pension plans, employees earn the right to a defined stream of income at some future date. On the other hand, defined contribution plans consist of individual savings accounts. These can be funded by employer contributions, employee contributions, or both. In addition to work-based plans, the tax code offers individuals without a savings plan at work the opportunity to contribute to a self-funded defined contribution

plan known as an individual retirement account (IRA). Employers largely control retirement saving in the private pension system by deciding whether to sponsor a plan and, if so, the rate of contributions. In salary deferral work-based plans such as 401(k) plans and IRAs, employees decide whether they will contribute and, if so, how much.

Employer participation has proven crucial to saving. Take-up rates for private sector employees offered defined contribution retirement plans through their employers are around 71 percent (Bureau of Labor Statistics 2013).²⁵ Defined contribution plans with automatic enrollment features, in which employees must “opt out” of participating in the plan instead of manually enrolling see even higher participation rates, with analyses finding participation rates consistently around 80 percent or more (Butrica and Karamcheva 2012; Madrian and Shea 2001; Utkus and Young 2013). Meanwhile, contributions to IRAs that do not operate through employers remain below 20 percent (Holden and Schrass 2012).

Technically, deposits and earnings on deposits within retirement accounts benefit from tax deferral. With the exception of “Roth” accounts, discussed below, retirement savings are taxed generally when received or withdrawn from a plan or IRA. The tax treatment of retirement plan benefits depends on whether they flow from 1) a “qualified” plan or IRA or 2) a “non-qualified” plan. (Qualified plans and IRAs are governed by IRC § 401(a) *et. seq.* and the Employee Retirement Income Security Act [ERISA].) In an effort to insure that the tax benefits for retirement saving do not flow primarily to highly-paid employees, qualified plans are subject to complicated rules that limit both the amount of annual contributions and the relative value of contributions and benefits for highly-paid and non-highly paid plan participants. IRAs are also subject to annual contribution limits. Employees who are not covered by a plan at work may contribute up to the maximum amount allowed while covered employees may still be able contribute on a tax-deferred basis if their incomes fall below statutory limits. In general, contribution limits are significantly higher for employer contributions.

If a plan is a qualified plan, employers receive a deduction for income tax purposes and an exemption from FICA taxes on contributions. This is not considered a tax break since the employer should deduct all compensation costs to determine its net income. In addition, however, employees are not currently taxed on employer contributions on their behalf. Employees who make a contribution to a salary deferral plan such as a 401(k) or IRA do pay FICA taxes and, under the traditional tax regime, receive no income tax deduction on those contributions. (Thus, employer contributions receive an extra FICA tax break.) Investment earnings accumulate tax-free. When benefits are paid from the plan or IRA, all amounts are taxed as ordinary income.

In some plans and IRAs, however, employees have the option of making contributions to a Roth salary deferral plan or IRA. Under the Roth regime, contributions are taxed for income tax purposes when made but then all earnings on those saving are totally excluded from tax. For technical reasons we will not explain here, Roth accounts especially favor higher-income individuals since they are allowed to pass on more tax benefits to their heirs, they are allowed higher levels of tax-preferred contributions, and, if they expect their tax rates to rise in retirement, they get additional benefits, as well.

In addition to these in-plan tax incentives, the tax code provides a special subsidy for low-income savers called the “savers credit.” In theory, a low-income tax payer who makes a contribution to a qualified plan or IRA is eligible to receive a non-refundable tax credit of up to \$1,000 individually or \$2,000 if filing jointly. However, the credit is designed so that the maximum amount is almost impossible to obtain (Orszag and Hall 2003). In addition, because the credit is paid out as a refund on the tax return, the credit itself does not add to the individual’s pension saving unless the recipient uses it for that purpose.

²⁵ Take-up of defined benefit plans is higher, at 87 percent, but few private employers offer them. BLS estimates that about 19 percent of private industry workers have access to a defined benefit plan, versus 69 percent having access to defined contribution plans. Both access and participation vary by industry and income, with low-wage workers typically having less access and participation in defined contribution plans than higher wage workers.

Employers often provide their executives with non-qualified deferred compensation plans that can mimic and supplement the benefits provided by qualified plans. These plans can be either a defined benefit or a defined contribution plan and include salary reduction plans that “mirror” 401(k) plans, supplemental executive retirement plans (SERPs) and excess benefit plans. These plans largely serve to make up for the benefit and contribution limitations of qualified plans under tax law, and they are exempt from ERISA because they are intended for high-ranking executives. The legal definition of which executives may be covered by these plans remains murky. Particularly in the case of mirror 401(k) plans, participation is often pushed down into the ranks of middle management.

Evidence of the effects of all these retirement saving incentives is decidedly mixed. The primary focus of most research has been whether tax-preferred saving accounts, like 401(k)s and IRAs, result in net increases in saving. That is, on the whole, are contributions to these accounts wholly offset by decreases in other saving? A second question is whether tax-preferred accounts result in increases to national saving, not just private saving. Research has also focused on whether saving incentives are effective for low-income households, and the extent to which saving incentives are distributed across various income groups. Other saving questions, such as the impact of Social Security and private defined-benefit plans on private saving, have received substantial research attention but are beyond the scope of this report.

The controversy over the net saving impact is reflected in the research literature. Several studies have found large effects on private saving. Benjamin (2003) finds that approximately half of 401(k) balances represent net increases in saving, a quarter represent transfers from other tax-preferred accounts, and a quarter represent transfers from other assets, namely home equity. Benjamin also finds that tax incentives for saving are less effective for homeowners, a finding that has been repeated in other studies. Poterba, Venti, and Wise have written multiple papers on this subject. Early work by the trio focused on the relationship between IRAs and other types of liquid financial assets, although it is important to note that most retirement saving does not take place directly through individual IRAs. These studies analyzed a panel of households across time, and found that IRA saving did not offset other types of saving. Specifically, they find that only 3 to 20 percent of the contributions are offset by reductions in other types of saving; about 35 percent are offset by reductions in taxes, and 45 to 66 percent are financed by reductions in consumption. These findings are marred by differences in household behaviors toward saving; households who opted to contribute to IRAs have different saving tastes and preferences than those who don't. Poterba, Venti, and Wise (1996) aim to correct for this shortcoming and still find that, on the whole, most new contributions to IRAs and 401(k)s increase saving.

In sharp contrast, Gale and Scholz (1994) find that almost no contributions to IRAs represent net increases in private saving. Gale and Scholz find that 67 percent of contributions to IRAs are represented by offsets to other private saving, 31 percent from reductions in taxes that are not ultimately saved, and just 2 percent from net increases in saving (i.e., reduced consumption). The authors note that part of this effect is driven by large contributions by older, wealthier households, and that excluding these households from eligibility would increase the effectiveness of tax-preferred saving incentives. In a similar finding, Attanasio and DeLeire (2002) find that 3–9 percent of contributions to tax-preferred savings accounts represents new saving, 56–62 percent represents transfers from other types of saving, and 35–38 percent represents saved tax incentives (i.e., reductions in tax payments). The key difference among these studies is the treatment of unobserved characteristics, namely tastes for saving. While it is relatively straightforward to measure the relationship between tax-preferred saving and non-preferred saving, it is more difficult to measure how households would react in the absence of these incentives.

Steuerle (1984) long ago noted the pervasiveness of tax arbitrage opportunities affecting the saving rate. Tax arbitrage occurs not simply by shifting assets to a preferred form but by leveraging up purchases of preferred assets through borrowing or similar transactions. Taxpayers so engaged can receive tax benefits for saving without actually saving more, such as by deducting interest on a home equity loan and excluding or deferring interest income within the retirement account.

In a recent study, Chetty and colleagues (2012) find that saving subsidies are largely ineffective, with net gains in saving equal to 1 percent of the value of the tax expenditure. Their result is driven by the finding that many savers are “passive” and thus do not respond to saving incentives. As a result, Chetty and colleagues find that automatic enrollment mechanisms are much more effective pro-saving policies than tax incentives. The efficacy of automatic enrollment has been confirmed by many others, most notably by Madrian and Shea’s seminal 2001 paper finding that automatic enrollment significantly and substantially drove up defined-contribution participation for low-income and minority workers. Note the similarity to the earlier discussion about the effectiveness of the mortgage as a saving mechanism because of its regular, almost automatic, aspect.

While automatic enrollment plans have been shown to boost participation among employees, including individuals belonging to groups with traditionally low participation rates, other features of plan design could greatly influence whether employees adequately save for retirement. The same behavioral patterns observed for enrollment appear to be at work for choosing deferral rates and allocating funds. That is, most employees have been found to stick to the defaults (i.e., the outcome that materializes if no active choice is made), at least initially (Choi et al. 2004).

Setting the correct defaults, then, becomes very important. Default deferral rates for auto-enrollment plans are frequently lower than those set by participants of manual enrollment plans (Utkus and Young 2013). Other default features, such as auto-escalation, where employees are automatically enrolled in plans at low deferral rates (e.g., 2 to 3 percent) and then have their deferral rates gradually increased to partially absorb pay raises, have been explored (Thaler and Benartzi 2004). Research is just beginning in this arena.

Further, there is some evidence that employers offering automatic enrollment plans may curb other plan features such as employer matches for contributors or set default deferrals rates which do not maximize the employer match. Butrica and Karamcheva (2012) examined data from the National Compensation Survey and found that the total costs of operating the plans did not differ between those offering auto-enrollment plans and those offering manual enrollment plans. The results suggest that while auto-enrollment can greatly reduce the number of employees with zero balances (nonparticipants), other workers may see their total savings somewhat diminished as firms act to control total compensation costs.

Other research has focused on whether saving incentives affect national saving. National saving is the sum of private saving and public (government saving). Assessing the effects of the tax preference for saving on national saving involves adding the net contributions to IRAs and 401(k)s, the net reductions from other saving vehicles (including home equity), and the net reduction in revenue to provide those incentives. Gale and Sholtz’s simulations indicate that 2 percent of contributions to IRAs represent net increases to national saving, but only under the assumption that all reduction in tax liability is saved. Relaxing this assumption and assuming instead that half the reduction in tax liability is consumed indicates that contributions to IRAs reduce national saving by 14 percent (i.e., each dollar contribution to an IRA represents a 14-cent reduction in national saving). Similarly, Attanasio and DeLeire’s 2002 findings indicate that only three to nine percent of IRA contributions represent net increases in national saving. Poterba, Venti, and Wise’s estimates are more optimistic. Under their model, 45 percent to 66 percent of IRA contributions represent increases in national saving. Ultimately, this research suggests that higher income taxpayers or, more generally, those with substantial saving tend to have greater ability to offset increased retirement saving with decreases elsewhere.

Others have estimated the impact of Automatic IRAs using microsimulation models of tax burdens. Automatic IRAs are accounts established for workers without access to employer-based retirement savings accounts. Unless they actively decide to opt-out, workers enrolled in these accounts automatically make contributions to the retirement account. Harris and Johnson (2012) find that a policy that implemented Auto IRAs with an expanded saver’s credit would raise IRA contributions by 0.19 percent of GDP (\$34.6 billion) under an intermediate cost scenario, but they would be offset by a 0.06 percent of GDP reduction in government saving, plus reduced private saving in other accounts (which are not estimated). Iwry, Gale, and Orszag (2006) provide “rough, ballpark estimates” of the effect of the Auto IRA on national saving. They find that new

contributions to IRAs through automatic enrollment would amount to 0.11 percent of GDP in the long run, but that the reduction to other private saving would amount to 0.04 percent of GDP. Government revenue would reduce saving by another 0.02 percent of GDP, making the net contribution to GDP approximately 0.06 percent of GDP.

Duflo and colleagues (2006) study the effects of a randomized experiment at H&R Block locations where low-income taxpayers were offered matches of 20 percent and 50 percent for contributions to IRAs. The study found that when match rates jumped from 20 percent to 50 percent the take-up rate rose by 6.3 percentage points and average contributions by \$310. Overall, the program experienced high take-up rates, with 20 percent and 50 percent matches inducing take-up rates of 8 percent and 14 percent, respectively (compared to a take-up rate of 3 percent for those not offered a match).

Others have studied the efficacy of the saver's credit. In noting that the saver's credit offers effective match rates of 11, 25, and 100 percent, Duflo and colleagues (2007) find that going from the 0 percent match to 11 percent and from the 11 percent match to 25 percent has essentially no impact on take-up; just 0.3 and 0.4 percent, respectively. Going from the 25 percent match rate to the 100 percent match rate increases take-up by just 1.4 percent. Changes in contributions, while statistically significant, are similarly small. Duflo and colleagues explain this apparent contradiction between the saver's credit and H&R Block experiment as one of framing: individuals may not understand that a match is equivalent to a credit.

Distributional estimates

Producing distributional estimates of saving incentives is a challenging exercise because it requires assumptions about the timing of distributions and rates of return on financial assets. The tax preferences for retirement saving are generally based on the concept of deferred taxation—most contributions to retirement saving accounts are not taxed at the time of contribution, are allowed to grow tax free, and are taxed as ordinary income when taken as a distribution. Despite these complexities, several studies have produced estimates of the distributional effects of tax incentives for retirement saving.

Using the Urban-Brookings Tax Policy Center microsimulation model, Burman and colleagues (2004) find that defined-contribution plans and IRAs are decidedly regressive, raising after-tax income 1.4 percent for the top quintile but only 0.7 percent for the middle quintile; these accounts raise after-tax income for the bottom quintile by just 0.1 percent. The authors find that the saver's credit raises after-tax income by 0.1 percent for the second and third quintiles, with no effect for other taxpayers. Similarly, CBO (2013) finds that the tax preference for retirement saving incentives raises after-tax income by 2.0 percent for the top quintile, but by just 0.8 percent for the middle quintile and 0.4 percent for the bottom quintile.

Updated estimates from the Tax Policy Center model largely align with these results. The tax benefits for employer-based retirement accounts raise after-tax incomes by about 1.8 percent for the top quintile and only 0.1 percent for the lower quintile (table 4). All told, over 70 percent of the benefit goes to the top quintile, with the fourth quintile picking up much of the rest. A similar story holds for IRAs (table 5). The saver's credit by design favors the bottom three quintiles, however due to its limited size, does not raise after-tax income by very much (table 6).

Table 4. Distributional Effects of Eliminating Tax Preferences for Employer-Based Retirement Accounts (Defined Benefit and Defined Contribution Plans), Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	-0.1	0.5	12
Second quintile	-0.3	3.0	101
Middle quintile	-0.6	8.0	303
Fourth quintile	-1.0	17.0	791
Top quintile	-1.8	71.4	3,767
All	-1.2	100.0	744
Addendum			
80–90 percent	-1.4	17.0	1,787
90–95 percent	-2.0	15.5	3,301
95–99 percent	-2.4	23.8	6,263
Top 1 percent	-1.4	15.2	15,792
Top 0.1 percent	-0.8	4.0	40,674

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

Table 5. Distributional Effects of Eliminating Tax Preferences for IRAs, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	0.7	1
Second quintile	0.0	4.4	10
Middle quintile	-0.1	11.0	29
Fourth quintile	-0.1	18.8	60
Top quintile	-0.1	65.1	236
All	-0.1	100.0	51
Addendum			
80–90 percent	-0.1	14.9	108
90–95 percent	-0.1	13.4	196
95–99 percent	-0.2	21.7	394
Top 1 percent	-0.1	15.1	1,084
Top 0.1 percent	0.0	2.5	1,774

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

Table 6. Distributional Effects of Eliminating the Saver's Credit Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	13.2	0
Second quintile	0.0	53.2	0
Middle quintile	0.0	33.7	0
Fourth quintile	0.0	0.0	0
Top quintile	0.0	0.0	0
All	0.0	100.0	0
Addendum			
80–90 percent	0.0	0.0	0
90–95 percent	0.0	0.0	0
95–99 percent	0.0	0.0	0
Top 1 percent	0.0	0.0	0
Top 0.1 percent	0.0	0.0	0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

What we don't know

Once again, we have limited information on what works for incenting retirement saving, but that does not mean we do not know how to better design such incentives to increase the probability of increased impact or to provide more equal benefits to different income groups. Economists remain divided as to the extent to which tax-based subsidies, usually in the form of deferred taxation, raise net saving or represent transfers between types of accounts. In particular, economists have had trouble identifying effective strategies for incenting low-income workers to contribute to retirement accounts, although behavioral barriers are clearly an important hurdle. Mounting evidence suggests that workers placed in automatic saving arrangements tend to remain with the default choices, including contributions levels and portfolio selection. However, little evidence exists on the effect of automatic enrollment in an individual plan for those workers who are not covered by a workplace retirement saving plan.

While uncertainty persists around the net impact of incentives, recent research makes quite clear that the majority of individuals who do accumulate saving over a lifetime do so in retirement plans and by paying off mortgages on their homes. In fact, the effects can be quite dramatic even for households with modest incomes. When examining median-wealth households whose heads had reached their 60s, Mermin, Zedlewski, and Toohey (2008) found that they were saving thousands, then tens of thousands of dollars a year, primarily through increased future Social Security benefits, retirement savings, and home equity.²⁶ In the case of retirement accounts that are held until retirement, the saving rate out of compensation may be 5 or 10 percent, but 100 percent of the return on the account is saved. While this does not mean that societal saving increased by the same amount—the saving may increase the supply of money loaned to others for consumption—it does make clear how crucial retirement saving is to the typical family attempting to accumulate some wealth.

²⁶ While we leave Social Security as a “savings” vehicle outside this report, its value as an asset, especially for low-income workers, cannot be overstated. For most households, the present value of Social Security and Medicare benefits exceeds substantially the combined value of all their private assets.

Higher Education

The tax code provides a variety of incentives, and subsidizes education at key points along the higher education continuum—saving for college, paying for college, and the repayment of student loans. Federal spending on tax credits and deductions for higher education were estimated to cost \$31.9 billion in 2013 (JCT 2013). While this report focuses on the tax incentives for higher education, the federal government subsidizes higher education in other ways. These include federal Pell grants and subsidized and unsubsidized federal student loans (e.g., Stafford and Perkins loans), which help students pay for and finance their education.²⁷

A summary of this vast and confusing array of tax subsidies follows.

- **529 accounts.** Families at all income levels can receive tax benefits for college saving through 529 accounts. These accounts (or plans) are the largest and most prominent tax-preferred accounts that incentivize and support saving for higher education. These accounts are administered at the state level and receive preferential tax treatment at both the state and federal level. For federal income tax purposes, contributions to 529s are made with post-tax income—that is, contributions cannot be deducted from taxable income—but the earnings on contributions are allowed to grow tax-free if they are directed toward qualified educational expenses.²⁸ Treatment at the state level is similar, although some states also allow account contributions to be deducted from taxable income. There are no income restrictions on who can contribute to 529 accounts. The amount people can contribute to 529 accounts varies by state, but many states allow contributions in excess of \$200,000.
- **Other tax-preferred saving accounts.** Beyond 529s, there are a number of other tax-preferred savings accounts used to fund higher education. Coverdell Education Savings Accounts also allow contributions to grow tax free if they are used toward qualified education expenses;²⁹ they tend to be much smaller because of an annual contribution limit of \$2,000. Other tax-preferred savings accounts, such as traditional and Roth IRAs, can also be used to pay for college.³⁰
- **Hope and Lifetime Learning credits; American Opportunity Tax Credit.** Many students and their families receive tax benefits to help pay for college in the form of credits or deductions. The federal government expanded tax incentives for higher education in the late 1990s and then again in the late 2000s. Two key tax credits—the Hope and Lifetime Learning credits—became effective in 1998, and tax deduction for tuition and fees paid were introduced in 2002. Education credits were then expanded in the American Recovery and Reinvestment Act of 2009. That legislation established the American Opportunity Tax Credit (AOTC), which is an expanded version of the Hope Credit, and also expanded the Lifetime Learning Credit.³¹

The AOTC offers a maximum credit of \$2,500 per student for the first four years of postsecondary education. Forty percent of the AOTC is refundable, so taxpayers with no federal income tax liability can receive a tax credit of up to \$1,000. Students must be enrolled in school at least part time; qualified expenses include tuition and required fees but exclude room and board. The AOTC is available to taxpayers whose modified adjusted gross income does not exceed \$90,000 (\$180,000 if married).

The Lifetime Learning Credit is similar to the AOTC, but with several notable distinctions. The Lifetime Learning Credit confers a maximum benefit of \$2,000 and is nonrefundable, so lower-income tax filers with no federal income tax liability cannot benefit from this credit. The Lifetime Learning Credit has a tighter income restriction—modified AGI

²⁷ Failures in the credit market provide a justification for government intervention. By providing tax credits, grants, and loans, the federal government helps students without adequate resources attend college.

²⁸ Qualified expenses include tuition, fees, books and supplies, and room and board.

²⁹ Qualified expenses for Coverdell Education Savings Accounts also include expenses for kindergarten through the twelfth grade.

³⁰ The 10 percent early withdrawal penalty is waived if the withdrawn funds are used for qualified education expenses.

³¹ Eligible taxpayers must choose between the two credits each year, as only one can be claimed per student per year.

cannot exceed \$62,000 (\$124,000 if married)—but has a somewhat more flexible definition of qualified expenses.

Taxpayers can choose to claim the AOTC or the Lifetime Learning Credit, or they can take a deduction for tuition and fees paid. The maximum deduction of up to \$4,000 is available to taxpayers with modified AGI below \$80,000 (\$160,000 if married). Because deductions reduce taxable income, the resulting benefit of the deduction (in dollar terms) to the taxpayer differs by the taxpayers' tax bracket (i.e., the deduction is of greater value to taxpayers in higher tax brackets). Taxpayers can claim this deduction regardless of their decision to itemize deductions or take the standard deduction.

- **Deductible student interest.** The federal government also supports higher education by allowing taxpayers who are repaying student loans to claim a deduction for interest paid on the loans. Taxpayers with income below \$75,000 (\$155,000 if married) may deduct up to \$2,500 in student loan interest paid. Like the deduction for tuition and expenses, a taxpayer can claim this deduction regardless of their decision to itemize deductions or take the standard deduction. As noted earlier with respect to home mortgage interest payments, some view interest deductibility as a normal means of calculating net income rather than as a tax expenditure.

A primary goal of higher education financing is to achieve greater equality and redistribute resources so that children from low-income families have the opportunity to move up the economic ladder. The literature shows that there are positive returns to higher education. The lifetime earnings of college graduates (net tuition costs) are significantly higher than those of people who have only a high school degree (Avery and Turner 2012). Further, the returns to post-secondary education have been increasing over time (Baum, Ma, and Payea 2013). One caveat, however, is many students who attend college (two- and four-year) do not complete their degree, so some of the early investments have limited returns. Also, the various subsidies for education tend to raise costs at the same time.

A key principle justifying federal funding for higher education is that it creates benefits to society (i.e., positive externalities). In theory, the increased worker productivity “spills over” and leads to increased productivity and higher wages of other workers (beyond increases in the individual's productivity and wages). The literature suggests that indeed there are spillover effects, as areas with more educated populations have greater technological innovation, growth, and productivity (Courant, McPherson, and Resch 2006; Glaeser and Saiz 2004; Moretti 2004).

Higher levels of education can also improve society by creating more informed, tolerant, and active citizens. This, too, is supported by research that suggests that higher levels of education are associated with increased civic knowledge (newspaper readership), political participation and voting, and volunteerism (Courant et al. 2006; Hillygus 2005; Dee 2004).

Do the wide array of tax incentives for higher education increase college enrollment and completion? The evidence here is mixed. Long (2004) finds that college enrollment did not increase in the three years after the Hope and Lifetime Learning tax credits became effective.³² She also finds that the credits did not affect attendance at a four-year versus two-year institution or attending school full-time versus part-time. However, looking out six years after the tax credits became effective and capturing the tax deductions introduced in 2002, Turner (2011a) finds that tax-based federal student aid (Hope Tax Credit, Lifetime Learning Credit, and tuition deductions) increased full-time college enrollment among 18 to 19-year-olds in the first two years of college, concluding that this aid helps student start college and continue into their second year.³³ A \$100 increase in tax-based aid is found to increase college enrollment by 0.3 percentage points. His findings are concentrated on full-time enrollment, with no evidence that the tax-based aid increases part-time enrollment in college. Focusing on people in their 30s and 40s, LaLumia (2012) finds that tax incentives for higher education increase college enrollment among the subset of men who had not met their educational expectations. On the other hand, she finds no evidence

³² This analysis uses data from 1990 through 2000, so is based on data before the AOTC was created in 2009.

³³ This analysis is based on data from 1996 through 2003.

that the education subsidies affect the probability of receiving an advanced degree, nor does she find an effect for women in their 30s and 40s.

Beyond this, evidence suggests that educational institutions and states have changed their behavior in response to federal tax subsidies, so students do not capture the full benefit of the subsidies. Some states were found to reduce funding to public two-year colleges, and public two-year colleges were found to increase tuition (Long 2004). Colleges and universities have also been found to reduce institutional grant aid to students (Turner 2011b). Declines in teaching workload among faculty may also be a way that this aid is captured by providers of services.

Distributional estimates

Education savings accounts and deductions typically benefit wealthier taxpayers more than tax credits do. Participation in tax preferred savings accounts, such as 529 and Coverdell education savings accounts, is much higher among upper-income households. In 2010, nearly three-quarters (71 percent) of families with a 529 or Coverdell account had incomes of over \$100,000 (GAO 2012).

In terms of paying for college, our estimates from the Urban-Brookings Tax Policy Center microsimulation model find the benefits of the AOTC are spread throughout the income distribution, although higher-income household benefit somewhat more than lower-income households. The share of AOTC benefits that go to bottom, middle, and top income quintile households is 13 percent, 20 percent, and 27 percent, respectively (table 7). The refundable aspect of the AOTC is particularly beneficial to low-income households.

Unlike the AOTC, the Lifetime Learning Credit is nonrefundable and has a tighter income restriction, so it is primarily used by middle-income households. In fact, nearly 90 percent of Lifetime Learning Credit benefits go to households in the three middle income quintiles (table 8). Only 5 percent of Lifetime Learning Credit benefits go to bottom-income families, and 7 percent go to top-income families.

Moving from credits to deductions that help finance college costs shows that the benefits of educational deductions (for tuition and fees paid) are tilted toward high-income households. For example, half of these benefits go to households with incomes over \$100,000.³⁴

The deduction for student loan interest is a widely utilized education incentive, with 7.5 percent of taxpayers expected to take advantage of the deduction in 2013. The student loan interest deduction is primarily claimed by middle- and upper-income taxpayers, with nearly 90 percent of the benefits going to households in the top three income quintiles (table 10).

In sum, the refundable AOTC benefits people across the income distribution, deductions for educational expenses primarily benefit higher-income taxpayers, and middle- and upper-income taxpayers are key beneficiaries of student loan interest deductions.

³⁴ “Baseline Distribution of Tax Units Receiving Pell Grants, AOTC, LLC, and Tuition and Fees Deduction; All Students, by Adjusted Gross Income, 2013,” Urban-Brookings Tax Policy Center, accessed November 30, 2013, <http://www.taxpolicycenter.org/numbers/displayatab.cfm?Docid=3848&DocTypeID=7>. Table 9 in this paper shows that lower-income families (i.e., those in the bottom two income quintiles) take the deductions for tuition and fees but would be made better off by instead filing for one of the education credits.

Table 7. Distributional Effects of Eliminating the AOTC, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	-0.4	13.1	46
Second quintile	-0.2	16.7	71
Middle quintile	-0.2	19.6	94
Fourth quintile	-0.2	23.4	139
Top quintile	-0.1	26.9	181
All	-0.2	100.0	95
Addendum			
80–90	-0.2	17.0	228
90–95	-0.2	9.6	261
95–99	0.0	0.3	9
Top 1 percent	0.0	0.0	0
Top 0.1 percent	0.0	0.0	0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

Table 8. Distributional Effects of Eliminating the Lifetime Learning Credit, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	4.8	1
Second quintile	0.0	24.5	6
Middle quintile	0.0	30.0	9
Fourth quintile	0.0	33.8	12
Top quintile	0.0	6.8	3
All	0.0	100.0	6
Addendum			
80–90	0.0	6.8	6
90–95	0.0	0.1	0
95–99	0.0	0.0	0
Top 1 percent	0.0	0.0	0
Top 0.1 percent	0.0	0.0	0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

Table 9. Distributional Effects of Eliminating Deductions for Higher Education Expenses, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	-9.6	0
Second quintile	0.0	-16.2	-1
Middle quintile	0.0	12.8	1
Fourth quintile	0.0	23.1	2
Top quintile	0.0	90.1	8
All	0.0	100.0	1
Addendum			
80–90	0.0	66.7	12
90–95	0.0	23.2	9
95–99	0.0	0.2	0
Top 1 percent	0.0	0.0	0
Top 0.1 percent	0.0	0.0	0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

Table 10. Distributional Effects of Eliminating the Student Loan Interest Deduction, Calendar Year 2013

Expanded cash income percentile	Percent change in after-tax income	Share of total federal tax change	Average federal tax change (\$)
Lowest quintile	0.0	2.0	0
Second quintile	0.0	11.0	3
Middle quintile	0.0	31.2	9
Fourth quintile	0.0	29.3	10
Top quintile	0.0	26.5	10
All	0.0	100.0	5
Addendum			
80–90	0.0	24.3	19
90–95	0.0	2.2	3
95–99	0.0	0.0	0
Top 1 percent	0.0	0.0	0
Top 0.1 percent	0.0	0.0	0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Note: See appendix B for more detail.

What we don't know

We have little evidence that tax-preferred accounts that incentivize saving for higher education, such as 529 and Coverdell education savings accounts, impact college enrollment or completion. These accounts are primarily held by higher-income families (GAO 2012), so benefits of the accounts accrue in large part to these households. Because of that concentration, it is highly likely that these households simply transfer money from one account to another rather than increasing net saving.

In terms of tax credits and deductions that help families pay for college, there is no clear consensus on the extent to which this aid impacts postsecondary enrollment. The literature is small and has produced mixed findings. Turner (2011a), for example, finds no effect of tax credits on college enrollment. In other cases, federal tax-base student aid has been found to increase college enrollment among selected subpopulations—people age 18 to 19 (Turner 2011a) and men in their 30s and 40s who had not met their prior educational expectations (LaLumia 2012)—but not among other populations (women in their 30s and 40s who had not met their educational expectations; see LaLumia 2012).

There is little evidence that these credits improve degree completion. One study finds that federal tax-base student aid helps students continue into their second year college (Turner 2011a), while another study finds no evidence that tax-based aid improves degree completion (LaLumia 2012). Analyses with more recent data that capture the expansion of the Lifetime Learning Credit and establishment of the AOTC could produce more robust findings. More research is also needed to understand if tax-based aid shifts students from part-time to full-time enrollment or shifts them from two-year to four-year colleges or from public to private schools.

Other Account-Based Saving Vehicles

A host of other, less important, tax benefits exist for asset accumulation, including Treasury savings bonds, life insurance contracts, and variable annuities. These benefits are briefly reviewed below. In general, these accounts allow deferral of interest earned on saving but usually are less or no more valuable than retirement saving accounts. Indeed, the growth in retirement assets relative to GDP has been accompanied by a decline in these other forms of asset holding relative to GDP.

Treasury savings bonds. Treasury savings bonds purchased in 2013, including Series E and Series I bonds, have three primary tax advantages. One, the interest paid on the bonds is exempt from state and local income tax. Two, the income can be deferred until redeemed or the date of maturity, whichever comes first. Three, adults over age 24 can exempt interest from federal tax if the interest is used to pay qualified education expenses. Deferral of federal income tax amounts to a \$1.3 billion tax expenditure in 2013, while the tax preference for education expenses amounts to under \$700 million per year.

Life insurance. Life insurance is broadly offered as term life insurance or with savings that accumulate in some form of cash surrender value. Term life insurance represents a contract between an insurance company and the insured where a benefit is paid in the event of a death in a specified period. Permanent or whole life insurance with cash value represents a hybrid insurance/saving plan where the insured pays both a premium and an additional amount which serves as an investment account for the insured. In 2012, one-third of the policies sold were term life insurance, and two-thirds were permanent life plans (ACLI 2013).

Insurance plans with a cash “value” (i.e., whole life, single premium, and others) confer significant tax benefits to the insured. In particular, earnings on the cash balance within the life insurance plan are deferred from tax (sometimes referred to as “inside-buildup”). In most cases, there is no up-front deduction for the payments to the plan. These plans often are less advantageous than normal retirement plans, but they do not have a dollar limit on contributions, making them an effective additional tax shelter for high-income taxpayers who might have maxed out their retirement plan options. Some amounts of life insurance are also excluded from income tax at death, although the simple return of what would be term life insurance or the term portion of other life insurance plans to those who die would not be taxable under even under a broad-

based income tax. That is, the “gains” from term insurance for deceased beneficiaries tend to be offset by the “losses” for those still living, with the exception of a moderate amount of insurance that can be provided as tax-free compensation by employers. Still, the value of most life insurance extends to saving beyond any term insurance amount. It can also be an effective estate planning tool. JCT estimates that the tax expenditure for insurance plans will total \$26.6 billion in 2013.³⁵

Annuities. Like life insurance contracts, annuities offer the benefit of deferred taxation. Unlike life insurance contracts, any annuity value transferred at death is subject to income tax on the net income earned over time. Annuities can be purchased either inside or outside of qualified retirement accounts. With the exception of Roth accounts, those purchased inside qualified accounts receive the same tax treatment as any other type of investment: the earnings grow tax free and are taxed at ordinary income tax rates when withdrawn. Interest and investment earnings on annuities purchased outside of qualified retirement accounts can also grow tax free until distributed. For certain types of annuities, like variable annuities, the annuity can function similarly to a mutual fund, with returns dependent on performance of the underlying investments in stock, bonds, or other assets. Effectively, the tax treatment of annuities allows individuals access to tax deferral in a mutual fund–like account, but without the limits on contributions or eligibility.³⁶ Like retirement saving accounts, individuals usually face a penalty if distributions are taken before age 59½.

Tax expenditures for nonqualified annuities (i.e., those annuities purchased outside of qualified retirement accounts) are justified on the basis that they enhance retirement security. This justification raises two key questions. One is whether preferential tax treatment of annuities (i.e., deferred taxation) leads to higher take-up. Gentry and Milano (1998), focusing on the individual annuity market, found that each percentage point increase in the marginal tax rate leads to a 4.3 percent increase in annuity purchases, and that higher taxes may have also increased the demand for annuities by younger workers (since the benefit of deferral increases with age). A second question is whether these particular types of annuities lead to improved retirement security. Prior research shows that most variable annuities (annuities whose value varies with stock or other investment returns) are held by the wealthiest households, for whom retirement security is less of a concern. After all, few workers save the maximum amount possible in more typical retirement options like 401(k) plans, which are generally more tax advantageous. Analysis of the Survey of Consumer Finances shows that 72.9 percent of variable annuities are held by the wealthiest 10 percent of households and 88.8 percent by the wealthiest 20 percent (Brown and Poterba 2006). However, variable annuity ownership is less concentrated in top-decile households than other forms of financial assets; top-decile households own at least 90 percent of corporate and tax-exempt bonds and corporate stock.

Matched savings accounts

To increase economic self-sufficiency and family stability, the United States and other countries have experimented with expanding asset-building policies and programs to low-income families. Much of this expansion has taken the form of matched savings programs (e.g., provide a \$2 match for every \$1 saved). Matched savings accounts provide low-income families with higher financial rewards for saving than do traditional subsidies administered through the income-tax system (e.g., tax deductions for retirement savings and mortgage interest), because low-income families have low marginal tax rates so often pay little or no income tax. Individual development accounts (IDAs) and child development accounts (CDAs) represent prime examples of matched savings programs. Some pilot projects have experimented with financial matches to encourage saving at

³⁵ See Pike (2003) for a thorough overview of the structure and tax treatment of life insurance plans.

³⁶ There are several differences in tax treatment between a variable annuity purchased in a nonqualified account and a normal investment in a mutual fund. The variable annuity allows for the sale of accumulated gains without immediate taxation; that is, holders can buy and sell equities and “roll over” the gains without triggering a tax liability. The same does not hold for a standard mutual fund. However, gains in mutual funds are generally taxed at preferential rates, while gains in variable annuities are taxed at ordinary income tax rates when withdrawn. Lastly, gains in mutual funds held at death are generally passed tax free to heirs (although the value of the fund may be subject to the estate tax for wealthy decedents), while gains in variable annuities are taxed.

the time that individuals file their income taxes, as many low-income tax filers receive a substantial tax refund as a result of tax credits such as the earned income tax credit.

Individual development accounts. IDAs, first proposed in 1991 (Sherraden 1991), are personal savings accounts that allow low-income participants to save for specific investments, such as a home, new business, or postsecondary education. IDA programs provide matching funds when the savings are withdrawn to spend on one of the preset goals. The match rates vary across programs with a typical match rate of \$2 for every \$1 of savings (Zielewski et al. 2009).

The Assets for Independence program, established by the Assets for Independence Act (1998), is the largest source of funding for IDAs in the United States, but still operates as a demonstration project. AFI programs restrict eligibility to low-income people with incomes below 150 percent of the federal poverty threshold (roughly \$29,300 for a family of three).

IDA programs provide evidence that low-income families can and will save when provided with financial incentives and financial education (Mills, Lam, et al. 2008; Schreiner and Sherraden 2007a; Stegman and Faris 2005). These savings, however, may not be new savings. The few studies that have examined net worth have not found a significant relationship between IDA program participation and net worth (Mills, Gale, et al. 2008; Mills, Lam, et al. 2008; Schreiner and Sherraden 2007b). The early IDA literature, which examines short-term outcomes (e.g., five years after program entry), finds that participating in an IDA program increases the likelihood an individual starts or expands a business (Mills, Lam, et al. 2008; Moore et al. 2001) or becomes a homeowner (Grinstein-Weiss et al. 2008; Mills, Gale, et al. 2008; Mills, Lam, et al. 2008). A longer term (10-year) follow-up study finds that while most participants had positive homeownership outcomes, the control group caught up with IDA participants (possibly because its members had access to the treatment after four years), so there were no long-term statistically significant differences in the homeownership rate or homeownership duration (Grinstein-Weiss et al. 2011). Another study of IDA homebuyers found that foreclosure rates for IDA homebuyers were one-half to one-third the rate for other low-income homebuyers in the same communities (McKernan et al. 2011).

Children's savings accounts. One strategy with strong support in recent years has been to establish a system of child development accounts (CDAs, also called Child Savings Accounts by some, e.g. Goldberg 2005; Meyer, Zimmerman, and Boshara 2008; Williams Shanks et al. 2010). The vision is that every child from birth (though it does not have to be at birth) receives a subsidized account in his or her name with an initial government deposit and a government match (often targeted at low-income families) for money saved in the account. The idea is to provide a foundation for family financial literacy, bring all families into the mainstream financial sector, and provide tangible resources that could be invested in each child's future. In the United States, Saving for Education, Entrepreneurship, and Downpayment (SEED) is a policy, practice, and research initiative designed to test the efficacy of and inform policy for a national system of savings and asset-building accounts for children and youth.

States and localities have also been experimenting with CDAs. San Francisco's Kindergarten to College (K2C) program was the first universal, publicly funded CDA in the United States. Launched in 2011, K2C provides college savings accounts to all San Francisco kindergartners. Each account receives a minimum deposit of \$50 (\$100 for low-income students) and additional financial incentives (i.e., matched dollars) for low-income families to make additional deposits into the account. In addition, the program also links these accounts to the city's K-12 math curriculum as a financial literacy tool. As of 2012, the city had opened 8,000 accounts. In total, over \$310,000 in deposits had been made to more than 1,000 active accounts.³⁷ Other programs in operation include Maine's Harold Alfond College Challenge, which seeds every 529 savings account opened for a Maine child with \$500, and the Mississippi College Savings Account Initiative, a pilot program partnering with public schools, Head Start programs and early childhood centers to provide custodial savings accounts with \$50 in seed funds and additional

³⁷ Kale Williams, "Duncan lauds S.F.'s Kindergarten to College," *San Francisco Chronicle*, June 22, 2013, <http://www.sfchronicle.com/education/article/Duncan-lauds-S-F-s-Kindergarten-to-College-4615709.php>.

match incentives. Other programs that connect to children and parents through schools, public housing programs, and other avenues are in early stages.³⁸

The SEED random assignment evaluation in Oklahoma reports mixed findings (Nam et al. 2013). A random sample of Oklahoma children born in 2007 was automatically enrolled into the treatment group, which provided them with a state-held 529 account with \$1,000 initial deposit. The treatment group families were also encouraged to open a privately held 529 account, which would receive an additional \$100 deposit/incentive and lower income families were also offered a match to contributions. The control group, on the other hand, was not given a state-held account or encouraged to open a private 529 account, but could do so on their own. Only 16 percent of treatment group families opened a privately held 529 account, with 1 percent of the control group doing so (Nam et al. 2013). After 18 months, the treatment group had higher participant-owned 529 savings, but the difference between the two groups was modest at \$34 (i.e., average participant-owned 529 savings was \$47 for the treatment group and \$13 for the control group). The authors suggest that the findings show that universal CDAs are implementable and that automatic features matter a great deal, but that the effects on private college savings appears limited.

A CDA system is optimally universal and as such does not limit assistance to families only when they are already struggling economically. By providing accounts to all children (not only low-income children), financial institutions have a strong incentive to offer savings accounts, even to those with small balances. They can project a large market with a long-term investment horizon. Moreover, they feel compelled to service their own clients, and so may feel compelled to help others as well. Without greater universality, many banks do not want small accounts because the cost of managing them is greater than any amount of money that can be made on them.

The child saving account should be viewed not merely as a saving vehicle, but also as a teaching vehicle. By “banking” each child, whether at birth or as they enter school, that child grows up watching the effect of compound interest on his or her saving.

Financial matches for saving at tax time. Some pilot projects in the United States have experimented with financial matches when individuals file their income taxes. Tax time is an opportune moment for low-income families to save, because many low-income US tax filers receive a substantial tax refund. The refunds primarily come in the form of refundable tax credits such as the EITC. Evidence suggests that providing an easy-to-understand financial incentive to put money away at tax time encourages families to save.

New York City’s \$aveNYC Account is one such pilot project, which was first implemented in 2008 and is still active.³⁹ Low- and moderate-income tax filers are eligible to receive a 50 percent match on dollars saved. The money must stay in the savings account for one year in order to receive the match, but there are no restrictions on the use of the money upon withdrawal. Results from the pilot show that even very low-income individuals and families will save when provided with a savings vehicle and financial incentives (NYC Department of Consumer Affairs 2010). The average income of \$aveNYC participants is roughly \$17,900; nearly two-third of participants had incomes below \$20,000. Across the first three years of the program, participants saved an average of \$561, and 79 percent of accounts were still open and received the match at the end of one year. Roughly half of participants had no savings accounts when they opened their \$aveNYC account, suggesting that the program reaches particularly financially distressed families and individuals. The majority of participants reported that they were saving for an emergency (71 percent), suggesting that the unrestricted use of the dollars upon withdrawal is particularly important for this population.

Another US pilot project examined whether financial matches at tax time would encourage tax filers to save for retirement in IRAs. Tax filers who were offered the financial match were

³⁸ A listing of CSA programs can be found at http://cfed.org/programs/csa/program_models/.

³⁹ In 2011, the program name changed from \$aveNYC to New York City’s SaveUSA. At the same time, SaveUSA programs were launched in Newark (NJ), San Antonio (TX), and Tulsa (OK).

more likely to save in an IRA (Duflo et al. 2006). While 3 percent of the control group contributed to an IRA, the contributed shares reached 8 percent of tax filers in the 20 percent match group and 14 percent of tax filers in the 50 percent match group. Conditional on take-up, the average IRA contributions were larger in the match groups, as compared with the control group.

Overall, evaluations of various programs show that low-income families can and do save, although there is less evidence that particular programs increase overall savings or net worth. However, subsidies may be more effective for those of modest means because they often must begin saving or increase saving to use savings incentives, whereas higher income households can often simply move money from one account to another. Also, such accounts may be sought for other reasons such as financial literacy and getting larger portions of the population banked. Finally, where financial advice is a crucial component of the program, it can absorb a large share of the overall government subsidy.

What we don't know

The limited research on the tax advantages of life insurance and variable annuities suggests that the products are typically used as a tax shelter for wealthier households. While the limited participation is well-documented, the evidence on the impacts on national saving and retirement security is far from conclusive. Additional research could shed light on whether these products enhance retirees' well-being and whether these products lead to gains in net saving. While earlier studies of the effects of tax incentives on saving suggest that the tax incentives for life insurance and annuities have a very limited impact on net saving, we are aware of no study to date that explicitly tests this relationship.

Much remains to be learned about matched savings accounts. In general, there is limited evidence on the long-run impact of these accounts on social, financial, and educational outcomes. In addition, for those programs that do have an impact on saving behavior, it remains to be seen whether these accounts mostly represent a shift between types of saving, or whether they result in higher net saving overall. Further research can guide the extent to which matched savings account outcomes are driven by improved saving incentives versus administrative innovations, like automatic enrollment.

Lastly, for each type of matched saving account, it would be useful to have more experimental trials to judge the efficacy of each approach. While IDAs, CSAs, and tax-time programs have all been evaluated by credible researchers, additional research can better inform policymakers about program effects. In addition, for those programs that were shown to have modest outcomes, additional innovations combined with further evaluation might help identify effective new programs.

Emerging Reform Ideas

Obviously it is not possible to know fully the impact of policies that have not yet been adopted. Nonetheless, information can be gleaned from studies of existing saving incentives, theory, and related evidence. As part of this review, here we briefly discuss some additional options for reform (that extend beyond some of the experiments already noted above) without attempting to pass judgment on their overall merit.

Many options would redistribute incentives for asset development so they are made available or more available to low- and median-income households. Although some individuals may argue for such a policy shift on redistributive grounds, that argument is not sufficient. The primary purpose must be to foster asset development for those groups. Otherwise, one could simply redistribute money rather than require that additional resources go only to those who respond to the incentives. A related purpose may be to increase saving and investment in the economy as a whole, on the grounds that the current system creates a bias against saving, particularly by populations excluded from existing incentives and vulnerable to many economic risks. Whereas higher income taxpayers often can take advantage of tax incentives by simply moving money among accounts to those more tax-preferred, such options often are not available to those of more modest means. Hence, a redistribution of incentives may increase aggregate saving simply by

shifting incentives to those more likely to respond rather than simply engage in some portfolio shifts.

Automatic enrollment

In addition to establishing new saving vehicles through matched saving or child accounts, research has increasingly been turning back toward reform of more classic saving vehicles, like retirement accounts. Automatic enrollment, usually in the form of requiring individuals to “opt out” rather than “opt in” to a saving vehicle, has slowly gained momentum as a choice strategy to encourage retirement saving. Members of both parties have sponsored automatic enrollment proposals in Congress, and the president has proposed automatic enrollment in his budget. While limited legislative progress has been made at the federal level, many states are actively engaged in or exploring the use of policies to expand automatic enrollment of workers into retirement plans.

California has made the most progress in instituting a state-level automatic enrollment policy. In September 2012, the California legislature approved a framework for automatically enrolling private-sector workers in a retirement savings plan. Employers with more than five workers would have to offer a workplace retirement plan, automatically enroll employees in the newly established California Secure Choice Retirement Savings Plan (SCP), or face a fine. Workers enrolled in SCP would automatically contribute 3 percent of their pay to an IRA-like account unless they opted out; like an IRA, benefits would be based on account contributions and investment returns. Employers are only required to enroll employees in the state plan or a plan provided by a private vendor, not to contribute to the account, and there is no explicit cost to taxpayers. The state plan would be administered by California’s pension administrator (CALPERS) or a private firm, investing no more than half of the pooled funds in equities. Annual administrative expenses would be limited to one percent of fund assets. Private insurance companies would be contracted to provide guaranteed returns for participants.

Other states are exploring automatic enrollment policies as well. Illinois, for example, considered a similar framework as the one implemented in California. Still, many details remain to be ironed out. For example, in California, the framework calls for the consideration of guaranteed returns on accounts, with participants purchasing contracts for investment guarantees from private-sector insurers. But one complication with guarantees is that they lower the returns, as riskless investments tend to provide very low returns. Such a large-scale arrangement would be unprecedented, and the costs of purchasing contracts for guaranteed returns initially appear to be prohibitively expensive. For example, one analysis put the cost of a guaranteed 2 percent real rate of return at 29 percent of contributions (Munnell et al. 2009).

Equalizing and reforming housing subsidies

Recognition that existing subsidies for homeownership are expensive, regressive, and ineffective at promoting homeownership has led to increased calls for reform. Several proposals have sought to limit and equalize the tax benefit for homeownership by retaining the subsidy for mortgage interest, but at an equal rate across taxpayers. For example, both President Obama’s fiscal commission and the Bipartisan Policy Center’s Debt Reduction Task Force recommended replacing the mortgage interest deduction with a tax credit for mortgage interest paid and eliminating deductibility of property taxes (Domenici and Rivlin 2010; National Commission on Fiscal Responsibility and Reform 2010). Another proposal released by the Hamilton Project called for the transformation of the mortgage interest deduction into a 15 percent flat-rate credit (Viard 2013).⁴⁰

Economists have increasingly begun to focus on strategies for incenting homeownership outside of the mortgage interest and property tax deductions. One study found that the first-time homebuyer tax credit had a small and mostly temporary effect on home buying during the Great

⁴⁰ Many proposals also limit the maximum size of the mortgage—currently \$1 million—eligible for tax preferences, eliminate deductibility of interest on second homes, and disallow write-offs for home equity loans. For example, the Bowles-Simpson proposal limited the maximum mortgage to \$500,000, while the proposal by Viard would limit it to \$300,000. A 2005 tax reform panel established by President Bush recommended limiting the maximum mortgage to 125 percent of the median local home price.

Recession (Dyan, Gayer, and Plotkin 2013). Carroll, O'Hare, and Swagel (2011) propose to eliminate all federal housing subsidies and instead offer an annual \$3,700 credit. Harris and colleagues (2013) examine the economic effects of annual and one-time subsidies for homeownership, and identify several revenue-neutral reforms that can both boost housing prices and increase progressivity. Specifically, the paper shows that eliminating the deduction for property taxes and limiting the benefit of the mortgage interest deduction to 15 percent in conjunction with either a 40 percent credit for property taxes, a one-time homebuyer tax credit of up to \$18,000 for married filers (\$12,000 for single filers), or an annual \$1,300 (\$870 for single filers) homeownership tax credit can lead to gains of, on average, one percent for housing prices while substantially increasing progressivity. Their study particularly calls into question proposals, including credits for interest paid, that essentially subsidize borrowing and in many cases discourage building up of home equity.

Equalizing and reforming retirement saving subsidies

Retirement saving incentives, as noted above, have been widely shown to be expensive, regressive, and of questionable efficacy in raising net saving. In response to this evidence, several deficit-reduction commissions proposed to “flatten” retirement saving benefits. For example, both the Bowles-Simpson Commission and the Domenici-Rivlin Commission proposed to cap tax-preferred contributions to retirement accounts at 20 percent of income (with a ceiling of \$20,000) and expand and make refundable the saver's credit. In his 2014 budget the president proposed to limit the initial value of tax exclusions and disallow new contributions for taxpayers with high accumulated account balances (Harris et al. 2013).⁴¹

While these reforms often have theoretical appeal, there are many practical barriers to implementation. One concern is that if retirement saving incentives are too progressive and do not offer sufficient benefit to high-income workers, then employers will abandon their retirement programs altogether, jeopardizing retirement security for middle- and high-income workers alike. Complex legal characteristics can also pose a problem.

Another issue often not addressed in these reform proposals is how to make the incentive proportional to the saving achieved. For instance, a credit for a deposit to an account withdrawn one day or one year later should not be of the same size as a credit for saving that remains committed to a retirement account for twenty years.

Also, a good argument can be made that middle and even upper income households should be taxed for some of their saving on a lifetime basis rather than annual basis, so that deferred consumption today, properly invested, should not pay an extra layer of tax. This is an equity, not just efficiency, argument. Take two individuals who have the same earnings over their lives, one of whom saves and the other of whom does not. Absent traditional pension options, the one who saves would pay more taxes despite their equality of lifetime opportunity.

Perun and Steuerle (2008) attempt to deal with some of these issues by going back to an older concept: that retirement plans should adequately incorporate most workers in exchange for the various tax benefits that accrue to higher earning employees. In exchange for a moderate employer contribution of, say, 4 percent of earnings, an opt-out clause for employees who would then usually contribute 3 percent or more, and an expanded government subsidy through a savers' credit, they would offer much simpler nondiscrimination rules, a higher level of possible contributions than for plans not adhering to these guidelines, and other benefits (see also discussion below on so-called behavioral factors).

⁴¹ Under current law, annual defined-benefit distributions are limited to \$205,000 per plan. The president's proposal extends the limitation to defined-contribution accounts like 401(k)s and IRAs and recognizes that, unlike in the past, individuals may have multiple pensions. If the combined value of a worker's retirement accounts exceeds the amount necessary to provide a \$205,000 annuity, they can no longer receive tax benefits for retirement saving. As under current law, the maximum benefit level would be indexed to the cost of living and would be sensitive to interest rates, which determine the price of an annuity. This year, the cap would affect 62-year-olds with defined-contribution account balances exceeding about \$3.4 million.

Reforming education subsidies

Federal spending on higher education is diverse and comes in the form of grants (e.g., Pell), loans (e.g., Stafford), tax credits (e.g., AOTC), tax deductions (e.g., for tuition and fees), and tax-preferred accounts (e.g., 529s). Some believe that the most effective way to incentivize education is through direct expenditures, such as Pell Grants, not through the tax code. Still, proposals for tax reform exist. The Center for Law and Social Policy (CLASP) released three reform options that focused on simplifying the current tax-based education subsidies, all of which keep the AOTC (revised from current law) and eliminate deductions for tuition and fees (Reimherr et al. 2013). One proposal keeps only the AOTC (revised), a second keeps the AOTC (revised) and the Lifetime Learning Credit for undergraduates, while the third proposal keeps the AOTC (revised) and deductions for student loan interest. Another proposal would merge the AOTC and Lifetime Learning Credit and make the new credit fully refundable (Dynarski 2012). The president has proposed extending the AOTC to five years (OMB 2013).⁴²

The key goal of reform should be to have unified and consistent programs to support higher education. This could include reforms that reduce tax-related subsidies and provide greater resources for grants and direct loans.

Behavioral aspects of modern reform proposals

While many traditional incentives have had mixed records of actually increasing saving in aggregate and among individuals, our own recent research increasingly emphasizes that most people who accrue saving over a lifetime largely do so by being on accumulation curves and by being in assets that provide a decent rate of return often achievable only by accepting some risk. Three forms of saving dominate even for the person who achieves wealth at about the median level. First, education. Investment in education is a form of saving with significant returns over a lifetime. Second, housing. Paying off a mortgage, even for a house that proves to be a mediocre investment in terms of its own price increase, still leaves a person with ownership of that asset over time. Thus, mortgage payments year after year can add substantially to the accretion of net worth. Third, retirement accounts and pensions. An employee with annual retirement account deposits or increased pension rights, whether provided by employer or paid by the employee, is on a compounding saving path. As long as those monies are kept in the account or pension until retirement, in fact, the employee is saving not only a percent of wages but 100 percent of the earnings within the account.

Indeed, studies have shown that households with only average or median wealth or income end up saving very large sums of money. Compounding savings and earnings on saving, a middle class wealthholder starting in his mid-20s in the early 1990s was found to have saving of about \$7,300 a year in his 30s, \$11,900 in his 40s, and \$17,700 in his 50s (Mermin et al. 2008).

Conclusion

The literature and our analysis find that tax subsidies for asset-building are large and pervasive, estimated at \$384 billion in 2013. However, considerable evidence points to their limited efficacy. Two primary findings drive this conclusion.

First, our distributional findings show that the design of current tax subsidies channels the majority of saving incentives, especially those for homeownership and retirement saving, to upper income households who likely require less incentive at the margin to save. Low- and moderate-income families, meanwhile, seldom meet thresholds required to itemize expenditures on mortgage interest payments and property taxes on their federal returns, often lack access to or fail to participate in employer-sponsored retirement plans, and rarely hold portfolios with sophisticated wealth vehicles like insurance plans and annuities. Other account-based vehicles, such as children's savings accounts and individual development accounts coupled with government matches, have been experimented with but play a very small role in the overall asset

⁴² Beyond this, the GAO (2012) recommends providing better information to tax filers about currently available education tax credits, as many people miss out on credits they are eligible for.

picture. While education subsidies, particularly tax credits, are more progressive in their distribution, the total size of tax-based education subsidies is dwarfed by those for housing and retirement, and some of these educational subsidies likely have added to education costs.

Second, current policy does not aggressively leverage the behavioral or habit-based nature of saving. The biggest accumulations most families experience are in automatic, long-term savings vehicles such as employer-provided pension plans and paying off a mortgage. Recent research in the behavioral field also reveals that mechanisms other than direct incentives, such as opting individuals into savings accounts by default or providing actionable information at the right moment (e.g., the opportunity to save one's tax refund), can have powerful effects on saving patterns. Both federal and state policy efforts are now experimenting with these features, and their ultimate effect is a topic that merits further research and scrutiny.

We stress again that our analysis examines only those asset-building incentives delivered through tax policy. Additional subsidies are provided through direct spending programs, such as with Pell grants for assisting low- and middle-income students with financing postsecondary education.

While we have avoided making specific policy recommendations, we believe that this analysis, which itself relies heavily on an existing research literature, points to promising directions for reform. At the same time, we try to give due heed to the numerous trade-offs involved in crafting asset-building policies. When government redistributes resources, issues of fairness inevitably arise. Policymakers and advocates must consider whether particular subsidies adhere to the principles of equal justice (or equal treatment of those similarly situated) and weigh the sometimes competing notions of progressivity and efficacy. By summarizing the justifications for and criticisms of particular subsidies, as well as limitations on how much policy can change behavior, we show that careful thought must be given to the design of wealth-building policies.

Because many existing policies have limited effectiveness on both societal saving and protection of the more vulnerable, reform options don't need to add to overall costs if they reallocate some of the existing dollars devoted to asset development. Indeed, since the cost of existing programs grow significantly over time, reform could even more narrowly begin to reallocate the direction of that growth without necessarily reducing anyone's existing benefit. In sum, it might be possible at no additional cost to improve the well-being of much of the population, increase aggregate saving in society, and reduce the longer term risks faced by the many households in American society with very limited wealth.

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Appendix A. Income Tax Expenditures

Individual Income Tax Expenditures for Asset Development by Asset Category^a (Billions of 2013 dollars)

	2012	2013	2014	2015	2016	2017	Total 2012-16	Total 2013-17
Homeownership								
Deduction for mortgage interest on owner-occupied residences	69.5	69.7	70.5	72.3	74.7	77.1	356.7	364.3
Deduction for property taxes on real property	24.9	27.0	28.1	29.3	30.7	31.8	139.9	146.9
Exclusion of capital gains on sales of principal residences	22.6	23.8	24.4	25.0	25.6	25.9	121.4	124.7
Exclusion of interest on State and local government qualified private activity bonds for owner-occupied housing	0.8	0.9	0.9	1.0	0.9	0.9	4.5	4.6
Deduction for premiums for qualified mortgage insurance	0.2	0.2	^d	---	---	---	0.4	0.2
Exclusion of net imputed rental income (OMB)	69.2	74.1	74.2	77.9	83.3	86.3	378.7	395.8
<i>Subtotal: Subsidies for Homeownership</i>	<u>187.2</u>	<u>195.7</u>	<u>198.0</u>	<u>205.5</u>	<u>215.2</u>	<u>222.0</u>	<u>1001.7</u>	<u>1036.4</u>
Retirement and Life Insurance								
<i>Net exclusion of pension contributions and earnings:</i>								
Plans covering partners and sole proprietors (Keogh plans)	10.8	11.3	11.8	12.2	12.8	13.4	58.9	61.6
Defined benefit plans	41.5	32.9	34.5	39.7	46.2	50.0	194.7	203.2
Defined contribution plans	50.3	57.0	60.3	63.5	68.4	72.8	299.6	322.1
<i>Individual retirement arrangements:</i>								
Traditional IRAs	6.8	11.1	13.1	14.0	15.0	15.9	59.9	69.0
Roth IRAs	3.4	3.8	4.2	4.7	5.2	5.7	21.4	23.7
Credit for certain individuals for elective deferrals and IRA contributions (Savers Credit)	1.0	1.1	1.1	1.1	0.9	0.9	5.2	5.1
<i>Exclusion of other employee benefits:</i>								
Premiums on group term life insurance (excludes payroll taxes)	2.8	3.0	3.1	3.3	3.4	3.6	15.7	16.4
Exclusion of investment income on life insurance and annuity contracts	27.0	27.3	27.5	27.6	27.7	27.9	137.2	138.1
<i>Subtotal: Subsidies for Retirement and Life Insurance</i>	<u>143.7</u>	<u>147.5</u>	<u>155.7</u>	<u>166.1</u>	<u>179.7</u>	<u>190.3</u>	<u>792.6</u>	<u>839.3</u>
Education and Training								
Deduction for interest on student loans	1.3	1.3	1.4	1.3	1.4	1.4	6.8	6.8
Deduction for higher education expenses	0.8	0.7	0.2	---	---	---	1.7	0.9
Exclusion of earnings of Coverdell education savings accounts	^d	0.1	0.1	0.1	0.1	0.1	0.4	0.5
Exclusion of scholarship and fellowship income	2.4	2.5	2.7	2.7	2.8	2.9	13.1	13.5
Exclusion of income attributable to the discharge of certain student loan debt and NHSC and certain state educational loan repayments	0.2	0.2	0.2	0.2	0.2	0.2	1.0	1.0

	2012	2013	2014	2015	2016	2017	Total 2012-16	Total 2013-17
Exclusion of employer-provided education assistance benefits	1.1	1.1	1.2	1.2	1.1	1.1	5.7	5.7
Exclusion of employer-provided tuition reduction benefits	0.2	0.2	0.2	0.2	0.2	0.3	1.0	1.1
Parental personal exemption for students aged 19 to 23	4.9	4.8	4.9	4.9	4.9	4.9	24.4	24.4
Credit for holders of qualified zone academy bonds ^{b,c}	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5
Credits for tuition for post-secondary education ^c	20.6	20.1	24.1	25.8	25.9	25.5	116.5	121.4
<i>Exclusion of tax on earnings of qualified tuition programs:</i>								
Prepaid tuition programs	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5
Savings account programs	0.6	0.7	0.8	1.0	1.0	1.1	4.1	4.6
<i>Subtotal: Subsidies for Education and Training</i>	<u>32.4</u>	<u>31.9</u>	<u>35.9</u>	<u>37.6</u>	<u>37.8</u>	<u>37.6</u>	<u>175.6</u>	<u>180.8</u>
Small Business Development								
Expensing under section 179 of depreciable business property	4.3	4.0	3.7	3.6	3.5	3.6	19.1	18.4
Amortization of business startup costs	^d	^d	0.1	0.1	0.1	0.1	0.3	0.4
Cash accounting, other than agriculture	1.1	1.1	1.2	1.3	1.2	1.3	5.9	6.1
Empowerment zone tax incentives	0.2	0.1	0.1	^d	^d	^d	0.4	0.2
Renewal community incentives	---	---	---	---	---	---	0.0	0.0
<i>Subtotal: Subsidies for Small Business Development</i>	<u>5.6</u>	<u>5.2</u>	<u>5.1</u>	<u>4.9</u>	<u>4.8</u>	<u>5.0</u>	<u>25.6</u>	<u>25.0</u>
Other Savings Incentives								
Special tax provisions for employee stock ownership plans (ESOPs)	0.1	0.1	0.1	0.1	0.2	0.2	0.6	0.7
Deferral of taxation on spread on acquisition of stock under incentive stock option plans	0.3	0.3	0.3	0.4	0.4	0.4	1.7	1.7
Deferral of taxation on spread on employee stock purchase plans	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5
Health savings accounts	1.5	1.8	2.1	2.2	2.4	2.6	10.0	11.0
Deferral of interest on savings bonds	1.3	1.3	1.4	1.3	1.3	1.4	6.7	6.7
<i>Subtotal: Subsidies for Other Savings</i>	<u>3.3</u>	<u>3.6</u>	<u>3.9</u>	<u>4.1</u>	<u>4.3</u>	<u>4.6</u>	<u>19.4</u>	<u>20.6</u>
Total: Tax Subsidies for Asset Development	<u>372.2</u>	<u>383.9</u>	<u>398.6</u>	<u>418.2</u>	<u>441.9</u>	<u>459.5</u>	<u>2014.8</u>	<u>2102.1</u>

a. Reflects legislation enacted by January 2, 2013.

b. Estimate includes an outlay to State and Local governments. For the purposes of this table outlays are attributed to individuals.

c. Estimate includes refundability associated with the following:

	2012	2013	2014	2015	2016	2017	2012-16	2013-17
Qualified zone academy bonds	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5
HOPE credit	4.7	4.5	4.4	4.6	4.8	4.6	23.0	23.0

d. Positive tax expenditure of less than \$50 million.

Source: Adapted from Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years, 2012-2017*. Integrates additional estimates using OMB, *Analytical Perspectives FY2014* and CBO's February 2013 economic baseline.

Appendix B. Full TPC Distribution Tables

A Guide to Interpreting TPC’s Distribution Tables

The Urban-Brookings Tax Policy Center (TPC) is one of a handful of research organizations which analyze the revenue and distributional consequences of proposed and existing federal tax policies. TPC uses the Urban-Brookings Tax Policy Center Microsimulation Model, which draws from IRS, Census, and other data sources to estimate the distribution of federal income, corporate, payroll, and estate taxes among other U.S. tax units for specified calendar years.⁴³ Like the tax code they model, the outputs of TPC’s simulations can be rather complex and difficult to interpret for the uninitiated. Below is a walk-through of TPC’s distributional estimates for tax benefits for employer-provided defined benefit and defined contribution (DB, DC) retirement plans to guide the interpretation of other TPC tables used in this report.

Framing

TPC’s distribution tables are framed as showing the impact of a real or hypothetical “proposal” relative to some chosen baseline. Interpretation is straightforward when reading the effects of actual proposed new legislation but can be counterintuitive when the focus of analysis is on existing tax features. For example, when examining the effect of the existing tax expenditures for employer-sponsored retirement plans, the resulting summary tables frame the results as the effects of *repealing* that provision. For these kinds of analyses, benefits granted and burdens imposed by current tax law as a result of a specific tax expenditure can be better understood by reversing the signs of table elements, which analyze changes in taxes or income. In the example, the \$775 tax increase for the third quintile (shown in the fifth column of the table above) from repealing the provision indicates that the provision currently *reduces* taxes by \$775 for this group.⁴⁴ More examples will follow below.

Baseline

“Baseline” indicates which set of assumptions about tax policy in future years were incorporated into the model’s projections. Most TPC tables now use a “current law” baseline, which assumes all tax legislation is implemented as currently scheduled. Any expiring tax provisions expire as scheduled, and permanent features of the tax code remain unchanged. In previous years, TPC produced supplementary “current policy” tables, which incorporated legislative patterns of repeatedly extending temporary tax provisions that would have had major revenue and distributional effects if allowed to expire. The enactment of the American Taxpayer Relief Act of 2012 made permanent many of these previously temporary measures, making such alternative scenarios less necessary.

Behavioral Assumptions

TPC’s distributional estimates are “static” estimates. That is, tax units are assumed not to change their behavior as a result of tax policy changes. In other words, taxpayers do not adjust their level of work effort in response to changes in marginal tax rates or alter their consumption patterns in response to a change in tax expenditures.⁴⁵ Taxpayers are, however, modeled to engage in “tax-form behavior,” such as switching to the standard deduction if tax changes sufficiently reduce their itemized deductions or claiming a different education benefit if the one they currently claim is repealed.

Column I: Expanded Cash Income Percentile

The tables divide the population into percentiles along a measure known as expanded cash income (ECI).⁴⁶ ECI includes employee compensation (including health, retirement, and fringe benefits and employers’ payroll tax contributions), self-employment income and income from flow-through businesses

⁴³ Federal excise taxes and state and local taxes are not modeled. A “tax unit” consists of an individual or married couple filing jointly and their dependents. This definition sometimes but not always overlaps with other types of units used for survey and administrative purposes, such as households and families.

⁴⁴ Dollar values are in current (non-inflation-adjusted) dollars, except when specified by the table notes.

⁴⁵ TPC’s revenue estimates, not used in this report, do account for such effects.

⁴⁶ TPC introduced the ECI measure in 2013. Before that, the Center relied on cash income as its measure, and before 2004, used adjusted gross income. As a result of these changes, users should exercise caution when comparing tables from different years.

(e.g., income from S corporations), investment income, retirement income, many government transfer benefits, taxpayers' share of corporate income tax liability, and other taxable income. A more detailed description can be found in Rosenberg (2013).

Individuals are ranked from lowest to highest by their total ECI, so that the lowest quintile includes the lowest 20 percent of ECI-earners, the second quintile contains the next lowest 20 percent, and so forth. An addendum breaks out estimates for higher earners since the size and composition of income varies greatly at higher income levels. The dollar breaks for each ECI percentile are given in the notes of the table. An equal number of people (not tax units) are in each quintile, and TPC's standard tables do not adjust for family size.⁴⁷

Columns 2–5: Tax Units with Tax Increase or Cut

Columns 2-5 display how tax units in each percentile will be affected by the examined tax provision. The percentage of tax units in each group who will receive a tax cut as a result of the policy change is shown first, followed by the average dollar amount of the tax cut for those whose taxes are reduced. Tax increases are shown with the same format.

In the case of reviewing existing tax expenditures where changes are framed as “eliminating” or “repealing” an existing provision, the “signs” of these amounts can be reversed to show who currently benefits from (or pays more due to) that provision. That is, units shown as receiving a tax *cut* are currently paying *more* in taxes than they would in the absence of the provision, and those shown receiving a tax *increase* are currently paying *less* (receiving the benefit of the tax expenditure). For example, the average tax unit in the 60th to 80th percent of earners (Fourth Quintile) benefiting from employer-sponsored retirement plans currently receives an average benefit of \$1,421.

Column 6: Percent Change in After Tax Income

Column 6 shows the increase or reduction in after-tax income the entire income group (not just those claiming the benefit) receives as a result of the proposed tax change. After-tax income is ECI remaining after all federal income, payroll, estate, and corporate taxes have been paid, plus any refundable tax credits received by the household. Because this measure includes all tax units in each percentile, including many zero values for units which do not claim the benefit, the percentage change often appears quite low—often less than one percent. However, this measure best shows whether a particular tax provision makes the tax code more or less progressive. An equal percent change in after-tax income across income groups will leave the overall distribution of federal taxes unchanged; an uneven change will leave the tax code more or less progressive.

For the sample table, repealing DB and DC plan tax benefits would reduce after-tax incomes for the middle quintile by 0.6 percent. Framed another way, current tax benefits *raise* after-tax incomes for that group by 0.6 percent.

Column 7: Share of Total Federal Tax Change

“Share of Total Federal Tax Change” (Column 7) shows the how the total impact of the proposed tax change is distributed across income groups. For proposed legislation, it shows how an overall tax increase or cut would fall among different income groups, while for existing tax provisions, it can be read as how a current benefit is distributed. Above, the second quintile of earners receives 3 percent of the tax benefits provided by employer-based DB and DC plans. Note that some units within each quintile may be receiving a tax increase while others receive a tax decrease, so the distribution of the tax burden will vary even within groups.

Column 8: Average Federal Tax Change

Column 8 displays the average dollar effect of the proposal on each income group. For example, if the tax benefits for these plans were repealed, the lowest quintile would receive an average \$12 tax increase per tax unit in that group, while the top quintile would receive an average \$3,767 tax increase.

⁴⁷ That is, a family of five with ECI of \$100,000 resides in the same quintile as an individual with ECI of \$100,000. TPC often makes available supplemental tables adjusting for family size on its website.

Columns 9–10: Average Federal Tax Rate

The last two columns show the impact of the proposal on the average federal tax rate for each income group, with the average (or effective) tax rate being defined as a tax unit's total tax liability from all federal taxes divided by its ECI. Column 9 shows the change in the effective tax rate in percentage points that would result from the proposal, while Column 10 shows the average effective tax rate in each group.

In the above example, repealing the DB and DC plan benefits would increase the middle quintile's average federal tax rate by 0.5 percentage points, from 12.4 percent to 12.9 percent. Put another way, the provision currently lowers that income group's average federal tax rate by 0.5 percentage points.

See Also:

Urban-Brookings Tax Policy Center, "Measuring the Distribution of Tax Changes,"
<http://www.taxpolicycenter.org/taxtopics/How-to-Interpret-Distribution-Tables-2013.cfm>

Urban-Brookings Tax Policy Center, "TPC's Microsimulation Model FAQ,"
<http://www.taxpolicycenter.org/taxtopics/Model-FAQ-2013.cfm>

Joseph Rosenberg, "Measuring Income for Distributional Analysis,"
<http://www.taxpolicycenter.org/UploadedPDF/412871-measuring-income.pdf>

Appendix Table A.2
Eliminate Mortgage Interest Deduction
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	*	**	0.7	298	0.0	0.1	2	0.0	2.4
Second Quintile	*	**	5.2	576	-0.1	1.4	30	0.1	7.4
Middle Quintile	0.1	-949	19.9	926	-0.4	7.6	183	0.3	12.7
Fourth Quintile	*	**	42.9	1,326	-0.7	19.2	569	0.6	16.3
Top Quintile	0.0	0	71.8	3,355	-1.1	71.7	2,410	0.9	24.5
All	*	**	22.2	2,133	-0.7	100.0	474	0.6	18.4
Addendum									
80-90	0.0	0	67.6	2,176	-1.2	22.0	1,471	1.0	19.1
90-95	0.0	0	77.0	3,017	-1.4	17.1	2,322	1.1	21.0
95-99	0.0	0	77.2	5,100	-1.5	23.4	3,936	1.2	23.8
Top 1 Percent	0.0	0	67.5	9,058	-0.5	9.2	6,116	0.4	32.0
Top 0.1 Percent	0.0	0	55.7	12,370	-0.1	1.1	6,884	0.1	34.0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 4.3

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.3
Eliminate STL Property Deduction
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	*	**	0.6	176	0.0	0.1	1	0.0	2.4
Second Quintile	*	**	5.5	253	0.0	1.6	14	0.0	7.3
Middle Quintile	*	**	21.3	364	-0.2	7.9	77	0.1	12.6
Fourth Quintile	*	**	45.6	548	-0.3	20.7	250	0.3	16.0
Top Quintile	0.2	-83	71.2	1,341	-0.5	69.7	955	0.3	24.0
All	*	**	22.9	843	-0.3	100.0	193	0.3	18.1
Addendum									
80-90	0.0	0	71.9	894	-0.5	23.6	643	0.4	18.5
90-95	*	**	81.4	1,265	-0.6	18.6	1,030	0.5	20.4
95-99	0.8	-84	57.0	1,554	-0.3	12.9	885	0.3	22.9
Top 1 Percent	*	**	71.0	5,580	-0.4	14.7	3,960	0.2	31.8
Top 0.1 Percent	0.0	0	80.7	12,883	-0.2	3.9	10,392	0.1	34.1

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 2.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.4
Eliminate DB, DC plans and benefits
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	0.0	0	9.6	129	-0.1	0.5	12	0.1	2.5
Second Quintile	0.0	0	25.1	402	-0.3	3.0	101	0.3	7.6
Middle Quintile	0.0	0	39.1	775	-0.6	8.0	303	0.5	12.9
Fourth Quintile	0.0	0	55.7	1,421	-1.0	17.0	791	0.8	16.5
Top Quintile	*	**	72.2	5,217	-1.8	71.4	3,767	1.3	25.0
All	0.0	0	35.1	2,118	-1.2	100.0	744	1.0	18.8
Addendum									
80-90	0.0	0	70.2	2,547	-1.4	17.0	1,787	1.2	19.3
90-95	*	**	74.8	4,414	-2.0	15.5	3,301	1.6	21.5
95-99	*	**	74.5	8,410	-2.4	23.8	6,263	1.9	24.5
Top 1 Percent	*	**	70.7	22,332	-1.4	15.2	15,792	1.0	32.5
Top 0.1 Percent	0.1	-895	66.9	60,805	-0.8	4.0	40,674	0.5	34.5

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 4.2

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.5
Eliminate IRAs
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	0.0	0	0.6	247	0.0	0.7	1	0.0	2.4
Second Quintile	0.0	0	2.6	397	0.0	4.4	10	0.0	7.3
Middle Quintile	0.0	0	4.9	581	-0.1	11.0	29	0.1	12.5
Fourth Quintile	0.0	0	8.1	744	-0.1	18.8	60	0.1	15.8
Top Quintile	0.0	0	17.2	1,371	-0.1	65.1	236	0.1	23.7
All	0.0	0	5.4	946	-0.1	100.0	51	0.1	17.9
Addendum									
80-90	0.0	0	11.7	918	-0.1	14.9	108	0.1	18.2
90-95	*	**	17.3	1,137	-0.1	13.4	196	0.1	20.0
95-99	*	**	24.9	1,585	-0.2	21.7	394	0.1	22.8
Top 1 Percent	0.0	0	41.7	2,600	-0.1	15.1	1,084	0.1	31.7
Top 0.1 Percent	*	**	53.3	3,329	0.0	2.5	1,774	0.0	34.0

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 3.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.6
Eliminate Saver's Credit
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	*	**	0.0	0	0.0	13.2	0	0.0	2.4
Second Quintile	*	**	0.0	0	0.0	53.2	0	0.0	7.3
Middle Quintile	*	**	0.0	0	0.0	33.7	0	0.0	12.4
Fourth Quintile	0.0	0	0.0	0	0.0	0.0	0	0.0	15.7
Top Quintile	0.0	0	0.0	0	0.0	0.0	0	0.0	23.6
All	*	**	0.0	0	0.0	100.0	0	0.0	17.8
Addendum									
80-90	0.0	0	0.0	0	0.0	0.0	0	0.0	18.1
90-95	0.0	0	0.0	0	0.0	0.0	0	0.0	19.9
95-99	0.0	0	0.0	0	0.0	0.0	0	0.0	22.6
Top 1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	31.6
Top 0.1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	33.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 3.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.7
Eliminate the AOTC
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	0.0	0	5.5	834	-0.4	13.1	46	0.3	2.7
Second Quintile	0.0	0	6.5	1,082	-0.2	16.7	71	0.2	7.5
Middle Quintile	0.0	0	7.7	1,220	-0.2	19.6	94	0.2	12.6
Fourth Quintile	0.0	0	10.0	1,384	-0.2	23.4	139	0.1	15.9
Top Quintile	0.0	0	10.1	1,787	-0.1	26.9	181	0.1	23.7
All	0.0	0	7.5	1,258	-0.2	100.0	95	0.1	17.9
Addendum									
80-90	0.0	0	13.6	1,677	-0.2	17.0	228	0.2	18.3
90-95	0.0	0	12.6	2,060	-0.2	9.6	261	0.1	20.0
95-99	0.0	0	0.8	1,149	0.0	0.3	9	0.0	22.7
Top 1 Percent	0.0	0	*	**	0.0	0.0	0	0.0	31.6
Top 0.1 Percent	0.0	0	*	**	0.0	0.0	0	0.0	33.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 3.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.8
Eliminate Lifetime Learning Credit
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	0.0	0	0.5	197	0.0	4.8	1	0.0	2.4
Second Quintile	*	**	1.6	415	0.0	24.5	6	0.0	7.3
Middle Quintile	*	**	1.9	472	0.0	30.0	9	0.0	12.4
Fourth Quintile	0.0	0	2.9	420	0.0	33.8	12	0.0	15.7
Top Quintile	*	**	0.7	433	0.0	6.8	3	0.0	23.6
All	*	**	1.4	411	0.0	100.0	6	0.0	17.8
Addendum									
80-90	0.1	-160	1.3	438	0.0	6.8	6	0.0	18.1
90-95	0.0	0	0.1	177	0.0	0.1	0	0.0	19.9
95-99	0.0	0	0.0	0	0.0	0.0	0	0.0	22.6
Top 1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	31.6
Top 0.1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	33.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 3.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.9
Eliminate Education Expense Deduction
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	0.1	-476	*	**	0.0	-9.6	0	0.0	2.4
Second Quintile	0.3	-364	0.1	182	0.0	-16.2	-1	0.0	7.3
Middle Quintile	0.2	-423	0.6	303	0.0	12.8	1	0.0	12.4
Fourth Quintile	0.2	-351	0.8	340	0.0	23.1	2	0.0	15.7
Top Quintile	0.1	-721	2.3	410	0.0	90.1	8	0.0	23.6
All	0.2	-427	0.6	366	0.0	100.0	1	0.0	17.8
Addendum									
80-90	0.3	-675	3.5	402	0.0	66.7	12	0.0	18.1
90-95	*	**	2.1	436	0.0	23.2	9	0.0	19.9
95-99	0.0	0	*	**	0.0	0.2	0	0.0	22.6
Top 1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	31.6
Top 0.1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	33.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 3.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Appendix Table A.10
Eliminate Student Loan Interest Deduction
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2013 ¹
Summary Table

Expanded Cash Income Percentile ^{2,3}	Tax Units with Tax Increase or Cut ⁴				Percent Change in After-Tax Income ⁵	Share of Total Federal Tax Change	Average Federal Tax Change (\$)	Average Federal Tax Rate ⁶	
	With Tax Cut		With Tax Increase					Change (%) Points)	Under the Proposal
	Pct of Tax Units	Avg Tax Cut	Pct of Tax Units	Avg Tax Increase					
Lowest Quintile	0.0	0	0.6	66	0.0	2.0	0	0.0	2.4
Second Quintile	0.0	0	3.1	87	0.0	11.0	3	0.0	7.3
Middle Quintile	0.0	0	6.2	139	0.0	31.2	9	0.0	12.4
Fourth Quintile	0.0	0	7.0	141	0.0	29.3	10	0.0	15.7
Top Quintile	0.0	0	5.2	196	0.0	26.5	10	0.0	23.6
All	0.0	0	3.9	138	0.0	100.0	5	0.0	17.8
Addendum									
80-90	0.0	0	8.9	208	0.0	24.3	19	0.0	18.1
90-95	0.0	0	2.8	119	0.0	2.2	3	0.0	19.9
95-99	0.0	0	0.1	70	0.0	0.0	0	0.0	22.6
Top 1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	31.6
Top 0.1 Percent	0.0	0	0.0	0	0.0	0.0	0	0.0	33.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-1e).

Number of AMT Taxpayers (millions). Baseline: 3.9

Proposal: 3.9

* Less than 0.05

** Insufficient data

(1) Calendar Year. Baseline is current law.

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2013 dollars): 20% \$23,570; 40% \$45,475; 60% \$76,234; 80% \$129,219; 90% \$181,498; 95% \$250,749; 99% \$550,652; 99.9% \$2,656,501.

(4) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(5) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(6) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.