

**BACKGROUND AND PRESENT LAW RELATING TO
MANUFACTURING ACTIVITIES WITHIN THE UNITED STATES**

Scheduled for a Public Hearing
Before the
HOUSE COMMITTEE ON WAYS AND MEANS
on July 19, 2012

Prepared by the Staff
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INTRODUCTION

The House Committee on Ways and Means has scheduled a public hearing on July 19, 2012, titled “Tax Reform and the U.S. Manufacturing Sector.” This document,¹ prepared by the staff of the Joint Committee on Taxation, describes and analyzes present Federal income tax rules applicable to businesses with respect to capital cost recovery, expensing provisions, tax credits related to capital investment, the treatment of research and development costs (including the research tax credit), and the treatment of income from domestic qualified production activities.

Data from 2009 show that the manufacturing sector accounts for the largest share of depreciation deductions at \$195.7 billion (27.5 percent of all such claims in 2009). Included in the \$195.7 billion amount is \$3.6 billion in section 179 deductions (7.0 percent of all such claims) and \$40.7 billion in bonus depreciation deductions (20.0 percent of all such claims). Taxpayers claimed \$14.2 billion of deductions for domestic production activities in 2009, almost two-thirds of which (\$8.9 billion) was claimed by taxpayers in the manufacturing sector. Taxpayers in the manufacturing sector also claimed \$5.6 billion in research credits (68.6 percent of all such claims in 2009).

¹ This document may be cited as follows: Joint Committee on Taxation, *Background and Present Law Relating to Manufacturing Activities Within the United States* (JCX-61-12), July 17, 2012. This document can be found on our website at www.jct.gov.

I. PRIOR AND PRESENT LAW

A. Brief Overview of Taxation of Income Derived from Business Activities

In general

For tax purposes, businesses may be organized as various entities, including as a C corporation, as a passthrough entity (*e.g.*, S corporation or partnership), or as a sole proprietorship. A C corporation is taxed directly on its current income, but its shareholders are not, although they are taxed separately on distributions by the corporation. Conversely, Federal income tax does not normally apply at the entity level in the case of a passthrough entity. Rather, items of income, gain, or loss are taken into account for tax purposes by the partners or S corporation shareholders on their own tax returns. Similarly, income from a sole proprietorship is included on the tax return of the individual owner. Below is an overview of the rules regarding the Federal income taxation of individuals and corporations.

Individual income tax

In general

A United States citizen or resident alien generally is subject to the U.S. individual income tax on his or her worldwide taxable income.² Taxable income equals the taxpayer's total gross income less certain exclusions, exemptions, and deductions. Graduated tax rates are then applied to a taxpayer's taxable income to determine his or her individual income tax liability. A taxpayer may face additional liability if the alternative minimum tax applies. A taxpayer may reduce his or her income tax liability by any applicable tax credits.

Adjusted gross income

Under the Internal Revenue Code of 1986 (the "Code"), gross income means "income from whatever source derived" except for certain items specifically exempt or excluded by statute. Sources of income include compensation for services, interest, dividends, capital gains, rents, royalties, alimony and separate maintenance payments, annuities, income from life insurance and endowment contracts (other than certain death benefits), pensions, gross profits from a trade or business, income in respect of a decedent, and income from S corporations, partnerships,³ trusts or estates.⁴ Statutory exclusions from gross income include death benefits

² Foreign tax credits generally are available against U.S. income tax imposed on foreign source income to the extent of foreign income taxes paid on that income. A nonresident alien generally is subject to the U.S. individual income tax only on income with a sufficient nexus to the United States.

³ In general, partnerships and S corporations are treated as passthrough entities for Federal income tax purposes. Thus, no Federal income tax is imposed at the entity level. Rather, income of such entities is passed through and taxed to the owners at the individual level.

⁴ In general, estates and most trusts pay tax on income at the entity level, unless the income is distributed or required to be distributed under governing law or under the terms of the governing instrument. Such entities determine their tax liability using a special tax rate schedule and are subject to the alternative minimum tax. Certain

payable under a life insurance contract, interest on certain State and local bonds, employer-provided health insurance, employer-provided pension contributions, and certain other employer-provided benefits.

An individual's adjusted gross income ("AGI") is determined by subtracting certain "above-the-line" deductions from gross income. These deductions include trade or business expenses, capital losses, and contributions to a tax-qualified retirement plan by a self-employed individual, contributions to individual retirement arrangements ("IRAs"), certain moving expenses, certain education-related expenses, and alimony payments.

Taxable income

To determine taxable income, an individual reduces AGI by any personal exemption deductions and either the applicable standard deduction or his or her itemized deductions. Personal exemptions generally are allowed for the taxpayer, his or her spouse, and any dependents. For 2012, the amount deductible for each personal exemption is \$3,800. This amount is indexed annually for inflation. In tax years beginning after 2012, the personal exemption phase-out ("PEP") will reduce a taxpayer's personal exemption by two percent for each \$2,500 by which the taxpayer's AGI exceeds a certain threshold. JCT staff estimates of the PEP thresholds in 2013 are \$172,250 (single) and \$258,350 (married filing jointly).

A taxpayer also may reduce AGI by the amount of the applicable standard deduction. The basic standard deduction varies depending upon a taxpayer's filing status. For 2012, the amount of the standard deduction is \$5,950 for single individuals and married individuals filing separate returns, \$8,500 for heads of households, and \$11,900 for married individuals filing a joint return and surviving spouses. An additional standard deduction is allowed with respect to any individual who is elderly or blind.⁵ The amounts of the basic standard deduction and the additional standard deductions are indexed annually for inflation.

In lieu of taking the applicable standard deductions, an individual may elect to itemize deductions. The deductions that may be itemized include State and local income taxes (or, in lieu of income, sales taxes), real property and certain personal property taxes, home mortgage interest, charitable contributions, certain investment interest, medical expenses (in excess of 7.5 percent of AGI), casualty and theft losses (in excess of 10 percent of AGI and in excess of \$100 per loss), and certain miscellaneous expenses (in excess of two percent of AGI). In tax years beginning after 2012, the total amount of itemized deductions allowed is reduced for taxpayers with incomes over a certain threshold amount, which is indexed annually for inflation. JCT staff

trusts, however, do not pay Federal income tax at the trust level. For example, certain trusts that distribute all income currently to beneficiaries are treated as passthrough or conduit entities (similar to a partnership). Other trusts are treated as being owned by grantors in whole or in part for tax purposes; in such cases, the grantors are taxed on the income of the trust.

⁵ For 2012, the additional amount is \$1,150 for married taxpayers (for each spouse meeting the applicable criterion) and surviving spouses. The additional amount for single individuals and heads of households is \$1,450. If an individual is both blind and aged, the individual is entitled to two additional standard deductions, for a total additional amount (for 2012) of \$2,300 or \$2,900, as applicable.

estimates of these limitation thresholds in 2013 are \$172,250 for both single taxpayers and those who are married filing jointly.

Tax liability

In general

A taxpayer’s net income tax liability is the greater of (1) regular individual income tax liability reduced by credits allowed against the regular tax, or (2) tentative minimum tax reduced by credits allowed against the minimum tax. The amount of income subject to tax is determined differently under the regular tax and the alternative minimum tax, and separate rates schedules apply. Lower rates apply for long-term capital gains; those rates apply for both the regular tax and the alternative minimum tax.

Regular tax liability

To determine regular tax liability, a taxpayer generally must apply the tax rate schedules (or the tax tables) to his or her regular taxable income. The rate schedules are broken into several ranges of income, known as income brackets, and the marginal tax rate increases as a taxpayer’s income increases. Separate rate schedules apply based on an individual’s filing status. For 2012, the regular individual income tax rate schedules are as follows:

Table 1.—Federal Individual Income Tax Rates for 2012

If taxable income is:	Then income tax equals:
<i>Single Individuals</i>	
Not over \$8,700	10% of the taxable income
Over \$8,700 but not over \$35,350	\$870.00 plus 15% of the excess over \$8,700
Over \$35,350 but not over \$85,650	\$4,867.50 plus 25% of the excess over \$35,350
Over \$85,650 but not over \$178,650	\$17,442.50 plus 28% of the excess over \$85,650
Over \$178,650 but not over \$388,350	\$43,482.50 plus 33% of the excess over \$178,650
Over \$388,350	\$112,683.50 plus 35% of the excess over \$388,350
<i>Heads of Households</i>	
Not over \$12,400	10% of the taxable income
Over \$12,400 but not over \$47,350	\$1,240 plus 15% of the excess over \$12,400

Over \$47,350 but not over \$122,300.....	\$6,482.50 plus 25% of the excess over \$47,350
Over \$122,300 but not over \$198,050.....	\$25,220 plus 28% of the excess over \$122,300
Over \$198,050 but not over \$388,350.....	\$46,430 plus 33% of the excess over \$198,050
Over \$388,350.....	\$109,229 plus 35% of the excess over \$388,350

Married Individuals Filing Joint Returns and Surviving Spouses

Not over \$17,400.....	10% of the taxable income
Over \$17,400 but not over \$70,700.....	\$1,740 plus 15% of the excess over \$17,400
Over \$70,700 but not over \$142,700.....	\$9,735 plus 25% of the excess over \$70,700
Over \$142,700 but not over \$217,450.....	\$27,735 plus 28% of the excess over \$142,700
Over \$217,450 but not over \$388,350.....	\$48,665 plus 33% of the excess over \$217,450
Over \$388,350.....	\$105,062 plus 35% of the excess over \$388,350

Married Individuals Filing Separate Returns

Not over \$8,700.....	10% of the taxable income
Over \$8,700 but not over \$35,350.....	\$870 plus 15% of the excess over \$8,700
Over \$35,350 but not over \$71,350.....	\$4,867.50 plus 25% of the excess over \$35,350
Over \$71,350 but not over \$108,725.....	\$13,867.50 plus 28% of the excess over \$71,350
Over \$108,725 but not over \$194,175.....	\$24,332.50 plus 33% of the excess over \$108,725
Over \$194,175.....	\$52,531 plus 35% of the excess over \$194,175

An individual's marginal tax rate may be reduced by the allowance of a deduction equal to a percentage of income from certain domestic manufacturing activities.⁶

Alternative minimum tax liability

An alternative minimum tax is imposed on an individual, estate, or trust in an amount by which the tentative minimum tax exceeds the regular income tax for the taxable year. The tentative minimum tax is the sum of (1) 26 percent of so much of the taxable excess as does not

⁶ This deduction is described in more detail below in section I.D. of this document.

exceed \$175,000 (\$87,500 in the case of a married individual filing a separate return) and (2) 28 percent of the remaining taxable excess. The taxable excess is so much of the alternative minimum taxable income (“AMTI”) as exceeds the exemption amount. The maximum tax rates on net capital gain and dividends used in computing the regular tax are used in computing the tentative minimum tax. AMTI is the taxpayer’s taxable income increased by the taxpayer’s tax preferences and adjusted by determining the tax treatment of certain items in a manner that negates the deferral of income resulting from the regular tax treatment of those items.

The exemption amounts are: (1) \$45,000 (\$74,450 in taxable years beginning in 2011) in the case of married individuals filing a joint return and surviving spouses; (2) \$33,750 (\$48,450 in taxable years beginning in 2011) in the case of other unmarried individuals; (3) \$22,500 (\$37,225 in taxable years beginning in 2011) in the case of married individuals filing separate returns; and (4) \$22,500 in the case of an estate or trust. The exemption amounts are phased out by an amount equal to 25 percent of the amount by which the individual’s AMTI exceeds (1) \$150,000 in the case of married individuals filing a joint return and surviving spouses, (2) \$112,500 in the case of other unmarried individuals, and (3) \$75,000 in the case of married individuals filing separate returns or an estate or a trust. These amounts are not indexed for inflation.

Among the preferences and adjustments applicable to the individual alternative minimum tax are accelerated depreciation on certain property used in a trade or business, circulation expenditures, research and experimental expenditures, certain expenses and allowances related to oil and gas and mining exploration and development, certain tax-exempt interest income, and a portion of the amount of gain excluded with respect to the sale or disposition of certain small business stock. In addition, personal exemptions, the standard deduction, and certain itemized deductions, such as State and local taxes and miscellaneous deductions, are not allowed to reduce AMTI.

Special capital gains and dividends rates

In general, gain or loss reflected in the value of an asset is not recognized for income tax purposes until a taxpayer disposes of the asset. On the sale or exchange of a capital asset, any gain generally is included in income. Any net capital gain of an individual is taxed at maximum rates lower than the rates applicable to ordinary income. Net capital gain is the excess of the net long-term capital gain for the taxable year over the net short-term capital loss for the year. Gain or loss is treated as long-term if the asset is held for more than one year.

Capital losses generally are deductible in full against capital gains. In addition, individual taxpayers may deduct capital losses against up to \$3,000 of ordinary income in each year. Any remaining unused capital losses may be carried forward indefinitely to another taxable year.

A separate rate structure applies to capital gains and dividends. Under present law, for 2012, the maximum rate of tax on the adjusted net capital gain of an individual is 15 percent. In addition, any adjusted net capital gain otherwise taxed at a 10- or 15-percent rate is taxed at a zero-percent rate. These rates apply for purposes of both the regular tax and the alternative minimum tax. Dividends generally are taxed at the same rate as capital gains.

Credits against tax

The individual may reduce his or her tax liability by any available tax credits. Tax credits are allowed for certain business expenditures, certain foreign income taxes paid or accrued, certain education expenditures, certain dependent children and child care expenditures, and for certain elderly or disabled individuals. In addition, a refundable earned income tax credit (“EITC”) is available to low-income workers who satisfy certain requirements. The amount of the EITC varies depending upon the taxpayer’s earned income and whether the taxpayer has one, two, more than two, or no qualifying children. In 2012, the maximum EITC is \$5,891 for taxpayers with more than two qualifying children, \$5,236 for taxpayers with two qualifying children, \$3,169 for taxpayers with one qualifying child, and \$475 for taxpayers with no qualifying children. Credits allowed against the regular tax are not uniformly allowed against the alternative minimum tax.

Tax on net investment income

For taxable years beginning after December 31, 2012, a tax is imposed on net investment income in the case of an individual, estate, or trust. In the case of an individual, the tax is 3.8 percent of the lesser of net investment income or the excess of modified adjusted gross income over the threshold amount.⁷ The threshold amount is \$250,000 in the case of a joint return or surviving spouse, \$125,000 in the case of a married individual filing a separate return, and \$200,000 in any other case.

For purposes of the unearned income Medicare contribution tax, modified adjusted gross income is adjusted gross income increased by the amount excluded from income as foreign earned income under section 911(a)(1) (net of the deductions and exclusions disallowed with respect to the foreign earned income).

In the case of an estate or trust, the tax is 3.8 percent of the lesser of undistributed net investment income or the excess of adjusted gross income (as defined in section 67(e)) over the dollar amount at which the highest income tax bracket applicable to an estate or trust begins.⁸

Corporate income tax

Taxable income

Corporations organized under the laws of any of the 50 States (and the District of Columbia) generally are subject to the U.S. corporate income tax on their worldwide taxable

⁷ The tax is subject to the individual estimated tax provisions. The tax is not deductible in computing any tax imposed by subtitle A of the Internal Revenue Code (relating to income taxes).

⁸ The tax does not apply to a nonresident alien or to a trust all the unexpired interests in which are devoted to charitable purposes. The tax also does not apply to a trust that is exempt from tax under section 501 or a charitable remainder trust exempt from tax under section 664.

income.⁹ However, a qualified small business corporation may elect, under subchapter S of the Code, not to be subject to the corporate income tax. If an S corporation election is made, the income of the corporation will flow through to the shareholders and be taxable directly to the shareholders.

The taxable income of a corporation generally is comprised of gross income less allowable deductions. Gross income generally is income derived from any source, including gross profit from the sale of goods and services to customers, rents, royalties, interest (other than interest from certain indebtedness issued by State and local governments), dividends, gains from the sale of business and investment assets, and other income.

Allowable deductions include ordinary and necessary business expenditures, such as salaries, wages, contributions to profit-sharing and pension plans and other employee benefit programs, repairs, bad debts, taxes (other than Federal income taxes), contributions to charitable organizations (subject to an income limitation), advertising, interest expense, certain losses, selling expenses, and other expenses. Expenditures that produce benefits in future taxable years to a taxpayer's business or income-producing activities (such as the purchase of plant and equipment) generally are capitalized and recovered over time through depreciation, amortization or depletion allowances. A net operating loss incurred in one taxable year may be carried back two years or carried forward 20 years and allowed as a deduction in another taxable year. Deductions also are allowed for certain amounts despite the lack of a direct expenditure by the taxpayer. For example, a deduction is allowed for all or a portion of the amount of dividends received by a corporation from another corporation (provided certain ownership requirements are satisfied). Moreover, a deduction is allowed for a portion of the amount of income attributable to certain manufacturing activities.

The Code also specifies certain expenditures that may not be deducted, such as dividends paid to shareholders, expenses associated with earning tax-exempt income,¹⁰ certain entertainment expenditures, certain executive compensation in excess of \$1,000,000 per year, a portion of the interest on certain high-yield debt obligations that resemble equity, and fines, penalties, bribes, kickbacks and illegal payments.

Tax liability

A corporation's regular income tax liability generally is determined by applying the following tax rate schedule to its taxable income.

⁹ Foreign tax credits generally are available against U.S. income tax imposed on foreign source income to the extent of foreign income taxes paid on that income. A foreign corporation generally is subject to the U.S. corporate income tax only on income with a sufficient nexus to the United States.

¹⁰ For example, the carrying costs of tax-exempt State and local obligations and the premiums on certain life insurance policies are not deductible.

Table 2.—Federal Corporate Income Tax Rates

If taxable income is:	Then the income tax rate is:
\$0-\$50,000	15 percent of taxable income
\$50,001-\$75,000	25 percent of taxable income
\$75,001-\$10,000,000	34 percent of taxable income
Over \$10,000,000.....	35 percent of taxable income

The first two graduated rates described above are phased out for corporations with taxable income between \$100,000 and \$335,000. As a result, a corporation with taxable income between \$335,000 and \$10,000,000 effectively is subject to a flat tax rate of 34 percent. Also, the application of the 34-percent rate is gradually phased out for corporations with taxable income between \$15,000,000 and \$18,333,333, such that a corporation with taxable income of \$18,333,333 or more effectively is subject to a flat rate of 35 percent.

In contrast to the treatment of capital gains in the individual income tax, no separate rate structure exists for corporate capital gains. Thus, the maximum rate of tax on the net capital gains of a corporation is 35 percent. A corporation may not deduct the amount of capital losses in excess of capital gains for any taxable year. Disallowed capital losses may be carried back three years or carried forward five years.

Corporations are taxed at lower rates on income from certain domestic production activities. This rate reduction is effected by the allowance of a deduction equal to a percentage of qualifying domestic production activities income. For taxable years beginning in 2012, the deduction is equal to nine percent of the income from manufacturing, construction, and certain other activities specified in the Code.¹¹

Like individuals, corporations may reduce their tax liability by any applicable tax credits. Tax credits applicable to businesses include credits for producing fuels from nonconventional sources, investment tax credits (applicable to investment in certain renewable energy property and the rehabilitation of certain real property), the alcohol fuels credit (applicable to production of certain alcohol fuels), the research credit, the low-income housing credit (applicable to investment in certain low-income housing projects), the enhanced oil recovery credit (applicable to the recovery of certain difficult-to-extract oil reserves), the empowerment zone employment credit (applicable to wages paid to certain residents of or employees in empowerment zones), the work opportunity credit (applicable to wages paid to individuals from certain targeted groups),

¹¹ The domestic production deduction is discussed in more detail in section I.D. of this document.

and the disabled access credit (applicable to expenditures by certain small businesses to make the businesses accessible to disabled individuals). The credits generally are determined based on a percentage of the cost associated with the underlying activity and generally are subject to certain limitations.

Affiliated group

Domestic corporations that are affiliated through 80 percent or more corporate ownership may elect to file a consolidated return in lieu of filing separate returns. Corporations filing a consolidated return generally are treated as a single corporation; thus, the losses (and credits) of one corporation can offset the income (and thus reduce the otherwise applicable tax) of other affiliated corporations.

Minimum tax

A corporation is subject to an alternative minimum tax that is payable, in addition to all other tax liabilities, to the extent that it exceeds the corporation's regular income tax liability. The tax is imposed at a flat rate of 20 percent on alternative minimum taxable income in excess of a \$40,000 exemption amount.¹² Credits that are allowed to offset a corporation's regular tax liability generally are not allowed to offset its minimum tax liability. If a corporation pays the alternative minimum tax, the amount of the tax paid is allowed as a credit against the regular tax in future years.

Alternative minimum taxable income is the corporation's taxable income increased by the corporation's tax preferences and adjusted by determining the tax treatment of certain items in a manner that negates the deferral of income resulting from the regular tax treatment of those items. Among the preferences and adjustments applicable to the corporate alternative minimum tax are accelerated depreciation on certain property, certain expenses and allowances related to oil and gas and mining exploration and development, certain amortization expenses related to pollution control facilities, and certain tax-exempt interest income. In addition, corporate alternative minimum taxable income is increased by 75 percent of the amount by which the corporation's "adjusted current earnings" exceed its alternative minimum taxable income (determined without regard to this adjustment). Adjusted current earnings generally are determined with reference to the rules that apply in determining a corporation's earnings and profits.

Treatment of corporate distributions

The taxation of a corporation generally is separate and distinct from the taxation of its shareholders. A distribution by a corporation to one of its shareholders generally is taxable as a dividend to the shareholder to the extent of the corporation's current or accumulated earnings

¹² The exemption amount is phased out for corporations with income above certain thresholds, and is completely phased out for corporations with alternative minimum taxable income of \$310,000 or more.

and profits.¹³ Thus, the amount of a corporate dividend generally is taxed twice: once when the income is earned by the corporation and again when the dividend is distributed to the shareholder.¹⁴ Conversely, amounts paid as interest to the debtholders of a corporation generally are subject to only one level of tax (at the recipient level) since the corporation generally is allowed a deduction for the amount of interest expense paid or accrued.

Amounts received by a shareholder in complete liquidation of a corporation generally are treated as full payment in exchange for the shareholder's stock. A liquidating corporation recognizes gain or loss on the distributed property as if such property were sold to the distributee for its fair market value. However, if a corporation liquidates a subsidiary corporation of which it has 80 percent or more control, no gain or loss generally is recognized by either the parent corporation or the subsidiary corporation.

Accumulated earnings and personal holding company taxes

Taxes at a rate of 15 percent (the top rate generally applicable to dividend income of individuals) may be imposed upon the accumulated earnings or personal holding company income of a corporation. The accumulated earnings tax may be imposed if a corporation retains earnings in excess of reasonable business needs. The personal holding company tax may be imposed upon the excessive passive income of a closely held corporation. The accumulated earnings tax and the personal holding company tax, when they apply, in effect impose the shareholder level tax in addition to the corporate level tax on accumulated earnings or undistributed personal holding company income.

¹³ A distribution in excess of the earnings and profits of a corporation generally is a tax-free return of capital to the shareholder to the extent of the shareholder's adjusted basis (generally, cost) in the stock of the corporation; such distribution is a capital gain if in excess of basis. A distribution of property other than cash generally is treated as a taxable sale of such property by the corporation and is taken into account by the shareholder at the property's fair market value. A distribution of stock of the corporation generally is not a taxable event to either the corporation or the shareholder.

¹⁴ This double taxation is mitigated by a reduced maximum tax rate of 15 percent generally applicable to dividend income of individuals.

B. Capital Investment

1. Background

Economic and tax cost recovery

Economic depreciation

Cost recovery refers to the process by which a taxpayer recoups the cost of its investment in business or other income-producing property. The Federal income tax law permits this recoupment through the allowance of deductions for depreciation or amortization, or expensing (current year deduction of the cost of property). In lieu of (or in addition to) cost recovery, tax credits may be given to incentivize investment in capital assets.

Conceptually, depreciation could be viewed as reflecting the decline in value over time of business or income-producing property, as the ageing of the property causes it to lose value. In other words, depreciation could be viewed as representing the decline over time in the present value of income produced by the property, as its income-producing utility diminishes. Tax and economic depreciation can diverge.

Quantifying economic depreciation may not be a straightforward exercise. Does a decline to zero, in equal annual increments, of the cost of property over the life of the property reflect economic depreciation? This generally is the method for calculating straight-line depreciation under the tax law. Since the 1970s, economic literature has suggested a more nuanced methodology for measuring economic depreciation that diverges from straight-line depreciation over the life of the asset. Economic analysis suggests that economic depreciation may be better reflected by a constant rate of decline rather than a constant amount. Economists have assessed divergences between tax and economic depreciation, discussed further in section II, below.

Cost recovery under the income tax

Historically, depreciation deductions have been allowed under the Federal income tax system as a reasonable allowance for the exhaustion, or wear and tear (including obsolescence), of business property or of property held for the production of income.¹⁵ Since 1981,¹⁶ however, depreciation has been calculated under the Federal income tax system generally by applying a depreciation method to a recovery period for the category of property being depreciated.¹⁷

¹⁵ Sec. 167.

¹⁶ Secs. 201-211 of the Economic Recovery Tax Act of 1981, Pub. L. No. 97-34. In 1981, the new depreciation system was explained in this manner: “The Act replaces the prior law depreciation system with the Accelerated Cost Recovery System (ACRS). ACRS is a system for recovering capital costs using accelerated methods over predetermined recovery periods that are generally unrelated to, but shorter than, prior law useful lives.” Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 29, 1981, pp. 75-76. The provisions have been modified legislatively several times since 1981.

¹⁷ Sec. 168, described in sections I.B.2 of this document.

Similarly, amortization of intangible assets has, since 1993, been determined on the straight-line method over a 15-year period.¹⁸ Some expensing is permitted for business property subject to annual dollar limitations under present law.¹⁹ Tax credits are provided with respect to capital investment in certain types of property, including some types of energy-related property.²⁰

In the absence of depreciation deductions, the decline in value of income-producing property would not be recognized as a deduction or loss in an income tax system that generally requires a recognition event – such as a sale or exchange of the property – in order for gain or loss to be taken into account for tax purposes.

Ascertaining the specific decline in value of each piece of business property for each year that the property is used in the business presents measurement difficulties. Even if the cost of the property is spread formulaically over the property's useful life in the business, administrative difficulties arise in predicting, estimating, or otherwise ascertaining the useful life of the property. These and related difficulties have made the use of a less fact-dependent depreciation system attractive to taxpayers and to the government from a tax administration standpoint.²¹

Depreciation methods can be adjusted to provide a greater or lesser degree of acceleration of cost recovery for the taxpayer with respect to the depreciable property. For example, for a given cost recovery period, a declining-balance method, in which the taxpayer's depreciation deduction is greatest in the early years of the cost recovery period and smaller in the later years, is more accelerated than the straight-line method, in which the taxpayer's depreciation deduction for the property is the same for each year in the cost recovery period. Although the same nominal cost for the property is recovered over the same recovery period under both depreciation methods, the acceleration of a greater amount of the deduction into the earlier years of the recovery period means that the present value of the tax benefit to the taxpayer is greater under the accelerated method than under the straight-line method.

A formulaic system of depreciation can serve to provide a tax incentive for capital investment to the extent the depreciation deductions are faster than the economic or financial statement depreciation of the property. For example, temporary rules providing for additional first-year depreciation (also known as bonus depreciation) were enacted several times in recent

¹⁸ For a discussion of legislative history and present law of the recovery of intangible assets, see Joint Committee on Taxation, *Background and Present Law Relating to Cost Recovery and Domestic Production Activities*, (JCX-19-12), February 27, 2012.

¹⁹ Sec. 179, described in section I.B.4. of this document.

²⁰ For a summary and analysis of present-law energy-related investment credits, see Joint Committee on Taxation, *Present Law and Analysis of Energy-Related Tax Expenditures and Description of the Revenue Provisions Contained in H.R. 1380, the New Alternative Transportation to Give Americans Solutions Act of 2011* (JCX-47-11), September 20, 2011.

²¹ For a more detailed overview of the evolution of the tax depreciation rules, see, *inter alia*, Boris I. Bittker and Lawrence Lokken, "Depreciation and Amortization - Introductory," *Federal Taxation of Income, Estates and Gifts* (2d/3d ed. 1993-2012 & Cum. Supp. No. 2) par. 23.1.

legislation with the purpose of providing economic stimulus during times of economic downturn.²²

Expensing, or allowing a deduction for the cost of business property in the year it is placed in service, provides a tax benefit of a greater present value than depreciation, including accelerated depreciation, because the full cost of the property is recovered in the first year rather than in subsequent years. Expensing the full cost of the property is economically equivalent to exempting from tax the so-called “normal” return on investment, assuming tax rates remain the same.

A tax credit can also serve as a form of cost recovery or may permit recovery of an amount different from the cost of the property. Prior to 1986, an investment tax credit was allowed for up to 10 percent of a taxpayer’s investment in certain tangible depreciable property (generally not including buildings or their structural components). The taxpayer could not reduce its tax liability by more than the sum of a specified dollar amount plus a percentage of the tax liability in excess of that amount, though a carryover was provided for unused credits. The investment tax credit was repealed as part of the Tax Reform Act of 1986.²³ However, the Code currently provides tax credits for investments in specified types of property, including the rehabilitation credit, the low-income housing credit, and credits for energy-related property.²⁴

Comparison of cost recovery methods

Examples

The following examples as provided in Tables 3-7 below illustrate the economic and tax effects of several possible methods of cost recovery:

- Table 3: straight-line depreciation, a method in which a taxpayer’s depreciation deduction for a given asset is the same each year;
- Table 4: accelerated depreciation, under which a taxpayer’s depreciation allowance for an asset is greatest in the first year in which the asset is used and declines over time (using the 200-percent declining balance method);
- Table 5: expensing, in which a taxpayer is permitted to deduct the entire cost of an asset in the year in which the taxpayer acquires the asset;
- Table 6: comparison of accelerated depreciation and discounted straight-line depreciation, in which a taxpayer deducts the difference between the present values of the expected future cash flows at the beginning and at the end of the year; and

²² Sec. 168(k), described in section I.B.2. of this document.

²³ Pub. L. No. 99-514, sec. 211.

²⁴ Secs. 47 (rehabilitation credit), 42 (low-income housing credit) and, *e.g.*, 45 (credit for electricity produced from renewable sources) and 48C (advanced energy project credit).

- Table 7: use of a tax credit to provide cost recovery or recovery of amounts different from the cost of the asset.²⁵

Each example assumes the following facts.²⁶ A taxpayer buys a machine for \$10,000. The machine is used for five years, generates \$3,000 net cash flow annually, and has no salvage value. The taxpayer's tax rate is 35 percent. The discount rate is six percent. The taxpayer is assumed to derive other taxable income so that any net decrease in income tax liability (shown in each table as a negative number) attributable to the machine can be used to offset the taxpayer's tax liability from its other income sources. The present value ("PV") figures in the tables are derived by assuming that nominal dollars are paid (in the case of taxes) or received (in the case of cash flow) at the end of each year and by discounting these nominal dollars back to when the machine was purchased, the beginning of year one. Thus, nominal year-one dollars paid or received are discounted one year in deriving the present value of those dollars, nominal year-two dollars are discounted two years, and so forth.

²⁵ These examples provide a comparison of the cash flow and tax effects of the different methods of cost recovery. Other issues such as the relative complexity of each method, record-keeping and administrability aspects of each method, and the use of methods in combination with each other also would have to be taken into account in selecting among cost recovery methods.

²⁶ For the sake of simplicity, each example treats the property as if it were placed in service on the first day of the taxable year. However, under present tax law, the date the property was placed in service would be determined under the applicable placed in service convention.

Table 3.—Straight Line Depreciation

	(1) Unrecovered Cost	(2) Dollars Received	(3) Cost Recovery	(4) Taxable Income	(5) 35% Tax, (4) x .35	(6) PV of Tax Liability	(7) After-Tax Cash Flow (2) - (5)	(8) PV of After-Tax Cash Flow (7)
Year 1	\$10,000	\$3,000	\$2,000	\$1,000	\$350	\$330	\$2,650	\$2,500
Year 2	8,000	3,000	2,000	1,000	350	311	2,650	2,358
Year 3	6,000	3,000	2,000	1,000	350	294	2,650	2,225
Year 4	4,000	3,000	2,000	1,000	350	277	2,650	2,099
Year 5	2,000	3,000	2,000	1,000	350	262	2,650	1,980
End/total	\$0	\$15,000	\$10,000	\$5,000	\$1,750	\$1,474	\$13,250	\$11,162

Table 4.—Accelerated Depreciation

	(1) Unrecovered Cost	(2) Dollars Received	(3) Cost Recovery	(4) Taxable Income	(5) 35% Tax, (4) x .35	(6) PV of Tax Liability	(7) After-Tax Cash Flow (2) - (5)	(8) PV of After-Tax Cash Flow (7)
Year 1	\$10,000	\$3,000	\$4,000	-\$1,000	-\$350	-\$330	\$3,350	\$3,160
Year 2	6,000	3,000	2,400	600	210	187	2,790	2,483
Year 3	3,600	3,000	1,440	1,560	546	458	2,454	2,060
Year 4	2,160	3,000	1,080	1,920	672	532	2,328	1,844
Year 5	1,080	3,000	1,080	1,920	672	502	2,328	1,740
End/total	\$0	\$15,000	\$10,000	\$5,000	\$1,750	\$1,349	\$13,250	\$11,287

Table 5.—Expensing

	(1) Unrecovered Cost	(2) Dollars Received	(3) Cost Recovery	(4) Taxable Income	(5) 35% Tax, (4) x .35	(6) PV of Tax Liability	(7) After-Tax Cash Flow (2) - (5)	(8) PV of After-Tax Cash Flow (7)
Year 1	\$10,000	\$3,000	\$10,000	-\$7,000	-\$2,450	-\$2,311	\$5,450	\$5,142
Year 2	0	3,000	0	3,000	1,050	934	1,950	1,735
Year 3	0	3,000	0	3,000	1,050	882	1,950	1,637
Year 4	0	3,000	0	3,000	1,050	832	1,950	1,545
Year 5	0	3,000	0	3,000	1,050	785	1,950	1,457
End/total	\$0	\$15,000	\$10,000	\$5,000	\$1,750	\$1,122	\$13,250	\$11,516

Economic and tax results

Several observations can be made about the examples in Tables 3-5. First, in each example, by the end of year five, the last year in which the machine is used, the taxpayer has recovered the entire cost of the machine, \$10,000. Second, measured in nominal or total combined annual dollars, the total amount of cash flow (\$15,000), income after cost recovery (\$5,000), and tax paid (\$1,750) is the same under each of the three methods of cost recovery. Third, the amount of the taxpayer's total eventual tax liability expressed in present value terms at the outset of the taxpayer's investment – the number in column (6) of each example – varies significantly among the three examples. The present value of after-tax cash flow – the number in column (8) of each example – likewise varies among the examples. The initial present value of all future tax liabilities attributable to the income generated by the machine is greatest under straight-line depreciation, somewhat less under accelerated depreciation, and least under expensing. The present value of after-tax cash flow is the smallest under straight-line depreciation, greater under accelerated depreciation, and greater again under expensing.

The reason for these relationships is that expensing accelerates cost recovery relative to accelerated and straight-line depreciation, and accelerated depreciation yields more up-front cost recovery than does straight-line. Faster cost recovery defers the taxpayer's tax liability. For a fixed income stream, deferral of the tax increases the return to investment. In the end, the entire cost of the machine is recovered under all three methods, but front-loading of depreciation deductions and the concomitant lessening of the taxpayer's tax liability in the early years increase the present value of cash flows.

Accelerated depreciation compared with discounted straight-line depreciation²⁷

In the examples above, straight-line depreciation is the least favorable method of cost recovery for taxpayers. An even less taxpayer-favorable rule might require a taxpayer to wait until an asset is used up or sold before recovering any portion of the cost of the asset. The rate of cost recovery – straight-line, accelerated, or expensing – is not the only variable that affects the present values of taxes and cash flows associated with an asset. The period over which costs are recovered also has an effect on these present values.

To analyze how closely any combination of recovery rates and periods replicates economic depreciation, the pattern of an asset's economic depreciation must be understood. Under the assumption that an asset produces level cash flows over its useful life – not always a realistic assumption because of the declining efficiency of some assets and, relatedly, because of increasing maintenance costs as some assets age – the asset declines in value more slowly in its early years than in its later years.

The value of an asset or, put differently, the amount someone would pay for the asset, at any time is the value at that time of all income the asset is expected to generate in the future. An asset's value, in other words, is the present value of its expected future cash flows. The decline

²⁷ Whether discounted straight-line depreciation is equivalent to economic depreciation, or not, is discussed in part II of this document.

in value of an asset from the beginning of one year to the end of that year – the asset’s economic depreciation – is represented by the difference between the present values of the expected future cash flows at the beginning and at the end of the year.

Assume an asset generates \$1,000 in cash flow each year for five years, and assume a discount rate of six percent. The value at the beginning of year one of the future cash flows (\$1,000 each year for five years) is \$4,212; this is the amount a taxpayer would pay for the asset. By the end of year one, the value of the future cash flows (\$1,000 each year for four years) declines to \$3,465. In its first year of use, the asset thus has declined in value by \$747. The pattern of depreciation over the five years is illustrated in the following table:

Table 6.–Discounted Straight-Line Depreciation

Year	PV at Beginning	PV at End	Depreciation
1	\$4,212	\$3,465	\$747
2	3,465	2,673	792
3	2,673	1,833	840
4	1,833	943	890
5	943	0	943

As can be seen in this table, the depreciation in the value of the asset is smallest during the first year and increases with each subsequent year. For an asset that generates constant cash flows, therefore, tax depreciation rules that matched this pattern of depreciation would backload cost recovery to a greater extent than the tax rules for straight-line depreciation do. In practice, the U.S. Bureau of Economic Analysis models economic depreciation at a constant rate (as opposed to a constant dollar amount under the straight-line method). Applying a constant rate of depreciation would give the opposite type of pattern from that shown above; that is, the depreciation in the value of the asset would be largest in the first year and would decrease with each subsequent year. This is because the same rate would be applied each year to the declining value of the asset. This approach is discussed in part III, below.

Expensing as an incentive for capital investment

Seeking to match economic depreciation is only one possible goal of cost recovery rules. Another possible goal is to provide an incentive for capital investment. Expensing – under which, as illustrated previously, a current deduction is allowed for the entire cost of an asset – is one way to provide this incentive.²⁸ Under certain assumptions, including that tax rates are the same at the beginning and at the end of an investment, allowing a current deduction for the cost of an investment is equivalent to exempting from tax the return on the investment.

²⁸ Any method of cost recovery that is faster than economic depreciation provides a tax incentive for investment in the property for which the recovery method is available.

An example can illustrate this point.²⁹ Assume a taxpayer earns \$1,000 in taxable income (in addition to taxable income from other sources) and invests the amount that remains after a 35-percent tax is imposed on the \$1,000. The asset yields a 10-percent return and is sold after one year.

In the first scenario, no deduction is allowed for the cost of an investment, but the return on the investment is exempt from tax. The taxpayer therefore is taxed on the \$1,000 when it is earned and is left with \$650 ($\$1,000 - .35(\$1,000)$) to invest. The \$650 investment yields a 10-percent return. After one year, the investment has grown to \$715, and when the investment is sold, the proceeds are exempt from tax.

In the second scenario, the taxpayer expenses, or deducts the full cost of, the investment, but is taxed when the proceeds from the investment are used for consumption. The deduction for the cost of the investment (which can be used as an offset against other taxable income) has the effect of eliminating the tax on the \$1,000 of earnings, and the taxpayer can invest the entire \$1,000. After one year, the investment is worth \$1,100. The taxpayer sells the investment and pays tax at the rate of 35 percent, leaving him with \$715, the same amount he would have had if the return had been exempt from tax as in the first scenario.

Tax credits as an incentive for capital investment

Expensing is one way of providing an incentive for capital investment. More generally, any schedule of recovery of capital costs that is more rapid than cost recovery provided under tax law in effect at the time creates an incentive to engage in capital investment that benefits from the more rapid recovery rules. Tax credits can serve this incentive function. For much of the period from 1962 through 1985, the income tax rules included an investment tax credit for the purchase of tangible property and certain other kinds of property for use in a business or profit-seeking activity. The credit amount initially was seven percent of the cost of the property and was increased to 10 percent.³⁰

Table 7 shows the effects of a five-percent income tax credit under the assumptions used in Tables 3 through 5: a machine with a five-year life is purchased for \$10,000, the machine generates annual cash flow (net of expenses) of \$3,000, and the discount rate is six percent. As is shown in Table 7, the five-percent investment credit generates a \$500 tax savings (five-percent of \$10,000) in year one and requires the taxpayer to reduce its basis in the machine by \$500 in that year (from \$10,000 to \$9,500). Table 7 assumes the taxpayer then is required to use straight-line depreciation in recovering its remaining cost.

²⁹ The equivalence is easily seen mathematically: the final after-tax value of exempting the return from tax is given by $C * (1+r)^n * (1-t)$, where C equals the capital investment in the property, r the annual rate of return, n the number of years the investment is held, and t the tax rate. The final after-tax value of expensing is $(1-t) * C * (1+r)^n$. Note that $(1-t) * C$ represents the reduced amount that can be invested in the expensing scenario since tax must be paid first. The only difference in the two expressions is the location of the $(1-t)$ term, and thus the expressions are mathematically equivalent when t is unchanged.

³⁰ The Tax Reduction Act of 1975, Pub. L. No. 94-12, sec. 301 (1975).

Table 7.—Investment Tax Credit

	(1) Unrecovered Cost	(2) Dollars Received	(3) Cost Recovery	(4) Taxable Income	(5) 35% Tax, (4) x .35	(6) PV of Tax Liability	(7) After-Tax Cash Flow (2) - (5)	(8) PV of After-Tax Cash Flow (7)
Year 1	\$9,500*	\$3,000	\$1,900	\$1,100	-\$115**	-\$108	\$3,115	\$2,939
Year 2	7,600	3,000	1,900	1,100	385	343	2,615	2,327
Year 3	5,700	3,000	1,900	1,100	385	323	2,615	2,196
Year 4	3,800	3,000	1,900	1,100	385	305	2,615	2,071
Year 5	1,900	3,000	1,900	1,100	385	288	2,615	1,954
End/total	\$0	\$15,000	\$9,500***	\$5,500	\$1,425	\$1,151	\$13,575	\$11,487

* After initial basis reduction for five-percent investment credit equaling \$500.

** Including \$500 investment credit.

*** Not including \$500 initial basis reduction required under the investment tax credit rules.

Table 7 reveals that, under the assumptions of the depreciation examples discussed above, the combination of the investment tax credit and straight-line depreciation produces a greater present value of after-tax cash flows than does accelerated depreciation in the absence of the investment credit, and it produces slightly less present value of after-tax cash flows than does expensing. More broadly, however, through the choice of, among other features, a credit rate, an investment credit can be designed to replicate the economic and tax results of a given set of depreciation rules.

The most favorable cost recovery method described above, expensing, can, as discussed previously, have the same after-tax effects as would exempting from tax the return on an investment. Certain rules (including investment credits and deductions for interest expense) can produce a result better than exemption. From 1981 until 1986, “the tax benefits of the combination of the investment tax credit and accelerated depreciation were more generous for some equipment than if the full cost of the investment were deducted immediately – a result more generous than exempting all earnings on the investment from taxation.”³¹ This result had the effect of encouraging investment in equipment qualifying for generous treatment even if the investment would have been unprofitable in the absence of the tax rules.

Financial accounting rules for cost recovery

In general

The Federal tax rules and the financial accounting rules for cost recovery differ in a variety of ways. In general, the tax cost recovery rules do not match tax depreciation with economic depreciation. In most circumstances, the tax rules permit accelerated depreciation, and in some cases require (or permit) straight-line depreciation. In certain other instances, the tax rules permit limited expensing. The financial accounting rules for cost recovery do not provide parallel rules in many cases.

Like the Federal tax rules, the financial accounting rules specify the depreciation method, the cost recovery period, and the depreciable base. Various depreciation methods are permitted under Generally Accepted Accounting Principles (“GAAP”), including the straight-line method, usage methods, and the double-declining balance method.³² However, the straight-line method of depreciation is most often used in practice. Thus, the cost of a capital asset generally is recovered in equal expense amounts during each year of the asset’s depreciable life. Under GAAP, recovery periods generally are intended to reflect an asset’s useful life, and therefore often differ from the recovery periods used for tax purposes.³³ The depreciable base is the cost of the property, less the salvage value, for financial reporting purposes.

³¹ Joint Committee on Taxation, *General Explanation of the Tax Reform Act of 1986* (JCS-10-87), May 4, 1987, p. 98.

³² Accounting Standards Codification (“ASC”) 360-10-35: Property, Plant, and Equipment: Subsequent Measurement.

³³ Taxpayers may wish to align the recovery period with the tax rules for administrative convenience. However, if the number of years specified by the Alternative Cost Recovery System of the Internal Revenue Service

Identifiable intangible assets, other than goodwill, are amortized for financial reporting purposes over the useful life of the asset, unless that life is determined to be indefinite. The method of amortization should reflect the pattern in which the economic benefits of the intangible asset are consumed or otherwise used. However, if that pattern cannot be reliably determined, a straight-line method is permitted.³⁴ Any amount recognized as goodwill in a business combination cannot be amortized.³⁵ In addition, the cost of internally developing, maintaining, or restoring intangible assets that are not specifically identifiable, that have indeterminate lives, or that are inherent in a continuing business are recognized as an expense when incurred.

Major differences between tax and financial accounting cost recovery

Differences between financial statement and tax cost recovery arise due to the use of the salvage value in computing the depreciable base for financial statement purposes, the difference in methodologies (*e.g.*, use of the straight-line method for financial statement purposes as opposed to accelerated recovery methods for tax purposes), and the inability to depreciate or amortize certain costs (*e.g.*, goodwill) for financial statement purposes or (*e.g.*, removal costs) for tax purposes. In addition, for financial reporting purposes, if the value of a tangible or intangible asset becomes impaired, the impairment loss is recognized in the current period. In contrast, for tax purposes, impairment losses generally are not recognized until the asset is disposed or abandoned.

Treatment of book-tax differences for financial accounting purposes

Because tax laws and financial accounting standards differ as to when or how some items are recognized or measured, items may be reported sooner or later or in different amounts on the tax return than in the financial statements. These items create “temporary differences,” or differences between the tax basis and book basis of an asset or liability. Differences in the pattern and length of cost recovery produce only temporary book-tax differences as over the life of the property the cumulative deductions will be the same for financial statement income reporting and taxable income computation purposes.

Temporary differences do not affect the total nominal amount of tax liability reported by a corporation for the year. However, temporary differences do affect the amount of cash taxes paid by the corporation for the year. To keep the total tax expense constant, corporations record an accrued tax expense (or benefit) to reflect the portion of the year’s tax expense which will be paid (or refunded) in a future year. This accrual is known as deferred tax expense (or benefit) and results in an asset (or liability) on the company’s balance sheet. These balance sheet items are referred to as deferred tax assets and deferred tax liabilities.

for recovery deductions for an asset does not fall within a reasonable range of the asset’s useful life, the recovery deductions shall not be used as depreciation expense for financial reporting purposes. ASC 360-10-35-9.

³⁴ ASC 350-30-35: Intangibles-Goodwill and Other: General Intangibles Other than Goodwill.

³⁵ ASC 350:20-25: Intangibles-Goodwill and Other: Goodwill.

Table 8 reflects the financial accounting results where the straight-line method of depreciation is used for both financial statement and taxable income, and the salvage value is assumed to be zero, using the same facts as those employed in Table 3, above. Because the cost recovery method and recovery period are identical, financial statement income and taxable income are equal in each year. The company's cash tax expense is equal to its financial statement tax expense, which (in the absence of permanent differences) is 35 percent of financial statement income.

Table 8.—Example Using Straight-Line Depreciation for Both Book and Tax

	(1) Book Income	(2) Taxable Income	(3) Book-Tax Difference (2)-(1)	(4) Deferred Tax Expense (3) x .35	(5) Current (Cash) Tax Expense (2) x .35	(6) Total Tax Expense (4)+(5) or 1 x .35	(7) Book Reported Average Tax Rate
Year 1	\$1,000	\$1,000	\$0	\$0	\$350	\$350	35%
Year 2	1,000	1,000	0	0	350	350	35%
Year 3	1,000	1,000	0	0	350	350	35%
Year 4	1,000	1,000	0	0	350	350	35%
Year 5	1,000	1,000	0	0	350	350	35%
Totals	\$5,000	\$5,000	\$0	\$0	\$1,750	\$1,750	35%

Table 9 below reflects the financial accounting results if accelerated depreciation is permitted for tax purposes while straight-line depreciation is used for financial accounting. While the pattern of income differs, the cumulative taxable income over the five-year period is equal to cumulative financial statement income. Because the capital costs are recovered earlier under accelerated depreciation, taxable income is less than financial statement income in the early years and greater than financial statement income in the later years.

On an annual basis, the temporary differences are accounted for by accruing deferred tax expense. For example, in year one, financial statement income exceeds taxable income by \$2,000 – Table 9, column (3). That difference represents the excess of tax depreciation deductions of \$4,000 – Table 4, column (3) – over financial statement depreciation expense of \$2,000 – Table 3, column (3) – in year one. Because this difference will exactly offset over the life of the asset, it is also offset for financial accounting purposes when calculating income tax expense. This offset is accomplished by accruing a deferred tax expense equal to 35 percent of the difference between financial statement and tax income of \$2,000, or \$700 – the number in column (4). Following across the row, the \$1,000 taxable loss produces a current tax benefit (negative expense) of \$350 – the number in column (5). Netting the deferred tax expense of \$700 against the current tax benefit of \$350, the total tax expense on the financial statements in year one is \$350 – the number in column (6), or 35 percent of book income – the number in column (7).

**Table 9.—Example Using Straight-Line Depreciation for Book;
Accelerated Depreciation for Tax**

	(1) Book Income	(2) Taxable Income	(3) Book-Tax Difference (2)-(1)	(4) Deferred Tax Expense (3) x .35	(5) Current (Cash) Tax Expense (2) x .35	(6) Total Tax Expense (4)+(5) or (1) x .35	(7) Book Reported Average Tax Rate
Year 1	\$1,000	-\$1,000	\$2,000	\$700	-\$350	\$350	35%
Year 2	1,000	600	400	140	210	350	35%
Year 3	1,000	1,560	-560	-196	546	350	35%
Year 4	1,000	1,920	-920	-322	672	350	35%
Year 5	1,000	1,920	-920	-322	672	350	35%
Totals	\$5,000	\$5,000	\$0	\$0	\$1,750	\$1,750	35%

While the net present value of cash flows under the accelerated depreciation method is higher than under the straight-line method (see Tables 3 and 4, column (8)), the tax expense and average tax rates reported on the financial statements are identical under the two methods, in each year and on a cumulative basis. Similarly, use of expensing for tax purposes and straight-line depreciation for financial reporting purposes produces a higher net present value of cash flows – Table 5, column (8), but no difference in the tax expense and average tax rates reported on the financial statements.

Investment tax credit

In contrast to the straight-line depreciation, accelerated depreciation, and expensing methods of cost recovery, an investment tax credit generally reduces the total cash taxes paid over the life of an asset as well as the total tax expense and average tax rate reported on the financial statements.

Table 10 below reflects the financial accounting results of a five-percent investment tax credit, using the same facts as Table 9 above.³⁶ Unlike the examples of temporary book-tax differences in Tables 10 and 11, the \$500 investment tax credit in year one is a permanent reduction in the company's tax expense and thus is treated as a permanent book-tax difference.

During year one, financial statement depreciation exceeds tax depreciation by \$100. That difference represents the excess of financial statement depreciation expense of \$2,000 – Table 5, column (3) – over tax depreciation deductions of \$1,900 – Table 9, column (3) – in year one.

³⁶ See discussion of Table 7, above, for calculation of taxable income and current (cash) tax expense figures in Table 10.

The tax basis of the capital asset is reduced by \$500 under the investment tax credit rules. Thus, the financial statement basis of the asset exceeds the tax basis of the asset by \$400 at the end of year one – the number in column (4). To reflect the future financial statement depreciation expense in excess of tax deductions, a \$140 deferred tax expense (35 percent of the basis difference) is accrued in year one – the number in column (5). When netted against the cash tax benefit of \$115 – the number in column (6), total tax expense for year one is only \$25 – the number in column (7), or 2.5 percent of year one financial statement income – the number in column (8). The average tax rate is reduced because the tax expense has been permanently reduced by the investment tax credit.

Over the life of the asset, as the temporary difference from year one reverses and the company experiences no further permanent differences, the average tax rate returns to 35 percent of financial statement income each year. However, on a cumulative basis, because the total tax expense has been reduced, the average tax rate over the life of the asset, for financial statement purposes, is reduced as well.

**Table 10.—Example Using Straight-Line Depreciation for Book;
Five-Percent Investment Tax Credit for Tax**

	(1) Book Income	(2) Taxable Income	(3) ITC Basis Adjustment	(4) Book Tax Difference (2)-(1)+(3)	(5) Deferred Tax Expense (3) x .35	(6) Current (Cash) Tax Expense [(2) x .35] +(3)	(7) Total Tax Expense	(8) Book Reported Average Tax Rate
Year 1	\$1,000	\$1,100	-\$500	-\$400	\$140	-\$115	\$25	2.5%
Year 2	1,000	1,100	0	100	-35	385	350	35.0%
Year 3	1,000	1,100	0	100	-35	385	350	35.0%
Year 4	1,000	1,100	0	100	-35	385	350	35.0%
Year 5	1,000	1,100	0	100	-35	385	350	35.0%
Totals	\$5,000	\$5,500	-\$500	\$0	\$0	\$1,425	\$1,425	28.5%

Summary of economic and accounting consequences of cost recovery alternatives

As demonstrated above, straight-line depreciation, accelerated depreciation, and expensing differ between financial accounting and tax only in the timing of deductions. By altering the timing of deductions (and therefore the timing of payment of tax), these alternatives do not change the total amount of tax paid over the life of the asset or the tax expense reported in a taxpayer's financial statements, but they do have important economic effects by impacting the net present value of future cash flows from the investment. Given the facts as outlined in the examples above, use of the straight-line method produces a present value of after-tax cash flow of \$11,162 as shown Table 3, column (8). This can be compared with the present value of after-tax cash flow of \$11,287 as shown on Table 4, column (8) under the accelerated depreciation method, and with \$11,516 as shown on Table 5, Column (8) under an expensing method.

An investment tax credit system, depending on its parameters, can be designed to produce either a higher or lower net present value of future cash flows than the timing methods described above, and therefore may be more or less desirable to taxpayers than those methods.³⁷ The example of a five-percent investment tax credit illustrated in Table 7 produced a present value of future cash flows of \$11,487 as shown in column (8), a higher return from the investment than depreciation under the straight-line or accelerated depreciation methods, but a lower return from the investment than under the expensing method. However, while the impact on net present value of future cash flows can be higher or lower, depending on the specific parameters, the investment tax credit results in less total tax paid over the life of an asset, and a permanently lower tax expense reported in a taxpayer's financial statements as compared to the depreciation or expensing methods.

2. Depreciation

Legislative background

In general

To account for the wear and tear, deterioration, or obsolescence of its property, a taxpayer is allowed to recover through annual depreciation deductions the cost of certain property used in a trade or business or for the production of income. As described in 1985, the depreciation system in place prior to 1981 provided that...

“[c]lass lives are generally based on guideline lives established for the Asset Depreciation Range (“ADR”) system of depreciation that was adopted in 1971. Under the ADR system, a present class life was provided for all assets used in the same activities, other than certain assets with common characteristics (*e.g.*, automobiles). Assets were grouped into more than 100 classes and a guideline life was determined by the former Office of Industrial Economics in the Treasury Department. The guideline lives established under the ADR system were about 30 to 40-percent shorter

³⁷ Important parameters impacting the comparison include, in particular, the credit percentage and which cost recovery method is used to recover remaining basis after the credit.

than the service lives found in Bulletin F, a publication concerning useful lives issued in 1942 by the Internal Revenue Service.”³⁸

In 1981, the prior-law ADR and useful life systems were replaced by a new system, the accelerated cost recovery system (“ACRS”),³⁹ which permitted “recovery of capital costs for most tangible depreciable property using accelerated methods of cost recovery over predetermined recovery periods generally unrelated to, but shorter than, [prior] law useful lives.”⁴⁰ The Senate Finance Committee Report with respect to the provision explained the rationale for the change: “[t]he committee believes that the present rules for determining depreciation allowances . . . need to be replaced because they do not provide the investment stimulus that is essential for economic expansion. The real value of depreciation deductions allowed under present rules has declined for several years due to successively higher rates of inflation. . . . The committee therefore believes that a new capital cost recovery system is required which provides for the more rapid acceleration of cost recovery deductions”⁴¹

These rules were tightened somewhat in 1982,⁴² and modified more substantially in 1986,⁴³ when the modified accelerated cost recovery system (“MACRS”) was adopted. The 1986 legislation enacting MACRS further accelerated the rate of recovery of depreciation deductions from the 150-percent declining balance method to the 200-percent declining balance method for those tangible assets with the shortest class lives.⁴⁴ In addition, under the 1986 legislation, certain assets were reclassified and the number of asset classes was increased. The 1986 legislation also extended the recovery period for residential rental property to 27.5 years and to 31.5 years for nonresidential real property, and provided that their cost would be

³⁸ Joint Committee on Taxation, *Tax Reform Proposals: Taxation of Capital Income* (JCS-35-85), August 8, 1985, p. 48.

³⁹ The Economic Recovery Tax Act of 1981, Pub. L. No. 97-34, sec. 202 (1981).

⁴⁰ S. Rep. No. 97-144, p. 48 (1981).

⁴¹ *Ibid.*, p. 47.

⁴² The Tax Equity and Fiscal Responsibility Act of 1982, Pub. L. No. 97-248, sec. 206 (1982).

⁴³ The Tax Reform Act of 1986, Pub. L. No. 99-514, sec. 201 (1986).

⁴⁴ Under the declining balance method the depreciation rate is determined by dividing the appropriate percentage (here 150 or 200) by the appropriate recovery period. This leads to accelerated depreciation when the declining balance percentage is greater than 100. The table below illustrates depreciation for an asset with a cost of \$1,000 and a seven-year recovery period under the 200-percent declining balance method, the 150-percent declining balance method, and the straight-line method.

Recovery method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
200-percent declining balance	285.71	204.08	145.77	104.12	86.77	86.77	86.77	1,000.00
150-percent declining balance	214.29	168.37	132.29	121.26	121.26	121.26	121.26	1,000.00
Straight-line	142.86	142.86	142.86	142.86	142.86	142.86	142.86	1,000.00

recovered using the straight-line method. The recovery period for nonresidential real property was extended to 39 years in 1993.⁴⁵

Recovery periods

The applicable recovery period for an asset is determined in part by statute and in part by historic Treasury guidance. The “type of property” of an asset is used to determine the “class life” of the asset, which in turn dictates the applicable recovery period for the asset.

When the MACRS system was enacted in 1986, Congress explicitly categorized certain assets by type of property.⁴⁶ Further, Congress directed the Secretary of the Treasury to establish an office to monitor and analyze actual experience with respect to depreciable assets and authorized the Secretary to prescribe or modify class lives for depreciable assets, provided that the new class life reasonably reflected the anticipated useful life and the anticipated decline in value over time of the property to the industry or other group.

Exercising the authority granted by Congress, the Secretary issued Revenue Procedure 87-56,⁴⁷ laying out the framework of recovery periods for enumerated classes of assets. The Secretary clarified and modified the list of asset classes in Revenue Procedure 88-22.⁴⁸

In November 1988, Congress revoked the Secretary’s authority to modify the class lives of depreciable property as part of the Technical and Miscellaneous Revenue Act of 1988.⁴⁹ Revenue Procedure 87-56, as modified, remains in effect except to the extent that the Congress has, since 1988, statutorily modified the recovery period for certain depreciable assets, effectively superseding any administrative guidance with regard to such property.

Prior and present law

In general

For Federal income tax purposes, a taxpayer is allowed to recover through annual depreciation deductions the cost of certain property used in a trade or business or for the production of income. The amount of the depreciation deduction allowed with respect to tangible property for a taxable year is determined under MACRS whereby different types of property generally are assigned applicable recovery periods and depreciation methods.

⁴⁵ The Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, sec. 13151(a) (1993).

⁴⁶ See Table 11, below, which summarizes the various types of property and applicable recovery periods under MACRS.

⁴⁷ 1987-2 C.B. 674.

⁴⁸ 1988-1 C.B. 785.

⁴⁹ Pub. L. No. 100-647, sec. 6253 (1988).

The MACRS recovery periods applicable to most tangible personal property range from three to 20 years.⁵⁰ The depreciation methods generally applicable to tangible personal property are the 200-percent and 150-percent declining balance methods,⁵¹ switching to the straight-line method for the first taxable year where using the straight-line method with respect to the adjusted basis as of the beginning of that year will yield a larger depreciation allowance. The recovery periods for most real property are 39 years for nonresidential real property and 27.5 years for residential rental property. Table 9 provides general rules for class lives and recovery periods as provided in section 168(e).

Table 11.—General Rules for Class Lives and Recovery Periods

Type of Property	General Rule-Class Life	Applicable Recovery Period
3-year property	4 years or less	3 years
5-year property	More than 4 but less than 10 years	5 years
7-year property	10 or more but less than 16 years; also, property (other than real property) without a class life	7 years
10-year property	16 or more but less than 20 years	10 years
15-year property	20 or more but less than 25 years	15 years
20-year property	25 or more years	20 years
Water utility property	50 years	25 years
Residential rental property	40 years	27.5 years
Nonresidential real property	40 years	39 years
Any railroad grading or tunnel bore	50 years	50 years

Placed-in-service conventions

Depreciation of an asset begins when the asset is deemed to be placed in service under the applicable convention. Under MACRS, nonresidential real property, residential rental

⁵⁰ For certain tangible assets, the recovery period is controlled by statute (see, *e.g.*, section I.B.6. which includes a table of statutorily defined recovery periods for specific types of property). For all other tangible assets, the recovery period is generally determined by administrative guidance (see, *e.g.*, Rev. Proc. 87-56, 1987-2 CB 674, and Appendix B of IRS Publication 946).

⁵¹ Declining balance methods accelerate a portion of the total allowable deductions into the earlier years of the recovery period. For example, under the 200-percent declining balance method, the deduction in the first year is twice what it would be under the straight-line method, but the annual allowance amount declines over the recovery period. The allowable amount is thus smaller in the later years than the allowable amounts for those years would have been under the straight-line method.

property, and any railroad grading or tunnel bore generally are subject to the mid-month convention, which treats all property placed in service during any month (or disposed of during any month) as placed in service (or disposed of) on the mid-point of such month. All other property generally is subject to the half-year convention, which treats all property placed in service during any taxable year (or disposed of during any taxable year) as placed in service (or disposed of) on the mid-point of such taxable year. However, if substantial property is placed in service during the last three months of a taxable year, a special rule requires use of the mid-quarter convention,⁵² designed to prevent the recognition of disproportionately large amounts of first-year depreciation under the half-year convention.

Depreciation under the alternative minimum tax regime

In determining the amount of alternative minimum taxable income for any taxable year, taxpayers generally are required to calculate depreciation for certain assets under modified rules. Specifically, assets to which the 200-percent declining balance method is applicable under MACRS are depreciated using the 150-percent declining balance method for purposes of computing alternative minimum taxable income.⁵³

In addition, for property placed in service after December 31, 1986 and on or before December 31, 1998, depreciation for alternative minimum tax purposes is calculated using the longer recovery periods of the alternative depreciation system described below.⁵⁴

Alternative depreciation system

The alternative depreciation system (“ADS”) is required to be used for property used predominantly outside the United States, tax-exempt bond financed property, and certain tax-exempt use property.⁵⁵ An election to use ADS is available to taxpayers for any class of property for any taxable year.⁵⁶ Under ADS, all property is depreciated using the straight-line method, over recovery periods which are generally longer than those used under MACRS. Bonus depreciation, discussed below, is not available for property required to be depreciated using ADS.⁵⁷

⁵² The mid-quarter convention treats all property placed in service (or disposed of) during any quarter as placed in service (or disposed of) on the mid-point of such quarter.

⁵³ Sec. 56(a)(1)(A)(ii). Thus, for property placed in service after December 31, 1998, an AMT adjustment for property depreciated under MACRS generally applies only to MACRS three-, five-, seven-, and 10-year property depreciated using the 200-percent declining-balance method.

⁵⁴ Sec. 56(a)(1)(A)(i).

⁵⁵ Sec. 168(g).

⁵⁶ Sec. 168(g)(7).

⁵⁷ Sec. 168(k)(2)(D)(i).

3. Additional first-year depreciation deduction (“bonus depreciation”)

Legislative background

For the past decade, Congress has provided additional first-year depreciation deductions for assets placed in service in certain years. The legislative history for the Jobs and Growth Tax Relief Reconciliation Act of 2003 (“JGTRRA”) sets forth the rationale for extending and increasing the benefit as follows:

“The Committee believes that increasing and extending the additional first-year depreciation will accelerate purchases of equipment, promote capital investment, modernization, and growth, and will help to spur an economic recovery. As businesses accelerate their purchases of equipment current employment will increase to produce that equipment. Current business expansion also will increase employment opportunities in the years ahead.”⁵⁸

The first instance of bonus depreciation came in the Job Creation and Worker Assistance Act of 2002,⁵⁹ which provided an additional first-year depreciation deduction equal to 30 percent of the adjusted basis of qualified property.⁶⁰ The additional first-year depreciation deduction was allowed for both regular tax and alternative minimum tax purposes for the taxable year in which the property was placed in service. The basis of the property and the depreciation allowances in the placed-in-service year and later years were appropriately adjusted to reflect the additional first-year depreciation deduction. In addition, there were no adjustments to the allowable amount of depreciation for purposes of computing a taxpayer’s alternative minimum taxable income with respect to property to which the provision applies.

The bonus depreciation significantly accelerates allowable deductions. For example, a taxpayer who placed in service machinery (a seven-year asset, and assuming the half-year convention) would have deducted 40 percent (30 percent + (70 percent x 14.29 percent)) of the asset’s basis during the first year. Without bonus depreciation, the same taxpayer would have deducted 14.29 percent of the asset’s basis during the first year.

For property to qualify for the additional first-year depreciation deduction, it must have met all of the following requirements. First, the property must have been: (1) property to which the general rules of MACRS applied with an applicable recovery period of 20 years or less, (2) water utility property (as defined in section 168(e)(5)), (3) computer software other than computer software covered by section 197,⁶¹ or (4) qualified leasehold improvement property (as

⁵⁸ H.R. Rep. No. 108-94, page 23.

⁵⁹ Pub. L. No. 107-147, sec. 101 (2002).

⁶⁰ A taxpayer was permitted to elect out of the 30-percent additional first-year depreciation deduction for any class of property for any taxable year.

⁶¹ For a discussion of section 197, see Joint Committee on Taxation, *Background and Present Law Relating to Cost Recovery and Domestic Production Activities*, (JCX-19-12), February 27, 2012.

defined in section 168(k)(3)). Second, the original use of the property must have commenced with the taxpayer on or after September 11, 2001. Third, the taxpayer must have acquired the property within the applicable time period. Finally, the property must have been placed in service before January 1, 2005. An extension of the placed-in-service date of one year (to January 1, 2006) was provided for certain property with a recovery period of ten years or longer and certain transportation property.⁶²

The applicable time period for acquired property was: (1) after September 10, 2001, and before September 11, 2004, and no binding written contract for the acquisition was in effect before September 11, 2001, or (2) pursuant to a binding written contract which was entered into after September 10, 2001, and before September 11, 2004.⁶³

The second instance of bonus depreciation came in JGTRRA,⁶⁴ which provided an additional first-year depreciation deduction equal to 50 percent of the adjusted basis of qualified property.⁶⁵ Qualified property was defined in the same manner as for purposes of the 30-percent additional first-year depreciation deduction, except that the applicable time period for acquisition or self construction of the property and the placed-in-service date requirement were modified. Property for which the 50-percent additional first-year depreciation deduction was claimed was not eligible for the 30-percent additional first-year depreciation deduction.

To qualify for the 50-percent additional first-year depreciation deduction, the property must have been acquired after May 5, 2003 (the date of enactment of JGTRRA), and before January 1, 2005, and no binding written contract for the acquisition was in effect before May 6, 2003. With respect to property that was manufactured, constructed, or produced by the taxpayer for use by the taxpayer, the taxpayer must have begun the manufacture, construction, or production of the property after May 5, 2003.

This provision also extended the 50-percent additional first-year depreciation deduction to certain property with a recovery period of 10 years or longer and certain transportation property placed in service prior to January 1, 2006 (instead of January 1, 2005).⁶⁶

⁶² In order for the property to qualify for the extended placed in service date, the property was required to have a production period exceeding two years or an estimated production period exceeding one year and a cost exceeding \$1 million.

⁶³ For self-constructed property, the taxpayer must have begun the manufacture, construction, or production of the property after September 10, 2001, and before September 11, 2004.

⁶⁴ Pub. L. No. 108-27, sec. 201 (2003).

⁶⁵ A taxpayer was permitted to elect out of the 50-percent additional first-year depreciation deduction for any class of property for any taxable year.

⁶⁶ A special rule limits the amount of costs eligible for the additional first-year depreciation. With respect to such property, only progress expenditures properly attributable to the costs incurred before January 1, 2005 shall be eligible for the additional first-year depreciation deduction. Further, the Gulf Opportunity Zone Act of 2005, Pub. L. No. 109-35, sec. 105 (2005), provided an extension to January 1, 2007 for taxpayers unable to meet the January 1, 2006 deadline because of Hurricane Katrina, Rita, or Wilma.

The American Jobs Creation Act of 2004 (“AJCA”)⁶⁷ expanded the definition of eligible property to include certain leasehold improvements and qualified restaurant property. The AJCA also made the long production period extended placed-in-service dates available for certain noncommercial aircraft.⁶⁸

The Economic Stimulus Act of 2008⁶⁹ reinstated 50-percent bonus depreciation for property acquired after December 31, 2007, and before January 1, 2009, so long as no binding written contract for the acquisition was in effect before January 1, 2008.⁷⁰ With respect to property that was manufactured, constructed, or produced by the taxpayer for use by the taxpayer, the taxpayer must have begun the manufacture, construction, or production of the property after December 31, 2007. Similar to earlier provisions, an extension of the placed-in-service date of one year (*i.e.*, January 1, 2010) was provided for certain property with a recovery period of 10 years or longer and certain transportation property. However, only costs incurred before January 1, 2009 were eligible for the additional first-year depreciation.

The American Recovery and Reinvestment Act of 2009⁷¹ extended the additional first-year depreciation deduction for one year, generally through 2009 (through 2010 for certain longer-lived and transportation property). The Small Business Jobs Act of 2010⁷² extended the additional first-year depreciation deduction for another year, generally for assets placed in service through 2010 (through 2011 for certain long-lived property and transportation property).

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (“2010 Tax Relief Act”)⁷³ extended and expanded the additional first-year depreciation deduction. The additional first-year depreciation deduction is equal to 100 percent of the adjusted basis of qualified property placed in service after September 8, 2010 (the date the 2010 Tax Relief Act was introduced), and before January 1, 2012 (before January 1, 2013, for certain longer-lived and transportation property) if it meets the requirements for the additional first-year depreciation and also meets the following requirements. First, the taxpayer must acquire the property after September 8, 2010 and before January 1, 2012.⁷⁴ Second, the taxpayer must place

⁶⁷ Pub. L. No. 108-357, sec. 211 (2004).

⁶⁸ Pub. L. No. 108-357, sec. 336 (2004).

⁶⁹ Pub. L. No. 110-185, sec. 103 (2008).

⁷⁰ A taxpayer was permitted to elect out of the 50-percent additional first-year depreciation deduction for any class of property for any taxable year.

⁷¹ Pub. L. No. 111-5, sec. 1201 (2009).

⁷² Pub. L. No. 111-240, sec. 2022 (2010). Further, for qualifying property (property otherwise eligible for bonus depreciation that had a MACRS recovery period of 7 years or less) placed in service in 2010, the taxpayer was not required to allocate the additional first-year depreciation deduction to related section 460 contracts.

⁷³ Pub. L. No. 111-312, sec. 401 (2010).

⁷⁴ For a definition of “acquire” for this purpose, see section 3.02(1)(a) of Rev. Proc. 2011-26, 2011-16 I.R.B. 664.

the property in service after September 8, 2010 and before January 1, 2012 (before January 1, 2013 in the case of certain longer-lived and transportation property). Third, the original use of the property must commence with the taxpayer after September 8, 2010. An additional 50-percent first-year depreciation deduction⁷⁵ is allowed for qualified property placed in service after December 31, 2011, and before January 1, 2013, (after December 31, 2012, and before January 1, 2014, for certain longer-lived and transportation property). The additional first-year depreciation deduction is allowed for both regular tax and alternative minimum tax purposes, but is not allowed for purposes of computing earnings and profits.⁷⁶

Present law

An additional first-year depreciation deduction is allowed equal to 50 percent of the adjusted basis of qualified property placed in service between January 1, 2008 and September 8, 2010 or between January 1, 2012 and January 1, 2013 (January 1, 2014 for certain longer-lived and transportation property).⁷⁷ As described above, an additional first-year depreciation deduction is allowed equal to 100 percent of the adjusted basis of qualified property placed in service after September 8, 2010 and before January 1, 2012 (before January 1, 2013, in the case of certain longer lived and transportation property).

Property qualifying for the additional first-year depreciation deduction must meet all of the following requirements. First, the property must be (1) property to which MACRS applies with an applicable recovery period of 20 years or less; (2) water utility property (as defined in section 168(e)(5)); (3) computer software other than computer software covered by section 197; or (4) qualified leasehold improvement property (as defined in section 168(k)(3)).⁷⁸ Second, the original use⁷⁹ of the property must commence with the taxpayer after December 31, 2007.⁸⁰

⁷⁵ An additional first-year depreciation deduction is also allowed equal to 50-percent of the adjusted basis of qualified property placed in service during 2008, 2009, and 2010 (2009, 2010, and 2011 for certain longer-lived and transportation property).

⁷⁶ Sec. 168(k). The additional first-year depreciation deduction is subject to the general rules regarding whether an item must be capitalized under section 263 or section 263A.

⁷⁷ Sec. 168(k). The additional first-year depreciation deduction is subject to the general rules regarding whether an item must be capitalized under section 263 or section 263A.

⁷⁸ The additional first-year depreciation deduction is not available for any property that is required to be depreciated under the alternative depreciation system of MACRS. The additional first-year depreciation deduction is also not available for qualified New York Liberty Zone leasehold improvement property as defined in section 1400L(c)(2).

⁷⁹ The term “original use” means the first use to which the property is put, whether or not such use corresponds to the use of such property by the taxpayer. If in the normal course of its business a taxpayer sells fractional interests in property to unrelated third parties, then the original use of such property begins with the first user of each fractional interest (*i.e.*, each fractional owner is considered the original user of its proportionate share of the property).

⁸⁰ A special rule applies in the case of certain leased property. In the case of any property that is originally placed in service by a person and that is sold to the taxpayer and leased back to such person by the taxpayer within three months after the date that the property was placed in service, the property would be treated as originally placed

Third, the taxpayer must acquire the property within the applicable time period (as described below). Finally, the property must be placed in service before January 1, 2013. An extension of the placed-in-service date of one year (*i.e.*, January 1, 2014) is provided for certain property with a recovery period of 10 years or longer and certain transportation property.⁸¹ Transportation property generally is defined as tangible personal property used in the trade or business of transporting persons or property.⁸²

To qualify for the additional first-year depreciation deduction, property generally must be acquired (1) after December 31, 2007, and before January 1, 2013 (before January 1, 2014 in the case of certain longer-lived and transportation property), but only if no binding written contract for the acquisition is in effect before January 1, 2008, or (2) pursuant to a binding written contract which was entered into after December 31, 2007, and before January 1, 2013.⁸³ With respect to property that is manufactured, constructed, or produced by the taxpayer for use by the taxpayer, the taxpayer must begin the manufacture, construction, or production of the property after December 31, 2007, and before January 1, 2013. Property that is manufactured, constructed, or produced for the taxpayer by another person under a contract that is entered into prior to the manufacture, construction, or production of the property is considered to be manufactured, constructed, or produced by the taxpayer. For property eligible for the extended placed-in-service date, a special rule limits the amount of costs eligible for the additional first-year depreciation. With respect to such property, only the portion of the basis that is properly attributable to the costs incurred before January 1, 2013 (“progress expenditures”) is eligible for the additional first-year depreciation deduction.⁸⁴

Property does not qualify for the additional first-year depreciation deduction when the user of such property (or a related party) would not have been eligible for the additional first-year depreciation deduction if the user (or a related party) were treated as the owner. For example, if a taxpayer sells to a related party property that was under construction prior to January 1, 2008, the property does not qualify for the additional first-year depreciation deduction. Similarly, if a taxpayer sells to a related party property that was subject to a binding

in service by the taxpayer not earlier than the date that the property is used under the leaseback. If property is originally placed in service by a lessor, such property is sold within three months after the date that the property was placed in service, and the user of such property does not change, then the property is treated as originally placed in service by the taxpayer not earlier than the date of such sale.

⁸¹ Property qualifying for the extended placed-in-service date must have an estimated production period exceeding one year and a cost exceeding \$1 million.

⁸² Certain aircraft which is not transportation property, other than for agricultural or firefighting uses, also qualifies for the extended placed in service date, if at the time of the contract for purchase, the purchaser made a nonrefundable deposit of the lesser of 10 percent of the cost or \$100,000, and which has an estimated production period exceeding four months and a cost exceeding \$200,000.

⁸³ Property does not fail to qualify for the additional first-year depreciation merely because a binding written contract to acquire a component of the property is in effect prior to January 1, 2008.

⁸⁴ For purposes of determining the amount of eligible progress expenditures, it is intended that rules similar to section 46(d)(3) as in effect prior to the Tax Reform Act of 1986 apply.

written contract prior to January 1, 2008, the property does not qualify for the additional first-year depreciation deduction. As a further example, if a taxpayer (the lessee) sells property in a sale-leaseback arrangement, and the property otherwise would not have qualified for the additional first-year depreciation deduction if it were owned by the taxpayer-lessee, then the lessor is not entitled to the additional first-year depreciation deduction.

In the case of the additional first-year depreciation deduction, the basis of the property is appropriately adjusted to reflect the additional first-year depreciation deduction. Nevertheless, there are no adjustments to the allowable amount of depreciation for purposes of computing a taxpayer's alternative minimum taxable income with respect to property to which the provision applies. The amount of the additional first-year depreciation deduction is not affected by a short taxable year. The taxpayer may elect out of additional first-year depreciation for any class of property for any taxable year.

The limitation under section 280F on the amount of depreciation deductions allowed with respect to certain passenger automobiles is increased in the first year by \$8,000 for automobiles that qualify (and for which the taxpayer does not elect out of the additional first-year deduction). The \$8,000 increase is not indexed for inflation.

Additional bonus depreciation provisions

New York Liberty Zone property

To promote revitalization and redevelopment in certain areas of New York City affected by the terrorist attacks on September 11, 2001, the Job Creation and Worker Assistance Act of 2002⁸⁵ provided an additional first-year depreciation deduction equal to 30 percent of the adjusted basis of qualified property.⁸⁶ "Qualified New York Liberty Zone property" is property placed in service before January 1, 2007 (January 1, 2010 for property discussed below) in the New York Liberty Zone area that was not otherwise eligible for the general bonus depreciation provisions of section 168(k). Unlike the bonus depreciation provisions discussed above, the definition of New York Liberty Zone property also included residential rental or nonresidential real property that replaced certain destroyed or condemned real property and that was placed in service before January 1, 2010.

Gulf Opportunity Zone property

Similar to the bonus depreciation available for qualified New York Liberty Zone property, the Gulf Opportunity Zone Act of 2005⁸⁷ provided an additional first-year depreciation

⁸⁵ Pub. L. No. 107-147, sec. 301 (2002).

⁸⁶ See section 1400L(b). A taxpayer was permitted to elect out of the 30-percent additional first-year depreciation deduction for any class of property for any taxable year.

⁸⁷ Pub. L. No. 109-135, sec. 101 (2005).

deduction equal to 50 percent of the adjusted basis of qualified property.⁸⁸ Qualified Gulf Opportunity Zone property is property placed in service after August 28, 2005 (the date Hurricane Katrina hit New Orleans, Louisiana) and before January 1, 2008 in the Gulf Opportunity (“GO”) Zone area that was not otherwise eligible for the general bonus depreciation provisions of section 168(k). The placed-in-service deadline was extended for specified “Gulf Opportunity Zone extension property” which is real property located in a county or parish within the GO Zone where more than 60-percent of the housing units were destroyed by hurricanes in 2005.⁸⁹ The placed-in-service deadline for Gulf Opportunity Zone extension property was extended several times, most recently to December 31, 2011, for nonresidential real property and residential rental property.⁹⁰

Election to accelerate alternative minimum tax and research credits in lieu of bonus depreciation

The bonus depreciation provisions available in 2008 did not always provide the intended benefit to companies in net operating loss positions.⁹¹ Under the Housing and Economic Recovery Act of 2008,⁹² Congress allowed corporations to claim additional research and minimum tax credits in lieu of claiming bonus depreciation for “eligible qualified property” placed in service after March 31, 2008.⁹³ A corporation making the election would increase the limitation under section 38(c) on the use of research credits or section 53(c) on the use of minimum tax credits in lieu of taking bonus depreciation deductions. The increases in the allowable credits under this provision are treated as refundable. The depreciation for eligible qualified property was calculated for both regular tax and alternative minimum tax purposes using the straight-line method.

⁸⁸ See section 1400N(d). A taxpayer was permitted to elect out of the 50-percent additional first-year depreciation deduction for any class of property for any taxable year.

⁸⁹ Sec. 1400N(d)(6). Pub. L. No. 109-432, sec. 120(a) (2006).

⁹⁰ The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, sec. 765(a)(1)-(2) (2010).

⁹¹ For example, companies in significant net operating loss (“NOL”) positions did not receive any current cash tax savings under the provision if they did not have a tax liability in the current year or an ability to carryback the additional loss generated through bonus depreciation. These companies often chose to forego bonus depreciation to avoid increasing NOL carryforwards. NOLs are only allowed to be carried forward 20 years, so by deferring the depreciation deductions otherwise eligible under the bonus regime, taxpayers effectively extended the 20 year window.

⁹² Pub. L. No. 110-289, sec. 3081 (2008).

⁹³ The date restriction included in the definition of eligible qualified property was extended as part of the American Recovery and Reinvestment Act of 2009. Pub. L. No. 111-5, sec. 1201 (2009).

The research or minimum tax credit limitation was increased by the bonus depreciation amount, which was equal to 20 percent of bonus depreciation⁹⁴ for certain eligible qualified property that could be claimed as a deduction absent an election under this provision. Generally, eligible qualified property included in the calculation was bonus depreciation property that met the following requirements: (1) the original use of the property must commence with the taxpayer after March 31, 2008; (2) the taxpayer must acquire the property either (a) after March 31, 2008, and before January 1, 2010, but only if no binding written contract for the acquisition was in effect before April 1, 2008,⁹⁵ or (b) pursuant to a binding written contract that was entered into after March 31, 2008, and before January 1, 2010;⁹⁶ and (3) the property must be placed in service after March 31, 2008, and before January 1, 2010 (January 1, 2011, for certain longer-lived and transportation property).

The bonus depreciation amount was limited to the lesser of (1) \$30 million or (2) six-percent of the research credit allocable to business credit carryovers from, and minimum tax credits allocable to the adjusted minimum tax imposed for, taxable years beginning before January 1, 2006. All corporations treated as a single employer under section 52(a) are treated as one taxpayer for purposes of the limitation, as well as for electing the application of this provision.

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010⁹⁷ extended and expanded the definition of eligible qualified property and generally permitted a corporation to increase the minimum tax credit limitation by the bonus depreciation amount with respect to eligible property placed in service after December 31, 2010 (December 31, 2011, in the case of certain longer-lived and transportation property), and before January 1, 2013 (January 1, 2014, in the case of certain longer-lived and transportation property). The provision applies with respect to “round 2 extension property,” which is defined as property that is eligible qualified property solely because it meets the requirements under the extension of the additional first-year depreciation deduction for certain property placed in service after December 31, 2010.⁹⁸ Generally, round 2 extension property included in the calculation is bonus depreciation property that met the following requirements: (1) the original use of the property

⁹⁴ For this purpose, bonus depreciation is the difference between (i) the aggregate amount of depreciation for all eligible qualified property determined if section 168(k)(1) applied using the most accelerated depreciation method (determined without regard to this provision), and the shortest life allowable for each property, and (ii) the amount of depreciation that would be determined if section 168(k)(1) did not apply using the same method and life for each property.

⁹⁵ In the case of passenger aircraft, the written binding contract limitation does not apply.

⁹⁶ Special rules apply to property manufactured, constructed, or produced by the taxpayer for use by the taxpayer.

⁹⁷ Pub. L. No. 111-312, sec. 401 (2010).

⁹⁸ An election under new section 168(k)(4)(I) with respect to round 2 extension property is binding for any property that is eligible qualified property solely by reason of the amendments made by section 401(a) of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, even if such property is placed in service in 2012.

must commence with the taxpayer after December 31, 2010; (2) the taxpayer must purchase the property either (a) after December 31, 2010, and before January 1, 2013, but only if no binding written contract for the acquisition was in effect before January 1, 2011, or (b) pursuant to a binding written contract that was entered into after December 31, 2010 (December 31, 2011, in the case of certain longer-lived and transportation property), and before January 1, 2013; and (3) the property must be placed in service after December 31, 2010, and before January 1, 2013 (January 1, 2014, for certain longer-lived and transportation property). A corporation making the election forgoes the depreciation deductions allowable under section 168(k) and instead increases the limitation under section 53(c) on the use of minimum tax credits.⁹⁹

4. Expensing provisions

Legislative background

A taxpayer with a sufficiently small amount of annual investment costs may elect to deduct at least a portion of those costs currently. Such rules were originally enacted in 1958 as section 179.¹⁰⁰ The 1958 legislation provided that a taxpayer could elect to deduct, as additional first-year depreciation, 20 percent of the cost of certain depreciable property. The cost of property eligible for this treatment was limited to \$10,000, and consequently, the deduction was limited to \$2,000 for the taxable year. Section 179 property was defined as depreciable property with a useful life of six years or more that was acquired by purchase after 1957 for use in a trade or business or for holding for the production of income.

In 1981, when the ACRS depreciation rules were adopted (generally providing accelerated methods and shorter recovery periods for depreciation), the section 179 rules were also revised to provide expensing of a greater amount.¹⁰¹ The 1981 legislation provided that, for taxable years beginning in 1982 and 1983, a taxpayer could elect to deduct up to \$5,000 of the cost of qualifying property placed in service in the taxable year. The dollar limitation was increased to \$7,500 for taxable years beginning in 1984 and 1985, and increased to \$10,000 for

⁹⁹ A taxpayer that made an election to increase the research credit or minimum tax credit limitation for eligible qualified property for its first taxable years ending after March 31, 2008, or for extension property, may choose not to make the election to increase the minimum tax credit for round 2 extension property. Further, the provision allows a taxpayer that did not make an election for eligible qualified property for its first taxable year ending after March 31, 2008, or for extension property, to make the election for round 2 extension property for its first taxable year ending after December 31, 2010, and for each subsequent year. In the case of a taxpayer electing to increase the research or minimum tax credit for eligible qualified property and/or extension property and the minimum tax credit for round 2 extension property, a separate bonus depreciation amount, maximum amount, and maximum increase amount is computed and applied to each group. In computing the maximum amount, the maximum increase amount for extension property or for round 2 extension property is reduced by bonus depreciation amounts for preceding taxable years only with respect to extension property or round 2 extension property, respectively.

¹⁰⁰ Small Business Tax Revision Act of 1958 [title II of H.R. 8381, the Technical Amendments Act of 1958], Pub. L. No. 85-866, sec. 204 (1958).

¹⁰¹ The Economic Recovery Tax Act of 1981, Pub. L. No. 97-34, sec. 202 (1981).

taxable years beginning in 1986 and thereafter.¹⁰² Qualifying property was defined as property acquired by purchase for use in a trade or business (not including property held merely for the production of income). The provision was subsequently modified to provide that the dollar limitation on the deductible amount is reduced (but not below zero) by the amount by which the cost of section 179 property placed in service during the taxable year exceeds a dollar threshold.¹⁰³

The dollar limitation was again increased in 1993 to \$17,500 for taxable years beginning after 1992.¹⁰⁴ In 1996, the expensing provisions were again amended to provide for the dollar limitation to increase over a period of several years, ultimately reaching \$25,000 for taxable years beginning in 2003 or thereafter.¹⁰⁵ For the years 2003 through 2006, the relevant dollar amount was increased to \$100,000.¹⁰⁶ In 2007, the dollar limitation was again increased to \$125,000.¹⁰⁷ For the 2008 and 2009 years, the relevant dollar amount was increased to \$250,000.¹⁰⁸ For 2010 and 2011, the relevant dollar limitation is \$500,000.¹⁰⁹ In 2012, the section 179 limitation is \$125,000 and, for 2013 and all subsequent years, the relevant dollar limitation returns to \$25,000.¹¹⁰ While the annual dollar limitation is often deemed the most

¹⁰² Subsequent legislation altered the years for which these amounts took effect. The \$10,000 amount was to become effective for taxable years beginning in 1990 and thereafter, under section 13 of the Tax Reform Act of 1984, Pub. L. No. 98-369 (1984), but was made effective for taxable years beginning after 1986, under section 202 of the Tax Reform Act of 1986, Pub. L. No. 99-514 (1986).

¹⁰³ See section 202 of the Tax Reform Act of 1986, Pub. L. No. 99-514 (1986).

¹⁰⁴ The Omnibus Budget and Reconciliation Act of 1993, Pub. L. No. 103-66, sec. 13116(a) (1993).

¹⁰⁵ The Small Business Job Protection Act of 1996, Pub. L. No. 104-188, sec. 1111(a) (1996).

¹⁰⁶ In 2003, the Jobs and Growth Tax Relief Reconciliation Act of 2003, Pub. L. No. 108-127, sec. 202(a) (2003), increased the relevant dollar amount to \$100,000, indexed annually for inflation, but only for tax years beginning after 2002 and before 2006; the American Jobs Creation Act of 2004, Pub. L. No. 108-357, sec. 201 (2004), extended these increased amounts through taxable years beginning before 2008; the Tax Increase Prevention and Reconciliation Act of 2005, Pub. L. No. 109-222, sec. 101 (2005), further extended these amounts through taxable years beginning before 2010.

¹⁰⁷ The Small Business and Work Opportunity Tax Act of 2007, Pub. L. No. 110-28, sec. 8212 (2007), increased the relevant amount to \$125,000 for taxable years beginning in 2007.

¹⁰⁸ The Economic Stimulus Act of 2008, Pub. L. No. 110-185, sec. 102(a) (2008), increased the relevant amount to \$250,000 for 2008 with the limitation returning to \$125,000 for 2009 and 2010. However, the American Recovery and Reinvestment Tax Act of 2009, Pub. L. No. 111-5, sec. 1202(a)(1) and (2) (2009), and the Hiring Incentives to Restore Employment Act, Pub. L. No. 111-147, sec. 201(a)(1)-(4) (2010), extended the increase to \$250,000 for the 2009 and 2010 years, respectively.

¹⁰⁹ The Creating Small Business Jobs Act of 2010, Pub. L. No. 111-240, sec. 2021(a)(1) and (2) (2010), increased the relevant limitation to \$500,000 for the 2010 and 2011, with the amount returning to \$25,000 starting in 2012.

¹¹⁰ The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, sec. 402 (2010).

significant rule under section 179, certain additional rules govern section 179 computations and eligibility and the coordination of section 179 with other rules.¹¹¹

Present law

Subject to certain limitations, a taxpayer that invests in certain qualifying property may elect under section 179 to deduct on a current basis (or “expense”) the cost of qualifying property, rather than to recover such costs through depreciation deductions.¹¹² For taxable years beginning in 2012, the maximum amount a taxpayer may expense is \$125,000 of the cost of qualifying property placed in service for the taxable year. The \$125,000 amount is reduced (but not below zero) by the amount by which the cost of qualifying property placed in service during the taxable year exceeds \$500,000.¹¹³ The \$125,000 and \$500,000 amounts are indexed for inflation.¹¹⁴ Off-the-shelf computer software placed in service in taxable years beginning before 2013 is treated as qualifying property.

For taxable years beginning in 2013 and thereafter, a taxpayer with a sufficiently small amount of annual investment may elect to deduct up to \$25,000 of the cost of qualifying property placed in service for the taxable year. The \$25,000 amount is reduced (but not below zero) by the amount by which the cost of qualifying property placed in service during the taxable year exceeds \$200,000. The \$25,000 and \$200,000 amounts are not indexed for inflation. In general, qualifying property is defined as depreciable tangible personal property that is purchased for use in the active conduct of a trade or business (not including off-the-shelf computer software).

The amount eligible to be expensed for a taxable year may not exceed the taxable income for a taxable year that is derived from the active conduct of a trade or business (determined without regard to this provision). Any amount that is not allowed as a deduction because of the taxable income limitation may be carried forward to succeeding taxable years (subject to similar

¹¹¹ The amount eligible to be expensed for a taxable year may not exceed the taxable income derived in that year from the active conduct of a trade or business (determined without regard to section 179). Any amount that is not allowed as a deduction because of the taxable income limitation may be carried forward to succeeding taxable years (subject to similar limitations). No general business credit under section 38 is allowed with respect to any amount for which a deduction is allowed under section 179. An expensing election is made under certain rules prescribed by the Secretary. Further, additional section 179 incentives are provided for qualified property used by a business in the New York Liberty Zone (sec. 1400L(f)), an empowerment zone (sec. 1397A), a renewal community (sec. 1400J), or the Gulf Opportunity Zone (sec. 1400N(e)). An expensing election was allowed for qualified real property in taxable years beginning in 2010 or 2011 (sec. 179(f)(4)).

¹¹² Additional section 179 incentives have been provided with respect to qualified property meeting applicable requirements that is used by a business in an empowerment zone (sec. 1397A), a renewal community (sec. 1400J), or the Gulf Opportunity Zone (sec. 1400N(e)). In addition, section 179(e) provides for an enhanced section 179 deduction for qualified disaster assistance property.

¹¹³ Sec. 179(b)(2).

¹¹⁴ Sec. 179(b)(6).

limitations).¹¹⁵ No general business credit under section 38 is allowed with respect to any amount for which a deduction is allowed under section 179. An expensing election is made under rules prescribed by the Secretary.¹¹⁶

5. Recapture rules

Upon disposition of most property used in a business on which depreciation or amortization deductions were taken, the treatment of the resulting gain or loss as ordinary or capital depends on whether there is a net gain or a net loss under section 1231. If the netting of gains and losses results in a net gain, then, subject to the depreciation recapture rules, long-term capital gain treatment results.¹¹⁷ If the netting of gains and losses results in a loss, the loss is fully deductible against ordinary income.¹¹⁸

The depreciation recapture rules require taxpayers to recognize ordinary income in an amount equal to all or a portion of the gain realized as a result of the disposition of property. The purpose of the rules is to limit a taxpayer's ability to reduce ordinary income via depreciation deductions and then receive capital gain treatment for the portion of any gain on the disposition of the depreciated property that resulted from the taking of depreciation deductions. There are two regimes that dictate depreciation recapture, sections 1245 and 1250.¹¹⁹

Depreciable personal property, whether tangible or intangible, and certain depreciable real property (typically real property that performs specific functions in a business, but not buildings or structural components of buildings) disposed at a gain are known as section 1245 property.¹²⁰ When a taxpayer disposes of section 1245 property, the taxpayer must recapture the gain on disposition of the property as ordinary income to the extent of earlier depreciation or

¹¹⁵ Special rules apply with respect to qualified leasehold improvement property, qualified restaurant property, and qualified retail improvement property. See sec. 179(f)(4).

¹¹⁶ Sec. 179(c)(1). Under Treas. Reg. sec. 1.179-5, which have not been amended to reflect changes made by Pub. L. Nos. 111-312, 111-240, 110-28, 109-222, and 108-357, a taxpayer is permitted to make or revoke an election under section 179 without the consent of the Commissioner on an amended Federal tax return for the taxable year applicable to property placed in service in taxable years beginning after 2002 and before 2008. This amended return must be filed within the time prescribed by law for filing an amended return for the taxable year. T.D. 9209, July 12, 2005.

¹¹⁷ Sec. 1231(a)(1).

¹¹⁸ Sec. 1231(a)(2).

¹¹⁹ Cost recovery deductions taken under ACRS (for property placed in service after 1980 and before 1987 (before August 31, 1986, if the taxpayer so elected)) are generally subject to recapture; however, properties are not necessarily classified as section 1245 or 1250 property in the same manner as similar properties placed in service before or after ACRS.

¹²⁰ Sec. 1245(a)(3).

amortization deductions taken with respect to the asset.¹²¹ Any remaining gain recognized upon the sale of section 1245 property is treated as section 1231 gain.

Depreciable real property, other than that included within the definition of section 1245 property, disposed at a gain is known as section 1250 property.¹²² Gain on the disposition of section 1250 property is treated as ordinary income, rather than capital gain, only to the extent of the excess of post-1969 depreciation allowances over the depreciation that would have been available under the straight-line method.¹²³ However, if section 1250 property is held for one year or less, all depreciation is recaptured, regardless of whether it exceeds the depreciation that would have been available under the straight-line method. Special rules phase out the recapture for certain types of property held over a specified period of time.¹²⁴

For corporations, the amount treated as ordinary income on the disposition of section 1250 property is increased by 20 percent of the additional amount that would be treated as ordinary income if the property were subject to recapture under the rules for section 1245 property.¹²⁵ For individuals, any capital gain that would be treated as ordinary income if the property were subject to recapture under the rules for section 1245 property is taxed at a maximum rate of 25 percent.

Recapture and anti-churning rules apply under other cost recovery provisions, including sections 179 and 197. For recapture purposes, an amortizable section 197 intangible is considered to constitute section 1245 property and is subject to its recapture rules.¹²⁶ Section 197 also provides anti-churning rules that apply to prevent pre-section 197 goodwill, going concern value, or intangibles that would not have been amortizable but for section 197 from being transferred among related parties and becoming eligible for the 15-year amortization.

Recapture rules also apply to certain business credits. For example, if property eligible for investment tax credits are disposed of, or otherwise ceases to be investment credit property (*e.g.*, casualty loss), before the close of the recapture period (five years), the tax for the year is increased by a recapture percentage.¹²⁷ Advance rehabilitation and certain energy credits and

¹²¹ Sec. 1245(a)(1).

¹²² Sec. 1250(c).

¹²³ Sec. 1250(a)(1).

¹²⁴ Sec. 1250(a)(1)(B). The special phaseout rule applies to residential rental property, certain types of subsidized housing, and property for which rapid depreciation of rehabilitation expenditures was claimed under section 167(k).

¹²⁵ Sec. 291(a)(1).

¹²⁶ See H.R. Rep. 103-213, August 4, 1993, p. 688. The conference report relating to the 1993 legislation enacting section 197 stated: "For purposes of chapter 1 of the Internal Revenue Code, an amortizable section 197 asset is to be treated as property of a character which is subject to the allowance for depreciation provided in section 167."

¹²⁷ Sec. 50(a).

credits related to certain energy property are also subject to recapture provisions. In addition, in determining the amount of gain that is recaptured as ordinary income under section 1245 or section 1250, the amount of an investment credit downward basis adjustment is also treated as a deduction allowed for depreciation.¹²⁸

6. Statutory recovery periods

While most recovery periods follow historic Treasury guidance, as noted above, the Congress has established statutory recovery periods in certain cases. Table 12 summarizes the recovery periods determined by statute (“statutory MACRS recovery”) as well as the recovery period that would otherwise apply (“standard MACRS recovery”). Parenthetical references following the standard recovery periods included in the table refer to the asset class for the property, if applicable, as set forth in Rev. Proc. 87-56.¹²⁹

Table 12.—Statutory Recovery Periods for Specified Assets¹³⁰

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Computer software (purchased) ¹³¹ (sec. 167(f)(1))	3 years	5 years ¹³²	Permanent
Mortgage servicing rights (sec. 167(f)(3))	9 years	Varies based on contract length ¹³³	Permanent

¹²⁸ Sec. 50(c)(4).

¹²⁹ 1987-2 C.B. 674.

¹³⁰ Table 12 includes statutory recovery periods for specified assets that are permanent, or those that expire on or after December 31, 2011.

¹³¹ Software development costs can be deducted currently. Rev. Proc. 69-21, 1969-2 C.B. 303, Rev. Proc. 2000-50, 2000-2 C.B. 601.

¹³² For computer software purchased before August 11, 1993. Rev. Proc. 69-21, 1969-2 C.B. 303.

¹³³ In general, mortgage servicing rights would be amortized over the life of the underlying contract (*e.g.*, 30 years for 30-year mortgage).

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Geological and geophysical expenditures (sec. 167(h))	2 years (7 years for major integrated oil companies)	Allocated to the cost of the property that was acquired or retained. ¹³⁴	Permanent
Race horses (sec. 168(e)(3)(A)(i))	3 years	3 years (over 2 years old) (01.223) ¹³⁵ 7 years (No class life) ¹³⁶	December 31, 2013 (any race horse) Permanent (any race horse over the age of two and that is placed in service after December 31, 2013)
Horses over 12 years old, other than race horses (sec. 168(e)(3)(A)(ii))	3 years	7 years (No class life) ¹³⁷	Permanent
Qualified rent-to-own property (sec. 168(e)(3)(A)(iii))	3 years	5 years (57.0) ¹³⁸	Permanent
Automobiles or light general purpose trucks (sec. 168(e)(3)(B)(i))	5 years	3 years (00.241)	Permanent

¹³⁴ For taxable years beginning before August 10, 2005. Rev. Rul. 77-188, 1977-1 C.B. 76. Other special provisions currently in effect may apply absent Sec. 167(h).

¹³⁵ Rev. Proc. 88-22, 1988-1 C.B. 785.

¹³⁶ *Ibid.*

¹³⁷ *Ibid.*

¹³⁸ Rev. Proc. 95-38, 1995-2 C.B. 397. Rev. Rul. 95-52, 1995-2 C.B. 27.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Semi-conductor manufacturing equipment (sec. 168(e)(3)(B)(ii))	5 years	5 years (36.0)	Permanent
Computer-based telephone central office switching equipment (sec. 168(e)(3)(B)(iii))	5 years	10 years (48.12) ¹³⁹	Permanent
Qualified technological equipment (<i>i.e.</i> , computers and related peripheral equipment) (sec. 168(e)(3)(B)(iv))	5 years	5 years (00.12) if used in the normal course of business operations. Remaining items are industry specific. ¹⁴⁰	Permanent
Qualified technological equipment (<i>i.e.</i> , high technology telephone station equipment) (sec. 168(e)(3)(B)(iv))	5 years	7 years (48.13)	Permanent

¹³⁹ Rev. Proc. 87-57 refers to the code section in defining the class life.

¹⁴⁰ Assets that do not fall into Rev. Proc. 87-56 classes 00.11 through 00.4 for depreciable assets used in all business activities must be classified according to classes 01.1 through 80.0 for depreciable assets used in specific business activities. The property would be classified according to the specific business activity in which the property was primarily used. For example, research and development property used in the manufacture of locomotives (class life 37.41) would be recovered over a seven-year period, while research and development property used in the manufacture of sugar and sugar products (class life 20.2) would be recovered over a 10-year period.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Qualified technological equipment (<i>i.e.</i> , high technology medical equipment) (sec. 168(e)(3)(B)(iv))	5 years	5 years (57.0)	Permanent
Research and experimentation property (secs. 168(e)(3)(B)(v) and 1245)	5 years	Industry specific ¹⁴¹	Permanent
Solar or wind energy property (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(i))	5 years	Industry specific ¹⁴²	Permanent
Fiber-optic solar energy property (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(ii))	5 years	Industry specific ¹⁴³	December 31, 2016
Geothermal energy property (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(iii))	5 years	Industry specific ¹⁴⁴	Permanent

¹⁴¹ See footnote 140 above for further explanation.

¹⁴² See footnote 140 above for further explanation.

¹⁴³ See footnote 140 above for further explanation.

¹⁴⁴ See footnote 140 above for further explanation.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Fuel cell or qualified microturbine property (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(iv))	5 years	Industry specific ¹⁴⁵	Permanent
Combined heat and power system property (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(v))	5 years	Industry specific ¹⁴⁶	Permanent
Qualified small wind energy property (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(vi))	5 years	Industry specific ¹⁴⁷	Permanent
Thermal energy equipment using ground or ground water (secs. 168(e)(3)(B)(vi) and 48(a)(3)(A)(vii))	5 years	Industry specific ¹⁴⁸	December 31, 2016
Railroad tracks (sec. 168(e)(3)(C)(i))	7 years	Unknown ¹⁴⁹	Permanent

¹⁴⁵ See footnote 140 above for further explanation.

¹⁴⁶ See footnote 140 above for further explanation.

¹⁴⁷ See footnote 140 above for further explanation.

¹⁴⁸ See footnote 140 above for further explanation.

¹⁴⁹ The useful life of this property is unclear.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Motorsports racetrack property (secs. 168(e)(3)(C)(ii) and (i)(15))	7 years	15 years (with 150 percent declining balance method) (00.3) ¹⁵⁰ or 39 years (straight-line)	December 31, 2011
Alaska natural gas pipeline (secs. 168(e)(3)(C)(iii) and (i)(16))	7 years ¹⁵¹	15 years (with 150 percent declining balance method) (46.0)	Permanent
Natural gas gathering line (sec. 168(e)(3)(C)(iv))	7 years	15 years (with 150 percent declining balance method) (46.0) ¹⁵²	Permanent

¹⁵⁰ See Tech. Adv. Memo. 200526019.

¹⁵¹ To depreciate Alaska natural gas pipeline property over seven years, the general rule requires that the assets be placed in service after December 31, 2013. However, Alaska natural gas pipeline property will be treated as placed in service on January 1, 2014 if the taxpayer who places such system in service prior to that date elects such treatment.

¹⁵² For natural gas gathering lines where the original use of the property commences with the taxpayer before April 12, 2005.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Single purpose agricultural or horticultural structures (<i>e.g.</i> , greenhouse specifically designed, constructed and used for the commercial production of plants) (secs. 168(e)(3)(D)(i) and (i)(13))	10 years	20 years (01.3)	Permanent
Tree or vine bearing fruits or nuts (secs. 168(b)(3)(E) and (e)(3)(D)(ii))	10 years (straight-line)	15 years (with 150 percent declining balance method) ¹⁵³	Permanent
Smart electric distribution property (<i>i.e.</i> , qualified smart electric grid system and qualified smart electric meter) (sec. 168(b)(2)(C), secs. 168(e)(3)(D)(iii) and (iv), and secs. 168(i)(18) and (19))	10 years (with 150 percent declining balance method)	20 years (with 150 percent declining balance method) (49.14) ¹⁵⁴	Permanent
Municipal wastewater treatment plant (sec. 168(e)(3)(E)(i))	15 years	20 years (with 150 percent declining balance method) (49.3)	Permanent

¹⁵³ At the time the present law was enacted, it was unclear whether trees and vines were classified as land improvements, recovered over 15 years, or whether they have no class life. H.R. Rep. No. 100-1104, Conference Report to Accompany H.R. 4333, the Technical Corrections and Miscellaneous Revenue Act of 1988, October 21, 1988, pp. 149-150.

¹⁵⁴ For property placed in service before October 4, 2008.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Telephone distribution plant and comparable equipment used for two-way exchange of voice and data communications (sec. 168(e)(3)(E)(ii))	15 years	15 years (with 150 percent declining balance method) (48.14) ¹⁵⁵	Permanent
Retail motor fuel outlets (sec. 168(e)(3)(E)(iii))	15 years	15 years (with 150 percent declining balance) (57.1) ¹⁵⁶ or 39 years (straight-line)	Permanent
Qualified leasehold improvements (sec. 168(b)(3)(G) and sec. 168(e)(3)(E)(iv))	15 years (straight-line)	39 years (straight-line)	December 31, 2011
Qualified restaurant property (sec. 168(b)(3)(H) and sec. 168(e)(3)(E)(v))	15 years (straight-line)	39 years (straight-line) ¹⁵⁷	December 31, 2011
Gas utility land improvements (<i>i.e.</i> , initial clearing and grading) (sec. 168(e)(3)(E)(vi))	15 years	7 years ¹⁵⁸ or non-depreciable	Permanent

¹⁵⁵ A 15-year recovery period is provided for telephone distribution plant and comparable equipment used for two-way voice and data communications. However, a 7-year recovery period (48.42) is provided for cable distribution plant and comparable equipment used for two-way voice and data communications.

¹⁵⁶ IRS Industry Specialization Program Coordinated Issue Paper, Petroleum and Retail Industries Coordinated Issue: Convenience Stores (before revisions). See also S. Rep. No. 281, 104th Cong., 2d Sess. 15 (1996).

¹⁵⁷ For property placed in service before January 1, 2009.

¹⁵⁸ Initial clearing and grade improvements were specifically excluded from Asset Class 49.24 under Rev. Proc. 87-56, and no separate asset class was provided for those improvements. Accordingly, the cost of those

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Certain electric transmission property (property used in the transmission of electricity for sale at 69 kilovolts) (sec. 168(e)(3)(E)(vii))	15 years	20 years (with 150 percent declining balance method) (49.14) ¹⁵⁹	Permanent
Qualified retail improvements (sec. 168(b)(3)(I) and sec. 168(e)(3)(E)(ix))	15 years (straight-line)	39 years (straight-line)	December 31, 2011
Tax exempt use property subject to a lease (sec. 168(g)(3)(A))	Straight-line over a recovery period equal to the longer of the property's class life or 125 percent of the lease term	Varies based on property class life	Permanent
Indian reservation property (sec. 168(j))	Shorter recovery periods than MACRS ¹⁶⁰	MACRS recovery periods	December 31, 2011
Cellulosic biofuel plant property (sec. 168(l))	50-percent bonus in the first year ¹⁶¹	Unknown ¹⁶²	December 31, 2012

improvements was depreciated under MACRS over a seven-year recovery period as assets for which no class life is provided. Certain amounts may be considered nondepreciable land.

¹⁵⁹ For electric transmission property where the original use of the property commences with the taxpayer before April 12, 2005.

¹⁶⁰ See section 168(j)(2).

¹⁶¹ The property's original use must commence with the taxpayer after December 20, 2006 and it must be purchased by the taxpayer after December 20, 2006 (or for self-constructed property if the taxpayer began manufacturing, constructing, or producing the property after December 20, 2006) and no written binding contract for its acquisition was in effect before December 21, 2006.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Reuse and recycling property (sec. 168(m)(1)(A))	50-percent bonus in the first year ¹⁶³	7 years (49.5)	Permanent
Pollution control facilities (secs. 169 and 291)	5 years (7 years for certain atmospheric pollution control facilities)	Industry specific ¹⁶⁴ or 39 years (straight-line)	Permanent
Magazine circulation expenditures (sec. 173)	Deduct currently	Unknown ¹⁶⁵	Permanent
Research and development expenditures ¹⁶⁶ (sec. 174)	Deduct currently	Industry specific ¹⁶⁷	Permanent

¹⁶² The useful life of this property is currently unclear.

¹⁶³ The property's original use must commence with the taxpayer after August 31, 2008 and be purchased by the taxpayer after August 31, 2008 (or for self-constructed property if the taxpayer began manufacturing, constructing, or producing the property after August 31, 2008), but only if no written binding contract for the acquisition was in effect before September 1, 2008.

¹⁶⁴ See footnote 140 above for further explanation.

¹⁶⁵ A three-year election to amortize expenditures is currently allowed under sec. 59(e). Alternatively, the amortization period may be determined under secs. 167 or 197.

¹⁶⁶ Research and development expenditures do not include property of a character which is subject to the allowance for depreciation or depletion. Sec. 174(b)(1)(C).

¹⁶⁷ See footnote 161 above for further explanation. It should be noted that research and development expenditures are deferred until a depreciable asset is created. Once an asset is created and placed in service, the research and development amounts are recovered through depreciation (or deducted at the time such asset is abandoned).

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Soil and water conservation expenditures; endangered species recovery expenditures ¹⁶⁸ (sec. 175)	Deduct currently (not to exceed 25% of annual gross farming income) ¹⁶⁹	Non-depreciable ¹⁷⁰	Permanent
Liquid fuel refinery property ¹⁷¹ (sec. 179C)	50-percent bonus in the first year ¹⁷²	10 years (13.3 or 49.223)	December 31, 2013
Energy efficient commercial buildings deduction (sec. 179D)	Additional deduction of \$1.80 per square foot	39 years (straight-line) (with no additional deduction)	December 31, 2013
Advanced mine safety equipment (sec. 179E)	50-percent bonus in the first year	7 years (10.0)	December 31, 2011

¹⁶⁸ For endangered species recovery expenditures incurred after December 31, 2009.

¹⁶⁹ Any excess may be carried over and deducted in succeeding taxable years.

¹⁷⁰ Costs are added to the basis of the land. Treas. Reg. sec. 1.175-1.

¹⁷¹ A qualified refinery is any refinery located in the United States that, for property placed in service after August 8, 2005 and on or before October 3, 2008, is designed to serve the primary purpose of processing liquid fuel from crude oil or qualified fuels; or, for property placed in service after October 3, 2008 and before January 1, 2014, is designed to serve the primary purpose of processing liquid fuel from crude oil, qualified fuels, or directly from shale or tar sands.

¹⁷² For property placed in service after August 8, 2005 that was not subject to a written binding contract to purchase the property in effect before June 15, 2005. If the property is not placed in service before January 1, 2010, there must have been a written binding contract to purchase the property in place before January 1, 2010, or for self-constructed property, construction of the property began after June 15, 2005 and before January 1, 2010.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Fertilizer and soil enrichment costs incurred by farmers (sec. 180)	Deduct currently	Facts and circumstances ¹⁷³	Permanent
Certain qualified film and television productions (sec. 181)	Deduct currently (subject to certain dollar limitations)	Income forecast method	December 31, 2011
Expenditures to remove architectural and transportation barriers to the handicapped and elderly (sec. 190)	Deduct currently (not to exceed \$15,000)	39 years (straight-line) or non-depreciable	Permanent
Tertiary injectants (sec. 193)	Deduct currently	Facts and circumstances ¹⁷⁴	Permanent
Reforestation expenditures (sec. 194)	Deduct currently ¹⁷⁵ or 7 year amortization	Depletion ¹⁷⁶	Permanent
Environmental remediation costs (sec. 198)	Deduct currently	Unknown ¹⁷⁷	December 31, 2011

¹⁷³ Expenditures which affect production for more than one year must be capitalized and recovered over the period for which they impact production.

¹⁷⁴ Expenditures which affect production for more than one year must be capitalized and recovered over the period for which they impact production.

¹⁷⁵ Annual expenditures of up to \$10,000 may be currently deducted in the year paid or incurred.

¹⁷⁶ Depletion is the exhaustion of natural resources as a result of production. The deduction is similar to depreciation in that it allows the taxpayer to recover the cost of an asset over the resources' productive life. See sec. 611 and 612.

Provision	Statutory Recovery Period or Provision	Standard Recovery Period	Expiration
Intangible drilling costs (“IDC”) (Secs. 263(c) and 291)	Deduct currently (30 percent of IDCs amortized over 5 years for major integrated oil companies)	Depletion or depreciation (based on the specific applicable recovery period for the depreciable item) ¹⁷⁸	Permanent
Luxury vehicles (sec. 280F)	Limits the annual deduction	3 years (00.22)	Permanent
Exploration and development costs (secs. 616, 617 and 291)	Deduct currently (30 percent of exploration and development costs amortized over 5 years for corporations)	Depletion ¹⁷⁹	Permanent

¹⁷⁷ The capitalization of environmental remediation expenditures under prior law was a question of fact and subject to dispute. See H.R. Conf. Rep. No. 220, 105th Cong., 1st Sess. 330, 488 (1997).

¹⁷⁸ IDCs do not include expenses for items that have a salvage value (such as pipes or casings), items that are part of the acquisition price of an interest in the property, or amounts property allocable to the cost of depreciable property. A taxpayer may elect to deduct IDC ratably over a 60-month period under sec. 59(e). If the taxpayer makes this election, no alternative minimum tax preference amount results.

¹⁷⁹ Costs are allocated to a specific property unit and depleted under sec. 611 or 612. Losses incurred on abandoning areas of interest can be deducted under sec. 165. A taxpayer may elect to deduct exploration and development costs over a 10-year period under sec. 59(e). If the taxpayer makes this election, no alternative minimum tax preference amount will result.

7. Tax credits related to capital investment

In general

Businesses are allowed a variety of other tax credits that impact capital investment as part of the general business credit.¹⁸⁰ Several of these credits are energy-related, and one of these, the qualifying advanced energy project credit,¹⁸¹ directly targets new manufacturing facilities. Other general business credits incentivize specific types of investment in real estate, such as the low-income housing credit and the rehabilitation credit.

Qualifying advanced energy project credit

Present law provides a 30-percent credit for investment in qualified property used in a qualifying advanced energy manufacturing project. A qualifying advanced energy project is a project that re-equips, expands, or establishes a manufacturing facility for the production of: (1) property designed to be used to produce energy from the sun, wind, or geothermal deposits (within the meaning of section 613(e)(2)), or other renewable resources; (2) fuel cells, microturbines, or an energy storage system for use with electric or hybrid-electric motor vehicles; (3) electric grids to support the transmission of intermittent sources of renewable energy, including storage of such energy; (4) property designed to capture and sequester carbon dioxide; (5) property designed to refine or blend renewable fuels (but not fossil fuels) or to produce energy conservation technologies (including energy-conserving lighting technologies and smart grid technologies); (6) new qualified plug-in electric drive motor vehicles, qualified plug-in electric vehicles, or components which are designed specifically for use with such vehicles, including electric motors, generators, and power control units; or (7) other advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary. A qualifying advanced energy project does not include any part of a project for the production of any property for use in the refining or blending of any transportation fuel other than renewable fuels.

Qualified property must be depreciable (or amortizable) property used in a qualifying advanced energy project. Only tangible personal property and other tangible property (not including a building or its structural components) are credit-eligible. The basis of qualified property must be reduced by the amount of credit received.

Credits are available only for projects certified by the Secretary of Treasury, in consultation with the Secretary of Energy. The Secretary of Treasury has established a certification program for this purpose, and may allocate up to \$2.3 billion in credits.

Certifications are issued using a competitive bidding process. In selecting projects, the Secretary may consider only those projects with a reasonable expectation of commercial viability. In addition, the Secretary must consider other selection criteria, including which

¹⁸⁰ Sec. 38.

¹⁸¹ Sec. 48C.

projects: (1) will provide the greatest domestic job creation; (2) will provide the greatest net impact in avoiding or reducing air pollutants or anthropogenic emissions of greenhouse gases; (3) have the greatest potential for technological innovation and commercial deployment; (4) have the lowest levelized cost of generated or stored energy, or of measured reduction in energy consumption or greenhouse gas emission; and (5) have the shortest project time from certification to completion.

Each project application must be submitted during the two-year period beginning on the date the certification program was established. An applicant for certification has one year from the date the Secretary accepts the application to provide the Secretary with evidence that the requirements for certification have been met. Upon certification, the applicant has three years from the date of issuance of the certification to place the project in service. Not later than four years after February 17, 2009 (the date of enactment of the American Recovery and Reinvestment Act of 2009), the Secretary is required to review the credit allocations and redistribute any credits that were not used either because of a revoked certification or because of an insufficient quantity of credit applications.

Credits have been awarded to 183 projects located in 43 States. Due to the \$2.3 billion limitation, less than one-half of credit-eligible applications have received a credit allocation.¹⁸²

Other energy-related credits

Since the repeal of the prior-law investment tax credit in 1986,¹⁸³ a number of tax credits for investment in energy-related property have been modified, expanded, or newly enacted.¹⁸⁴

Low-income housing credit

The low-income housing credit¹⁸⁵ may be claimed over a 10-year period for the cost of building rental housing occupied by tenants having incomes below specified levels. The amount of the credit for any taxable year in the credit period is the applicable percentage of the qualified basis of each qualified low-income building. The qualified basis of any qualified low-income building for any taxable year equals the applicable fraction of the eligible basis of the building.

¹⁸² Statement of John H. Parcell, Deputy Tax Legislative Counsel, Department of the Treasury, Before the House Committee on Science, Space, and Technology, Subcommittee on Investigations and Oversight, and Subcommittee on Energy and Environment, Joint Hearing on the “Impact of Tax Policies on the Commercial Application of Renewable Energy Technology,” April 19, 2012, available at <http://science.house.gov/sites/republicans.science.house.gov/files/documents/hearings/HHRG-112-SY21-WState-JParcell-20120419.pdf>.

¹⁸³ Sec. 211 of Pub. L. No. 99-514, the Tax Reform Act of 1986.

¹⁸⁴ For a summary and analysis of present-law energy-related investment credits, see Joint Committee on Taxation, *Present Law and Analysis of Energy-Related Tax Expenditures and Description of the Revenue Provisions Contained in H.R. 1380, the New Alternative Transportation to Give Americans Solutions Act of 2011* (JCX-47-11), September 20, 2011.

¹⁸⁵ Sec. 42.

The credit percentage for newly constructed or substantially rehabilitated housing that is not Federally subsidized is adjusted monthly by the Internal Revenue Service so that the 10 annual installments of the credit have a present value of 70 percent of the total qualified basis. The credit percentage for newly constructed or substantially rehabilitated housing that is Federally subsidized and for existing housing that is substantially rehabilitated is calculated to have a present value of 30 percent of qualified basis. These are referred to as the 70-percent credit and 30-percent credit, respectively.

For 2009, more than \$6.2 billion in low-income housing tax credits were claimed by more than 125,000 corporate and individual taxpayers.¹⁸⁶

Rehabilitation credit

Present law provides a two-tier tax credit for rehabilitation expenditures.¹⁸⁷

A 20-percent credit is provided for qualified rehabilitation expenditures with respect to a certified historic structure. For this purpose, a certified historic structure means any building that is listed in the National Register, or that is located in a registered historic district and is certified by the Secretary of the Interior to the Secretary of the Treasury as being of historic significance to the district.

A 10-percent credit is provided for qualified rehabilitation expenditures with respect to a qualified rehabilitated building, which generally means a building that was first placed in service before 1936. The pre-1936 building must meet requirements with respect to retention of existing external walls and internal structural framework of the building in order for expenditures with respect to it to qualify for the 10-percent credit. A building is treated as having met the substantial rehabilitation requirement under the 10-percent credit only if the rehabilitation expenditures during the 24-month period selected by the taxpayer and ending within the taxable year exceed the greater of (1) the adjusted basis of the building (and its structural components), or (2) \$5,000.

The provision requires the use of straight-line depreciation or the alternative depreciation system in order for rehabilitation expenditures to be treated as qualified under the provision.

For 2009, approximately 500 corporate and individual taxpayers claimed an aggregate \$50 million in tax credits for rehabilitation expenditures.¹⁸⁸

¹⁸⁶ Internal Revenue Service, *2009 Estimated Data Line Counts Corporation Tax Returns*, Rev. 05-2012 and Internal Revenue Service, *2009 Estimated Data Line Counts Individual Income Tax Returns*, Rev. 05-2012.

¹⁸⁷ Sec. 47.

¹⁸⁸ Internal Revenue Service, *2009 Estimated Data Line Counts Corporation Tax Returns*, Rev. 05-2012 and Internal Revenue Service, *2009 Estimated Data Line Counts Individual Income Tax Returns*, Rev. 05-2012.

C. Incentives for Research

1. Deduction for research expenditures

Business expenses associated with the development or creation of an asset having a useful life extending beyond the current year must generally be capitalized and depreciated over such useful life. Taxpayers, however, may elect to deduct currently the amount of certain reasonable research or experimentation expenditures paid or incurred in connection with a trade or business.¹⁸⁹ Taxpayers may choose to forgo a current deduction, capitalize their research expenditures, and recover them ratably over the useful life of the research, but in no case over a period of less than 60 months.¹⁹⁰ Taxpayers, alternatively, may elect to amortize their research expenditures over a period of 10 years.¹⁹¹ Generally, such deductions are reduced by the amount of the taxpayer's research tax credit (discussed in more detail in section B).¹⁹²

Amounts defined as research and experimental expenditures under section 174 generally include all costs incurred in the experimental or laboratory sense related to development or improvement of a product.¹⁹³ In particular, qualifying costs are those incurred for activities intended to discover information that would eliminate uncertainty concerning the development or improvement of a product.¹⁹⁴ Uncertainty exists when information available to the taxpayer is not sufficient to ascertain the capability or method for developing, improving, and/or appropriately designing the product.¹⁹⁵ The determination of whether expenditures qualify as deductible research expenses depends on the nature of the activity to which the costs relate, not the nature of the product or improvement being developed or the level of technological

¹⁸⁹ Sec. 174.

¹⁹⁰ Sec. 174(b). Taxpayers generating significant short-term losses often choose to defer the deduction for their research and experimentation expenditures under this section. Additionally, section 174 amounts are excluded from the definition of "start-up expenditures" under section 195 (section 195 generally provides that start-up expenditures either are not deductible or are amortizable over a period of not less than 180 days once an active trade or business begins). So as not to generate significant losses before beginning their trade or business, a taxpayer may choose to defer the deduction and amortize the section 174 costs beginning with the month in which the taxpayer first realizes benefits from the expenditures.

¹⁹¹ Secs. 174(f)(2) and 59(e). This special 10-year election is available to mitigate the effect of the alternative minimum tax adjustment for research expenditures set forth in section 56(b)(2). Taxpayers with significant losses also may elect to amortize their otherwise deductible research and experimentation expenditures to reduce amounts that could be subject to expiration under the NOL carryforward regime.

¹⁹² Sec. 280C(c). Taxpayers may alternatively elect to claim a reduced research tax credit amount under section 41 in lieu of reducing deductions otherwise allowed. Sec. 280C(c)(3).

¹⁹³ Treas. Reg. sec. 1.174-2(a)(1) and (2). Product is defined to include any pilot model, process, formula, invention, technique, patent, or similar property, and includes products to be used by the taxpayer in its trade or business as well as products to be held for sale, lease, or license.

¹⁹⁴ Treas. Reg. sec. 1.174-2(a)(1).

¹⁹⁵ Treas. Reg. sec. 1.174-2(a)(1).

advancement the product or improvement represents. Examples of qualifying costs include salaries for those engaged in research or experimentation efforts, amounts incurred to operate and maintain research facilities (*e.g.*, utilities, depreciation, rent), and expenditures for materials and supplies used and consumed in the course of research or experimentation (including amounts incurred in conducting trials).¹⁹⁶

However, generally no current deduction is allowable for expenditures for the acquisition or improvement of land or of depreciable or depletable property used in connection with any research or experimentation.¹⁹⁷ In addition, no current deduction is allowed for research expenses incurred for the purpose of ascertaining the existence, location, extent, or quality of any deposit of ore or other mineral, including oil and gas.¹⁹⁸

2. Credit for increasing research activities

General rule

For general research expenditures, a taxpayer may claim a research credit equal to 20 percent of the amount by which the taxpayer's qualified research expenses for a taxable year exceed its base amount for that year.¹⁹⁹ Thus, the research credit is generally available with respect to incremental increases in qualified research. An alternative simplified research credit (with a 14 percent rate and a different base amount) may be claimed in lieu of this credit.

A 20-percent research tax credit is also available with respect to the excess of (1) 100 percent of corporate cash expenses (including grants or contributions) paid for basic research conducted by universities (and certain nonprofit scientific research organizations) over (2) the sum of (a) the greater of two minimum basic research floors plus (b) an amount reflecting any decrease in nonresearch giving to universities by the corporation as compared to such giving during a fixed-base period, as adjusted for inflation. This separate credit computation is commonly referred to as the university basic research credit.²⁰⁰

Finally, a research credit is available for a taxpayer's expenditures on research undertaken by an energy research consortium. This separate credit computation is commonly referred to as the energy research credit. Unlike the other research credits, the energy research credit applies to all qualified expenditures, not just those in excess of a base amount.

¹⁹⁶ Treas. Reg. sec. 1.174-2(a)(1). The definition of research and experimental expenditures also includes the costs of obtaining a patent, such as attorneys' fees incurred in making and perfecting a patent.

¹⁹⁷ Sec. 174(c).

¹⁹⁸ Sec. 174(d).

¹⁹⁹ Sec. 41.

²⁰⁰ Sec. 41(e).

The research credit, including the university basic research credit and the energy research credit, expires for amounts paid or incurred after December 31, 2011.²⁰¹

Computation of allowable credit

Except for energy research payments and certain university basic research payments made by corporations, the research tax credit applies only to the extent that the taxpayer's qualified research expenses for the current taxable year exceed its base amount. The base amount for the current year generally is computed by multiplying the taxpayer's fixed-base percentage by the average amount of the taxpayer's gross receipts for the four preceding years. If a taxpayer both incurred qualified research expenses and had gross receipts during each of at least three years from 1984 through 1988, then its fixed-base percentage is the ratio that its total qualified research expenses for the 1984-1988 period bears to its total gross receipts for that period (subject to a maximum fixed-base percentage of 16 percent). Special rules apply to all other taxpayers (so called start-up firms).²⁰² In computing the credit, a taxpayer's base amount cannot be less than 50 percent of its current-year qualified research expenses.

To prevent artificial increases in research expenditures by shifting expenditures among commonly controlled or otherwise related entities, a special aggregation rule provides that all members of the same controlled group of corporations are treated as a single taxpayer.²⁰³ Under regulations prescribed by the Secretary, special rules apply for computing the credit when a major portion of a trade or business (or unit thereof) changes hands. Under these rules, qualified research expenses and gross receipts for periods prior to the change of ownership of a trade or business are treated as transferred with the trade or business that gave rise to those expenses and receipts for purposes of recomputing a taxpayer's fixed-base percentage.²⁰⁴

Alternative simplified credit

The alternative simplified research credit is equal to 14 percent of qualified research expenses that exceed 50 percent of the average qualified research expenses for the three preceding taxable years. The rate is reduced to six percent if a taxpayer has no qualified research

²⁰¹ Sec. 41(h).

²⁰² The Small Business Job Protection Act of 1996 expanded the definition of start-up firms under section 41(c)(3)(B)(i) to include any firm if the first taxable year in which such firm had both gross receipts and qualified research expenses began after 1983. A special rule (enacted in 1993) is designed to gradually recompute a start-up firm's fixed-base percentage based on its actual research experience. Under this special rule, a start-up firm is assigned a fixed-base percentage of three percent for each of its first five taxable years after 1993 in which it incurs qualified research expenses. A start-up firm's fixed-base percentage for its sixth through tenth taxable years after 1993 in which it incurs qualified research expenses is a phased-in ratio based on the firm's actual research experience. For all subsequent taxable years, the taxpayer's fixed-base percentage is its actual ratio of qualified research expenses to gross receipts for any five years selected by the taxpayer from its fifth through tenth taxable years after 1993. Sec. 41(c)(3)(B).

²⁰³ Sec. 41(f)(1).

²⁰⁴ Sec. 41(f)(3).

expenses in any one of the three preceding taxable years. An election to use the alternative simplified credit applies to all succeeding taxable years unless revoked with the consent of the Secretary.

Eligible expenses

Qualified research expenses eligible for the research tax credit consist of: (1) in-house expenses of the taxpayer for wages and supplies attributable to qualified research; (2) certain time-sharing costs for computer use in qualified research; and (3) 65 percent of amounts paid or incurred by the taxpayer to certain other persons for qualified research conducted on the taxpayer's behalf (so-called contract research expenses).²⁰⁵ Notwithstanding the limitation for contract research expenses, qualified research expenses include 100 percent of amounts paid or incurred by the taxpayer to an eligible small business, university, or Federal laboratory for qualified energy research.

To be eligible for the credit, the research not only has to satisfy the requirements of present-law section 174 (described below) but also must be undertaken for the purpose of discovering information that is technological in nature, the application of which is intended to be useful in the development of a new or improved business component of the taxpayer, and substantially all of the activities of which constitute elements of a process of experimentation for functional aspects, performance, reliability, or quality of a business component. Research does not qualify for the credit if substantially all of the activities relate to style, taste, cosmetic, or seasonal design factors.²⁰⁶ In addition, research does not qualify for the credit if: (1) conducted after the beginning of commercial production of the business component; (2) related to the adaptation of an existing business component to a particular customer's requirements; (3) related to the duplication of an existing business component from a physical examination of the component itself or certain other information; or (4) related to certain efficiency surveys, management function or technique, market research, market testing, or market development, routine data collection or routine quality control.²⁰⁷ Research does not qualify for the credit if it is conducted outside the United States, Puerto Rico, or any U.S. possession.

Relation to deduction

Under section 174, taxpayers may elect to deduct currently the amount of certain research or experimental expenditures paid or incurred in connection with a trade or business, notwithstanding the general rule that business expenses to develop or create an asset that has a

²⁰⁵ Under a special rule, 75 percent of amounts paid to a research consortium for qualified research are treated as qualified research expenses eligible for the research credit (rather than 65 percent under the general rule under section 41(b)(3) governing contract research expenses) if (1) such research consortium is a tax-exempt organization that is described in section 501(c)(3) (other than a private foundation) or section 501(c)(6) and is organized and operated primarily to conduct scientific research, and (2) such qualified research is conducted by the consortium on behalf of the taxpayer and one or more persons not related to the taxpayer. Sec. 41(b)(3)(C).

²⁰⁶ Sec. 41(d)(3).

²⁰⁷ Sec. 41(d)(4).

useful life extending beyond the current year must be capitalized.²⁰⁸ However, deductions allowed to a taxpayer under section 174 (or any other section) are reduced by an amount equal to 100 percent of the taxpayer's research tax credit determined for the taxable year.²⁰⁹ Taxpayers may alternatively elect to claim a reduced research tax credit amount under section 41 in lieu of reducing deductions otherwise allowed.²¹⁰

²⁰⁸ Taxpayers may elect 10-year amortization of certain research expenditures allowable as a deduction under section 174(a). Secs. 174(f)(2) and 59(e).

²⁰⁹ Sec. 280C(c).

²¹⁰ Sec. 280C(c)(3).

D. Domestic Production Activities Deduction

1. Legislative background

Congress both repealed the Extraterritorial Income (“ETI”) regime and enacted section 199 as part of the American Jobs Creation Act of 2004.²¹¹ The ETI regime had been deemed inconsistent with obligations of the United States under various international trade agreements and was repealed to bring the law into compliance with those agreements. The section 199 legislation was crafted to replace the ETI benefit with tax relief designed to be comparable to a three-percentage-point reduction in the tax rate applied to U.S.-based manufacturing. The deduction was phased in over time to match the phase-out of the ETI regime.²¹² As described in 2005:

“The Congress believed that it was appropriate and necessary to replace the ETI regime with provisions that reduce the tax burden on domestic manufacturers, including small businesses engaged in manufacturing. The Congress was of the view that a reduced tax burden on domestic manufacturers [would] improve the cash flow of domestic manufacturers and make investments in domestic manufacturing facilities more attractive.”²¹³

Prior to the enactment of section 199 there was no provision in the Code that permitted taxpayers to claim a deduction equal to a percentage of taxable income attributable to their domestic production activities. Congress subsequently modified the statute several times to make additions and corrections to the way the deduction is computed.²¹⁴ A provision was added which allows U.S. businesses to claim the section 199 deduction for qualifying activities taking place in Puerto Rico for taxable years beginning after December 31, 2005 and before January 1, 2012.²¹⁵ The section 199 deduction for taxpayers with oil related qualified production related activities income was reduced by three percentage points for taxable years beginning after 2009.²¹⁶ Special rules were put in place for domestic film production for taxable years beginning after December 31, 2007.²¹⁷

²¹¹ Pub. L. No. 108-357, sec. 102 (2004).

²¹² For taxable years beginning in 2005 and 2006, the deduction was three percent of such income. For taxable years beginning in 2007, 2008, and 2009, the deduction was six percent of such income.

²¹³ Joint Committee on Taxation, *General Explanation of Tax Legislation Enacted in the 108th Congress* (JCS-5-05), May 2005, p. 170.

²¹⁴ See Pub. L. No. 109-135, sec. 403(a) (2005), Pub. L. No. 109-22, sec. 514(a) (2006).

²¹⁵ Pub. L. No. 109-432, sec. 401 (2006). The provision was effective for the first two years beginning after December 2005 and before January 2008. The provision has been extended and currently expires for taxable years beginning after December 31, 2011.

²¹⁶ Pub. L. No. 110-343, sec. 401(a) (2008).

²¹⁷ Pub. L. No. 110-343, sec. 502 (2008).

2. Present law

In general

Section 199 of the Code provides a deduction from taxable income (or, in the case of an individual, adjusted gross income) that is equal to a portion of the lesser of a taxpayer's taxable income or its qualified production activities income.²¹⁸ For taxable years beginning after 2009, the deduction is nine percent of such income. With respect to a taxpayer that has oil related qualified production activities income for taxable years beginning after 2009, the deduction is limited to six percent of the least of its oil related production activities income, its qualified production activities income, or its taxable income.²¹⁹

However, a taxpayer's deduction under section 199 for a taxable year may not exceed 50 percent of the wages properly allocable to domestic production gross receipts paid by the taxpayer during the calendar year that ends in such taxable year.²²⁰ In the case of corporate taxpayers that are members of certain affiliated groups,²²¹ the deduction is determined by treating all members of such groups as a single taxpayer and the deduction is allocated among such members in proportion to each member's respective amount (if any) of qualified production activities income.

²¹⁸ In the case of an individual, the deduction is equal to a portion of the lesser of the taxpayer's adjusted gross income or its qualified production activities income. For this purposes, adjusted gross income is determined after application of sections 86, 135, 137, 219, 221, 222, and 469, and without regard to the section 199 deduction.

²¹⁹ Sec. 199(d)(9). "Oil related qualified production activities income" means the qualified production activities income attributable to the production, refining, processing, transportation, or distribution of oil, gas or any primary product thereof (as defined in section 927(a)(2)(C) prior to its repeal). Treas. Reg. sec. 1.927(a)-1T(g)(2)(i) defines the term "primary product from oil" to mean crude oil and all products derived from the destructive distillation of crude oil, including volatile products, light oils such as motor fuel and kerosene, distillates such as naphtha, lubricating oils, greases and waxes, and residues such as fuel oil. Additionally, a product or commodity derived from shale oil which would be a primary product from oil if derived from crude oil is considered a primary product from oil. Treas. Reg. sec. 1.927(a)-1T(g)(2)(ii) defines the term "primary product from gas" as all gas and associated hydrocarbon components from gas wells or oil wells, whether recovered at the lease or upon further processing, including natural gas, condensates, liquefied petroleum gases such as ethane, propane, and butane, and liquid products such as natural gasoline. Treas. Reg. sec. 1.927(a)-1T(g)(2)(iii) provides that these primary products and processes are not intended to represent either the only primary products from oil or gas or the only processes from which primary products may be derived under existing and future technologies. Treas. Reg. sec. 1.927(a)-1T(g)(2)(iv) provides as examples of nonprimary oil and gas products petrochemicals, medicinal products, insecticides, and alcohols.

²²⁰ For purposes of the provision, wages include the sum of the amounts of wages as defined in section 3401(a) and elective deferrals that the taxpayer properly reports to the Social Security Administration with respect to the employment of employees of the taxpayer during the calendar year ending during the taxpayer's taxable year. Elective deferrals include elective deferrals as defined in section 402(g)(3), amounts deferred under section 457, and, for taxable years beginning after December 31, 2005, designated Roth contributions (as defined in section 402A).

²²¹ Members of an expanded affiliated group for purposes of the provision generally include those corporations which would be members of an affiliated group if such membership were determined based on an ownership threshold of "more than 50 percent" rather than "at least 80 percent."

Qualified production activities income

In general, qualified production activities income is equal to domestic production gross receipts, reduced by the sum of: (1) the costs of goods sold that are allocable to such receipts;²²² (2) other deductions, expenses, or losses that are directly allocable to such receipts; and (3) a proper share of other deductions, expenses, and losses that are not directly allocable to such receipts or another class of income.²²³

Domestic production gross receipts

Domestic production gross receipts generally are gross receipts of a taxpayer that are derived from: (1) any sale, exchange, or other disposition, or any lease, rental, or license, of qualifying production property that was manufactured, produced, grown, or extracted by the taxpayer in whole or in significant part within the United States;²²⁴ (2) any sale, exchange or other disposition, or any lease, rental, or license, of qualified film produced by the taxpayer; (3) any sale, exchange, or other disposition of electricity, natural gas, or potable water produced by the taxpayer in the United States; (4) in the case of a taxpayer engaged in the active conduct of a construction trade or business, construction activities performed in the United States;²²⁵ or (5) in the case of a taxpayer engaged in the active conduct of an engineering or architectural services

²²² For purposes of determining such costs, any item or service that is imported into the United States without an arm's length transfer price is treated as acquired by purchase, and its cost shall be treated as not less than its value when it entered the United States. A similar rule applies in determining the adjusted basis of leased or rented property where the lease or rental gives rise to domestic production gross receipts. With regard to property previously exported by the taxpayer for further manufacture, the increase in cost or adjusted basis may not exceed the difference between the value of the property when exported and the value of the property when re-imported into the United States after further manufacture. Except as provided by the Secretary, the value of property for this purpose is its customs value (as defined in section 1059A(b)(1)).

²²³ See Treas. Reg. section 1.199-1 through 1.199-9 where the Secretary has prescribed rules for the proper allocation of items of income, deduction, expense, and loss for purposes of determining qualified production activities income. Where appropriate, such rules are similar to and consistent with relevant present-law rules (*e.g.*, sec. 263A, in determining the cost of goods sold, and sec. 861, in determining the source of such items). Other deductions, expenses or losses that are directly allocable to such receipts include, for example, selling and marketing expenses. A proper share of other deductions, expenses, and losses that are not directly allocable to such receipts or another class of income include, for example, general and administrative expenses allocable to selling and marketing expenses. In computing qualified production activities income, the domestic production activities deduction itself is not an allocable deduction.

²²⁴ Domestic production gross receipts include gross receipts of a taxpayer derived from any sale, exchange or other disposition of agricultural products with respect to which the taxpayer performs storage, handling or other processing activities (other than transportation activities) within the United States, provided such products are consumed in connection with, or incorporated into, the manufacturing, production, growth, or extraction of qualifying production property (whether or not by the taxpayer).

²²⁵ For this purpose, construction activities include activities that are directly related to the erection or substantial renovation of residential and commercial buildings and infrastructure. Substantial renovation would include structural improvements, but not mere cosmetic changes, such as painting that is not performed in connection with activities that otherwise constitute substantial renovation.

trade or business, engineering or architectural services performed in the United States for construction projects located in the United States.²²⁶

However, domestic production gross receipts do not include any gross receipts of the taxpayer derived from property that is leased, licensed, or rented by the taxpayer for use by any related person.²²⁷ Further, domestic production gross receipts do not include any gross receipts of the taxpayer that are derived from the sale of food or beverages prepared by the taxpayer at a retail establishment, that are derived from the transmission or distribution of electricity, gas, and potable water, or that are derived from the lease, rental, license, sale, exchange, or other disposition of land.²²⁸

A special rule for government contracts provides that property that is manufactured or produced by the taxpayer pursuant to a contract with the Federal Government is considered to be domestic production gross receipts even if title or risk of loss is transferred to the Federal Government before the manufacture or production of such property is complete to the extent required by the Federal Acquisition Regulation.²²⁹

Qualifying production property

Qualifying production property generally includes any tangible personal property, computer software, or sound recordings. Qualified film includes any motion picture film or videotape²³⁰ (including live or delayed television programming, but not including certain sexually explicit productions) if 50 percent or more of the total compensation relating to the production of such film (including compensation in the form of residuals and participations)²³¹

²²⁶ With regard to the definition of “domestic production gross receipts” as it relates to construction performed in the United States and engineering or architectural services performed in the United States for construction projects in the United States, the term refers only to gross receipts derived from the construction of real property by a taxpayer engaged in the active conduct of a construction trade or business, or from engineering or architectural services performed with respect to real property by a taxpayer engaged in the active conduct of an engineering or architectural services trade or business.

²²⁷ Sec. 199(c)(7). In general, principles similar to those under the present-law extraterritorial income regime apply for this purpose. See Temp. Treas. Reg. sec. 1.927(a)-1T(f)(2)(i). For example, this exclusion generally does not apply to property leased by the taxpayer to a related person if the property is held for sublease, or is subleased, by the related person to an unrelated person for the ultimate use of such unrelated person. Similarly, the license of computer software to a related person for reproduction and sale, exchange, lease, rental or sublicense to an unrelated person for the ultimate use of such unrelated person is not treated as excluded property by reason of the license to the related person.

²²⁸ Sec. 199(c)(4)(B).

²²⁹ Sec. 199(c)(4)(C).

²³⁰ See Treas. Reg. sec. 1.199-3(k).

²³¹ To the extent that a taxpayer has included an estimate of participations and/or residuals in its income forecast calculation under section 167(g), the taxpayer must use the same estimate of participations and/or residuals for purposes of determining total compensation.

constitutes compensation for services performed in the United States by actors, production personnel, directors, and producers.²³² A qualified film also includes any copyrights, trademarks, or other intangibles with respect to such film. The wage limitation for qualified films includes any compensation for services performed in the United States by actors, production personnel, directors, and producers and is not restricted to W-2 wages.²³³

Other rules

Partnerships and S corporations

With respect to the domestic production activities of a partnership or S corporation, the deduction under section 199 is determined at the partner or shareholder level.²³⁴ In performing the calculation, each partner or shareholder generally will take into account such person's allocable share of the components of the calculation (including domestic production gross receipts; the cost of goods sold allocable to such receipts; and other expenses, losses, or deductions allocable to such receipts) from the partnership or S corporation as well as any items relating to the partner's or shareholder's own qualified production activities, if any.²³⁵ Each partner or shareholder is treated as having W-2 wages for the taxable year in an amount equal to such person's allocable share of the W-2 wages of the partnership or S corporation for the taxable year.²³⁶

Qualifying in-kind partnerships

In general, an owner of a passthrough entity is not treated as conducting the qualified production activities of the passthrough entity, and vice versa. However, the Treasury regulations provide a special rule for qualifying in-kind partnerships, which are defined as partnerships engaged solely in the extraction, refining, or processing of oil, natural gas, petrochemicals, or products derived from oil, natural gas, or petrochemicals in whole or in significant part within the United States, or the production or generation of electricity in the United States.²³⁷ In the case of a qualifying in-kind partnership, each partner is treated as having manufactured, produced, grown, or extracted property to the extent such property is distributed by the partnership to that partner.²³⁸ If a partner of a qualifying in-kind partnership derives gross receipts from the lease, rental, license, sale, exchange, or other disposition of the property that

²³² Treas. Reg. sec. 1.199-2.

²³³ Sec. 199(b)(2)(D). Effective for tax years beginning after December 31, 2007.

²³⁴ Sec. 199(d)(1)(A)(i).

²³⁵ Sec. 199(d)(1)(A)(ii).

²³⁶ Sec. 199(d)(1)(A)(iii).

²³⁷ Treas. Reg. sec. 1.199-9(i)(2).

²³⁸ Treas. Reg. sec. 1.199-9(i)(1).

was manufactured, produced, grown, or extracted by the qualifying in-kind partnership, then, provided such partner is a partner of the qualifying in-kind partnership at the time the partner disposes of the property, the partner is treated as conducting the manufacture, production, growth, or extraction activities previously conducted by the qualifying in-kind partnership with respect to that property.²³⁹

Trusts and estates

In the case of a trust or estate, the components of the calculation are apportioned between (and among) the beneficiaries and the fiduciary under regulations prescribed by the Secretary.²⁴⁰

Agricultural and horticultural cooperatives

With regard to member-owned agricultural and horticultural cooperatives formed under Subchapter T of the Code, section 199 provides the same treatment of qualified production activities income derived from agricultural or horticultural products that are manufactured, produced, grown, or extracted by cooperatives,²⁴¹ or that are marketed through cooperatives, as it provides for qualified production activities income of other taxpayers, that is, the cooperative may claim a deduction from qualified production activities income.

Alternatively, section 199 provides that the amount of any patronage dividends or per-unit retain allocations paid to a member of an agricultural or horticultural cooperative (to which Part I of Subchapter T applies), which is allocable to the portion of qualified production activities income of the cooperative that is deductible under the provision, is deductible from the gross income of the member. To qualify, such amount must be designated by the organization as allocable to the deductible portion of qualified production activities income in a written notice mailed to its patrons not later than the payment period described in section 1382(d). The cooperative cannot reduce its income under section 1382 (*e.g.*, cannot claim a dividends-paid deduction) for such amounts.

Alternative minimum tax

The deduction for domestic production activities is allowed for purposes of computing alternative minimum taxable income (including adjusted current earnings). The deduction in computing alternative minimum taxable income is determined by reference to the lesser of the qualified production activities income (as determined for the regular tax) or the alternative minimum taxable income (in the case of an individual, adjusted gross income as determined for the regular tax) without regard to this deduction.

²³⁹ *Ibid.*

²⁴⁰ See Treas. Reg. secs. 1.199-5(d) and (e).

²⁴¹ For this purpose, agricultural or horticultural products also include fertilizer, diesel fuel and other supplies used in agricultural or horticultural production that are manufactured, produced, grown, or extracted by the cooperative.

II. ECONOMIC ANALYSIS AND DATA RELATED TO MANUFACTURING, CAPITAL INVESTMENT, AND RESEARCH

A. User Cost of Capital and Effective Marginal Tax Rates

In general

A tax system is considered efficient if it does not distort the choices that would be made in the absence of the tax system. No tax system can be fully efficient, however, as long as individuals and business entities can alter their behavior in response to taxation. Any tax system puts a “wedge” between the full economic return from an activity and the return that is available to the individual or entity after tax is imposed. Such a tax wedge generally leads to a reduction in the amount of the taxed activity. In general, the goal of a tax system should be to minimize these inefficiencies, subject to satisfying other goals for a tax system, such as raising a desired level of revenue, achieving an equitable distribution of taxes, and creating a tax system that is reasonably administrable.

Economists focus on the effective marginal tax rate to determine the impact of taxes at the margin of behavior. By “marginal,” economists mean an incremental unit of a given activity. In the capital income context, that margin of behavior is the decision whether to invest in an incremental unit of capital of the business, and the effective marginal tax rate on that investment is the lifetime tax owed on that investment expressed as a share of the economic (before-tax) returns to that investment. While the statutory corporate tax rates are an important element in determining effective marginal tax rates on capital deployed in the corporate sector, many other factors come in to play as well, including discrepancies between true economic depreciation of the asset and depreciation deductions that are allowed by statute for that class of asset, tax credits or other special rules that may apply to the investment, and whether the asset is financed by debt or equity.

The corporate income tax is a separate entity-level tax on income earned from capital deployed in the corporate sector. As such, it is but one component of taxes on capital income, as capital may be deployed in other organizational forms, such as partnerships, S corporations, or sole proprietorships, which do not face a separate entity level tax. The existence of a separate tax on asset income earned in corporate form is itself a distortion in the efficient allocation of capital, as it creates a disincentive to organize as a corporation.

The individual income tax also affects the returns to capital income. In addition to the marginal tax rate on capital income at the corporate level, the effective marginal tax rate on an incremental unit of investment must reflect the marginal tax rate on returns at the individual level. In the case of an individual supplying savings, the marginal unit of supply is an additional dollar of capital above what he is currently saving. While such an individual may face an average tax rate on income that is low, due to standard deductions, special rates on dividend or capital gain income, low initial rates on taxable income, and other factors, his marginal rate of tax on investment—the tax on the marginal unit of savings supplied—could be substantially higher due to the progressive structure of the statutory individual tax rate schedule. Furthermore, the individual’s effective marginal tax rate on an additional unit of capital supplied could be

different from the statutory marginal rate due to opportunities to shelter some of the income from tax through, for example, retirement plan arrangements.

Economists emphasize the effective marginal tax rates because it is these rates that determine the incentives, or disincentives, for taxpayers to work, to save and invest, or to take advantage of various tax preferences. These incentives often distort taxpayer choices away from those made in the absence of government intervention, and these distorted choices generally promote an inefficient allocation of society's labor and capital resources. A less efficient allocation of labor and capital resources leaves society with lower output of goods and services than it would otherwise have. For this reason, economists believe that increasing efficiency in an economy results in increased growth in the economy.

The distorted choices that may result from increased effective marginal tax rates may change saving and investment. For example, taxation of income from capital may distort incentives to save by reducing the after-tax return to saving. Substantial disagreement exists among economists as to the effect on saving of changes in the after-tax return to saving. Empirical investigation of the responsiveness of personal saving to after-tax returns provides no conclusive results. If saving is reduced, capital available for investment is reduced. Investment in technology, equipment, and structures drives future productivity increases and growth in an economy. Increases in productivity increase wage rates, which provide incentives for increased labor supply and further saving. For this reason, tax policy affecting marginal tax rates on asset income can also have a significant effect on the economy's capacity for future growth.

User cost of capital

A fundamental concept for analyzing the effects of capital taxation and for calculating effective marginal tax rates is the user cost of capital.²⁴² The user cost of capital is the opportunity cost that the firm (user) incurs as a consequence of owning a capital asset.²⁴³ A firm will purchase an asset only if the value of the goods produced by the asset meets or exceeds the user cost. If the marginal return exceeds the user cost of capital, a firm can increase its profits by undertaking the investment. If the marginal return is less than the user cost, the firm decreases profits by undertaking the investment. Firms invest up to the point where the marginal return to capital assets just equals the user cost of capital. Thus, the user cost of capital is the return that equates the discounted present value of the investment's expected cash flow with the investment's cost, *i.e.*, it is the real before-tax internal rate of return on a marginally profitable investment.²⁴⁴ If a firm can choose between production technologies, for example between one that is labor-intensive and another that is capital-intensive, then a key variable for the firm to consider in its choice of production technology is the user cost of capital. If the user cost of capital is relatively high, the firm may choose a less capital-intensive technology and vice versa.

²⁴² The classic exposition of this concept is found in Robert Hall and Dale W. Jorgenson, "Tax Policy and Investment Behavior," *American Economic Review*, 57, June 1967, pp. 391-414.

²⁴³ Harvey Rosen, *Public Finance*. Homewood, Illinois: Richard D. Irwin, Inc., 1985, p. 436.

²⁴⁴ James B. Mackie, III, "Unfinished Business of the 1986 Tax Reform Act: An Effective Tax Rate Analysis of Current Issues in the Taxation of Capital Income," *National Tax Journal*, 55, June 2002, pp. 293-337.

The user cost of capital may be represented by the following equation.

$$user\ cost = \frac{(1-\theta-\tau^*(x))}{(1-\tau)} \times [(i - \pi) + \delta - (\alpha - \pi)],$$

where θ is any investment tax credit,

τ is the statutory corporate tax rate,

x is the present value of the tax depreciation deductions,

i is the nominal corporate discount rate, reflecting the mix of debt and equity financing,

π is the inflation rate,

δ is the present value of the economic depreciation, and

α is the appreciation or revaluation in the asset.

The equation illustrates how various factors can affect the user cost of capital. Higher financing costs, represented by the nominal corporate discount rate, increase the cost of capital. The faster an asset wears out with age, that is, the higher the rate of economic depreciation, the higher is the user cost of capital. Higher inflation-adjusted appreciation or revaluation in the asset reduces the user cost of capital. Higher investment tax credits and more generous tax depreciation deductions also reduce the cost of capital. A higher tax rate increases the user cost of capital as the firm must give a greater portion of its return to the government. This demonstrates that there are tradeoffs in tax policy that affect the user cost of capital. For example, if to achieve a revenue neutral tax change, the corporate tax rate were reduced at the same time that tax depreciation were made less generous, these two changes would have offsetting effects on the user cost of capital. The net impact could increase, decrease, or have no net effect on the user cost of capital.

Financing costs

The user cost of capital is the financial cost of capital, that is, the opportunity cost of funds, adjusted for expected inflation. Therefore, the user cost of capital depends on how the investment is financed: with debt, equity, retained earnings, or some combination thereof. That is, the financing cost, denoted by i in the equation, is the real before-tax rate of interest the firm must pay to acquire the asset if debt-financed, the real before-tax rate of return required by shareholders if the asset is equity-financed, the real before-tax cost of internal equity if the asset is financed with retained earnings, or some weighted average of the three.²⁴⁵ Investment tax credits lower the user cost of capital by reducing the effective acquisition cost of a capital asset.

²⁴⁵ Robert S. Chirinko, "Corporate Taxation, Capital Formation, and the Substitution Elasticity between Labor and Capital," *National Tax Journal*, 55, June 2002, pp. 339-355. A more complete treatment would also include the tax treatment of the financiers. See Mackie, "Unfinished Business," June 2002.

Economic depreciation and tax depreciation

The user cost of capital also incorporates the rate of economic depreciation of the asset, denoted by δ in the equation. Economic depreciation reflects the rate at which a capital asset falls in value as it ages.²⁴⁶ Firms must earn enough from capital investments to recover this economic depreciation; otherwise they would be better off investing in some other asset.

Greater tax depreciation allowances tend to lower the user cost of capital. Tax depreciation, denoted by x in the equation, often differs from economic depreciation, and since 1981 has generally been accelerated relative to economic depreciation.²⁴⁷ To the extent that tax depreciation has a larger (smaller) present value than does economic depreciation—accelerated depreciation or in the extreme case, expensing—the user cost of capital may be lower (higher) than in the absence of the tax allowances. The tax law can promote an inefficient distribution of investment if it specifies tax depreciation rates that deviate from economic depreciation rates. Some have argued, for instance, that depreciation provisions are more favorable to investment in equipment than investment in structures, which could result in a bias in favor of investment in equipment.²⁴⁸ In addition, tax rules can encourage more aggregate investment if tax depreciation rates, as a whole, are faster than economic depreciation rates.

Measuring economic depreciation

Although tax depreciation rates are defined by tax rules and relatively straightforward to calculate, measuring economic depreciation rates, the change in market value of income-producing property, is more difficult. Although economists have attempted to estimate economic depreciation rates for particular investments, no consensus has emerged regarding a general representation of a depreciation method applicable across broad classes of assets.²⁴⁹ One method based on early estimates of economic depreciation is the ADS. ADS assigns each investment a recovery period reflecting its useful life, and assumes that the investment depreciates in a straight-line pattern. The dollar amount of economic depreciation is assumed to be the same each year. For example, agricultural machinery is assumed to have a useful life, and recovery period, of 10 years under ADS. Therefore, a \$100 piece of agricultural machinery would have a constant depreciation deduction in the amount of \$10 each year over its 10 year life. In the first year this would be a rate of depreciation of 10 percent (\$10/\$100). However, in the second year, the remaining value is \$90 while the tax depreciation deduction amount is still \$10 for the year. This represents a rate of depreciation of 11.1 percent (\$10/\$90). Therefore, the rate of economic

²⁴⁶ The definition of depreciation relevant to measurement of true economic income is economic depreciation, the true loss of economic value. Paul A. Samuelson, “Tax Deductibility of Economic Depreciation to Insure Invariant Valuations,” *Journal of Political Economy*, vol. 72, December 1964, pp. 604-606.

²⁴⁷ The legislative background of the tax depreciation rules is described in section II.A. of this document.

²⁴⁸ Jane G. Gravelle, “Depreciation and the Taxation of Real Estate,” Congressional Research Service Report RL3063, 2000.

²⁴⁹ Jane G. Gravelle, “Whither Tax Depreciation,” *National Tax Journal*, September 2001, pp. 513-526.

depreciation for agricultural machinery varies under ADS from 10 percent in the first year to 100 percent in the tenth year.

However, some economists argue that assets do not depreciate by a constant dollar amount each year, but rather depreciate at a constant rate, that is, in a geometric pattern. Assets depreciate the most in the first year of their useful life and by declining amounts in subsequent years. In particular, some economists have found that economic depreciation follows a geometric pattern, as opposed to a straight-line pattern, because data suggest that a geometric pattern more closely matches the actual pattern of price declines for most asset types.

For example, one of the earliest and most prominent studies estimated that agricultural machinery depreciates at a 9.71-percent rate with a useful life of 17 years, which is longer than the ADS life.²⁵⁰ The Bureau of Economic Analysis of the Department of Commerce (“BEA”) currently estimates an 11.79-percent rate of economic depreciation for agricultural machinery with a useful life of 14 years. In the case of agricultural machinery, the useful life under ADS may understate the economic useful life and therefore provide tax depreciation that is more generous than economic depreciation. A full comparison would need to adjust for the method of depreciation as well as the useful life.

BEA introduced a new methodology for calculating economic depreciation for purposes of the National Income and Product Accounts (“NIPA”) in 1997 that relies on a constant rate of decay over estimated useful lives to compute rates of economic depreciation.²⁵¹ The purpose of these estimates is to measure the consumption of fixed capital for purposes of accurately measuring components of GDP. Instead of a small number of recovery periods for asset classes as under the present income tax depreciation rules, several hundred types of assets are identified. Each of these types is assigned a depreciation rate equal to the appropriate declining balance rates divided by the service life. BEA bases its economic depreciation patterns on empirical evidence of used asset prices in resale markets for each asset type wherever possible. The BEA describes its methodology for estimating economic depreciation as follows.

BEA assumes most assets have depreciation patterns that decline geometrically over time. For any given year, the constant-dollar depreciation charge on an existing asset is obtained by multiplying the depreciation charge in the preceding year by one minus the annual depreciation rate.²⁵² BEA’s geometric depreciation rates are derived by dividing declining balance rates by service lives.... Declining-balance rates are multiples of the comparable rate of depreciation that would be obtained for the first period of an asset’s life using the straight-line method. Thus, when the declining balance rate is equal to 2

²⁵⁰ Frank C. Wykoff and Charles R. Hulten, “The Measurement of Economic Depreciation,” *Depreciation, Inflation, and the Taxation of Capital* (ed. Charles R. Hulten), 1981, pp. 81-125.

²⁵¹ For a detailed discussion of the BEA methodology, see Barbara M. Fraumeni, “The Measurement of Depreciation in the U.S. National Income and Product Accounts,” *Survey of Current Business*, 77, July 1997, pp. 7–23.

²⁵² New assets are assumed, on average, to be placed in service at midyear, so that depreciation on them in the first year is equal to one-half the new investment times the depreciation rate.

(referred to as a “double-declining balance”), the rate of depreciation in the first period of an asset’s life is equal to twice the rate that would have been obtained using the straight-line method.²⁵³

On average the declining balance rate is 1.65 for equipment and 0.91 for private nonresidential structures. These serve as the default declining balance rates for assets for which no data are available. Table 13 provides the rate of economic depreciation, service life, and declining balance rate for selected types of assets, as estimated by the BEA. It also lists the recovery periods for these types of assets under the current ADS and MACRS tax rules.

Table 13.—BEA Economic Depreciation Rates and Service Lives Compared to ADS and MACRS Recovery Periods for Selected Asset Types

Type of Asset	BEA Rate of Depreciation	BEA Service Life	BEA Declining Balance Rate	ADS Class Life	MACRS Recovery Period
Software - Pre-packaged	0.5500	3	1.6500	5	3
Software - Custom	0.3300	5	1.6500	5	3
Machinery (except tractors) - Construction	0.1550	10	1.5500	6	5
Equipment - Railroad	0.0589	28	1.6500	14	7
Farm tractors	0.1452	9	1.3064	4	3
Ships and boats	0.0611	27	1.6500	18	10
Machinery (except tractors) - Agricultural	0.1179	14	1.6500	10	7
Equipment (1978 and later years) - Office and accounting	0.3119	7	2.1832	6	5
Manufacturing structures	0.0314	31	0.9747	40	39
Office buildings, including medical buildings	0.0247	36	0.8892	40	39
Educational buildings	0.0188	48	0.9024	40	39
1-to-4-unit residential structures (new)	0.0114	80	0.9100	40	27.5
Trucks - Government, noncombat	0.2875	6	1.7252	6	5
Trucks - Used for trucking and other services (1992 and after)	0.1725	10	1.7252	6	5

Source: Bureau of Economic Analysis, Rev. Proc. 87-56.

Statutory corporate rate

The corporate tax system also influences the user cost of capital through the statutory corporate income tax rate. The corporate income tax raises the user cost of capital by increasing the required before-tax return to generate the same after-tax revenue. This requires more productive assets than would be needed without this additional cost. If asset prices reflect their productivity, these new assets may be more expensive, taking account of corporate income tax.

²⁵³ U.S. Department of Commerce, Bureau of Economic Analysis, *Fixed Assets and Consumer Durable Goods in the United States, 1925-97*, Washington, DC: U.S. Government Printing Office, September, 2003, p. M-6, M-7.

A greater total cost for assets may increase the value of economic depreciation. To the extent that financing costs are not deductible, they also increase the opportunity cost of funds.

User cost of capital and investment

While the tax system directly affects the user cost of capital, the impact of the tax system on investment depends on how sensitive investment is to changes in the user cost of capital. If investment is relatively responsive to the user cost of capital, then policymakers can influence the level of investment by enacting changes in the corporate tax rate, depreciation allowances, investment tax credits, and/or taxation of returns to investment at the individual level.

Effective marginal tax rates

One way to measure the potential inefficiency in the allocation of capital is to calculate the effective marginal tax rate on investment. The effective marginal tax rate is the rate that would offer the same incentives implied by various features of the tax code, if that rate were applied directly to economic income.²⁵⁴ The effective marginal tax rate may be calculated from the user cost of capital.²⁵⁵ The effective marginal tax rate is the rate that would leave an after-tax real rate of return sufficient to cover the real financing costs of the investment and economic depreciation. Effective marginal tax rates are often used as a measure of investment incentives in lieu of the user cost of capital upon which it is based. Tax changes that increase the user cost of capital also increase the effective marginal tax rate. Similarly, tax changes that reduce the user cost of capital also reduce the effective marginal tax rate. Increases (decreases) in the effective marginal tax rate tend to decrease (increase) investment in the long run, and thus decrease (increase) the size of the aggregate capital stock.

Economic output, however, depends not only on the size of the capital stock but also on its composition. In the absence of taxes, the operation of a competitive economy causes capital to flow to sectors where it is expected to earn the highest rate of return. This results in an allocation of investment that produces the largest amount of national income. However, if effective marginal tax rates differ across sectors of the economy, more capital may accumulate in lightly taxed sectors, and less capital may be invested in highly taxed sectors. This may result in an inefficient allocation of capital to sectors in which it earns a lower pre-tax rate of return, reducing total productivity and potential output across all sectors. Thus, the effect of a reduction in the economy-wide effective marginal tax rate on investment could be partially offset if the disparity in effective marginal tax rates across sectors increases.

²⁵⁴ While useful for measuring marginal incentive effects, effective marginal tax rates are not relevant for purposes of comparing tax burdens on investors in particular activities or industries. The calculation of effective marginal tax rates depends on a concept of long-run equilibrium in which all investors earn the same risk-adjusted after-tax rate of return; therefore, differences in effective marginal tax rates do not reflect differences in investor returns. Mackie, "Unfinished Business," June 2002.

²⁵⁵ For a detailed description of the methodology and calculations involved, see Congressional Budget Office, *Computing Effective Tax Rates on Capital Income*, December 2006, available at <http://www.cbo.gov/ftpdocs/76xx/doc7698/12-18-TaxRates.pdf>.

Table 14 reports a recent estimate of effective marginal tax rates on capital income.²⁵⁶ The overall effective marginal tax rate on capital income is 13.8 percent. However, the rate varies significantly depending on the type of investment, the form of business organization, and the source of financing. The effective marginal tax rate on all business investment is 24.2 percent, with a higher rate in the corporate sector (26.3 percent) than in the noncorporate sector (20.6 percent). This difference is due in part to the presence of a separate corporate income tax and in part to most noncorporate income being taxed at relatively low marginal rates. However, this difference is partially offset by the relatively greater share of corporate relative to noncorporate income that is received by tax-favored retirement accounts.

Investment for both tenant-occupied and owner-occupied housing is tax-favored relative to business investment as a whole with effective marginal tax rates of 18.2 percent and -5.1 percent, respectively. Rental housing is taxed at a lower rate than other business investment because of relatively generous depreciation schedules (27.5-year recovery period)²⁵⁷ and the large portion of rental housing investment that occurs outside of the corporate sector. The negative rate on owner-occupied housing reflects the deductibility of mortgage interest and real property taxes and the exclusion of implicit net rental income and certain capital gains from gross income.²⁵⁸

Table 14.—Effective Marginal Tax Rates on Capital Income, 2005

Overall	13.8
Business	24.2
Corporate	26.3
Debt financed	-6.4
Equity financed	36.1
Noncorporate	20.6
Housing	
Tenant occupied	18.2
Owner occupied	-5.1

Source: Congressional Budget Office.

The effective marginal tax rates shown in Table 14 are computed based on the mix of debt and equity financing observed in the corporate sector. To show the sensitivity of rates to the source of financing, effective marginal tax rates are recomputed assuming either all debt or all

²⁵⁶ For a detailed description of the assumptions and calculations involved, see Congressional Budget Office, *Taxing Capital Income: Effective Rates and Approaches to Reform*, October 2005, available at <http://www.cbo.gov/ftpdocs/67xx/doc6792/10-18-Tax.pdf>.

²⁵⁷ Table 13 above shows the estimated BEA service life for new 1-to-4 unit residential structures of 80 years. BEA estimates new 5-or-more-unit structures have a service life of 65 years.

²⁵⁸ See discussion of tax incentives for owner-occupied housing in Joint Committee on Taxation, *Present Law, Data, and Analysis Relating to Tax Incentives for Homeownership* (JCX-50-11), September 30, 2011.

equity financing. The marginal tax rate on income from an all-debt-financed corporate investment is -6.4 percent versus 36.1 percent for an all-equity-financed corporate investment. The negative rate on income from an all-debt-financed corporate investment is attributable in part to deductions for both accelerated depreciation and interest expense which, in combination, exceed taxable income. This is partially offset by individual taxes on the interest income received; however, much of that interest income is generally taxed at individual marginal tax rates lower than the corporate marginal tax rate at which the interest paid is deductible, or it may be received by tax-favored accounts (individual retirement accounts or tax-exempt holdings of pension funds and endowments) and escape taxation entirely. The rate on all-equity-financed investment is higher than the statutory corporate tax rate due to individual income taxation of dividends and capital gains, mitigated by the share of such income received by tax-favored accounts. Without considering these individual-level taxes, the rate on equity-financed corporate investment is lower than the statutory rate (30.6 percent) due to accelerated depreciation.

Effect of depreciation on effective marginal tax rates

The effective marginal tax rate varies by type of asset generally because of variation in the deviation of tax depreciation from economic depreciation. In its analysis, the Congressional Budget Office used Bureau of Economic Analysis published economic depreciation rates.²⁵⁹ Table 15 provides a list of effective marginal tax rates on capital income of C corporations by asset type. It also presents the cumulative percentage of each asset type in 2002. The final column presents tax recovery periods for selected asset types.

Table 15 shows that computers and peripheral equipment have an effective marginal tax rate in excess of the top statutory corporate tax rate.²⁶⁰ Other relatively heavily taxed assets include inventories, manufacturing buildings, and land. The lowest rates apply to petroleum and natural gas structures, mining structures, railroad equipment, aircraft, and specialized industrial machinery.

²⁵⁹ Department of Commerce, Bureau of Economic Analysis, *Fixed Assets and Consumer Durable Goods in the United States, 1925–97*, September 2003, Table B, p. M-30; Table C, pp. M-31–M-32; available at www.bea.gov/bea/dn/Fixed_Assets_1925_97.pdf. This methodology for measuring depreciation rates is different from depreciation represented by ADS.

²⁶⁰ Research suggests that current tax depreciation schedule for computers measures their actual loss in value in a zero-inflation environment. However, because the tax code is not indexed for inflation, the present value of depreciation allowances may be too small for positive inflation rates. Mark E. Doms, *et al.*, “How Fast Do Personal Computers Depreciate? Concepts and New Estimates,” in James M. Poterba (ed.), *Tax Policy and the Economy 18*, Cambridge, Mass.: The MIT Press, 2004, pp. 37-80.

**Table 15.—Effective Marginal Tax Rates on Capital Income of C Corporations
by Asset Type and Selected MACRS Recovery Periods**

Asset Type	Effective Marginal Tax Rate	Cumulative Percentage of Assets in 2002	Selected MACRS Recovery Periods
Computers and Peripheral Equipment	36.9	1.2	5
Inventories	34.4	11.8	nondepreciable
Manufacturing Buildings	32.2	19.1	39
Land	31.0	33.5	nondepreciable
Other Buildings	30.6	36.1	39
Commercial Buildings	30.4	44.5	39
Office Buildings (Including Medical)	30.2	51.2	39
Automobiles	29.7	52.2	5
Other Structures	29.5	53.4	
Software	29.1	55.9	3
Hospitals and Special Care	28.4	56.6	
Educational Buildings	28.4	56.9	39
Office and Accounting Equipment	28.4	57.0	5 or 7
Internal Combustion Engines	27.3	57.0	5
Electric Transmission and Distribution	24.9	59.4	20
Other Electrical Equipment	24.8	59.5	
Residential Buildings	23.8	60.0	27.5
Steam Engines	22.9	60.5	
Farm Tractors	22.7	60.6	3
Service Industry Machinery	22.2	61.2	
Mining and Oil-Field Machinery	21.9	61.4	
Other Equipment	21.5	62.5	
Farm Structures	20.8	62.7	20
Medical Equipment and Instruments	20.4	63.4	
Agricultural Machinery	20.2	63.6	

Asset Type	Effective Marginal Tax Rate	Cumulative Percentage of Assets in 2002	Selected MACRS Recovery Periods
Railroads	20.1	65.9	
Nonmedical Instruments	20.0	66.7	
Metal-Working Machinery	19.0	68.4	
Other Power Structures	19.0	70.5	
Photocopy and Related Equipment	18.8	70.8	5
Electric Structures	18.6	76.2	
Other Furniture	18.5	77.7	7
Other Trucks, Buses, and Truck Trailers	18.2	78.6	5
Light Trucks (Including Utility Vehicles)	18.2	79.9	5
Communications Equipment	17.8	83.7	7
Household Appliances	17.5	83.8	5
Construction Tractors	17.4	83.8	3
General Industrial Equipment	17.3	86.8	7
Communication Structures	17.0	89.7	7
Construction Machinery	16.7	90.3	5
Ships and Boats	16.5	90.8	10
Residential Equipment	16.2	90.8	
Fabricated Metal Products	15.5	91.6	
Household Furniture	15.1	91.6	5
Specialized Industrial Machinery	14.9	93.8	
Aircraft	14.5	95.8	7*
Railroad Equipment	11.4	96.5	7
Mining Structures	9.5	96.8	7
Petroleum and Natural-Gas Structures	9.2	100.0	

* The recovery period is seven years for commercial aircraft and five years for non-commercial aircraft (e.g., corporate jets) including helicopters.

Source: Congressional Budget Office.

Tax expenditures related to selected cost recovery rules

One measure of the effect of a tax system on the user cost of capital (and therefore on effective marginal tax rates) is the tax expenditure for accelerated depreciation and expensing. Table 16 reports the tax expenditure estimates for fiscal years 2011-2015 for selected provisions related to the cost recovery rules.²⁶¹ The Joint Committee staff generally classifies as tax expenditures cost recovery allowances that are more favorable than those provided under the alternative depreciation system (sec. 168(g)), which provides for straight-line recovery over tax lives that are longer than those permitted under the accelerated system.²⁶² In addition, a tax expenditure is measured for depreciation in those specific cases in which the tax treatment of a certain type of asset deviates from the overall treatment of other similar types of assets. For example, the tax treatment of leasehold improvements of commercial buildings is depreciated using a recovery period of 15 years for property placed in service in 2011, while the general treatment of improvements to commercial buildings if the owner makes the improvements is a 39 year recovery period. In this case, the difference between depreciation (in this case straight-line) using 15 years and 39 years for the recovery period represents a tax expenditure.

**Table 16.—Tax Expenditures for Selected Cost Recovery Rules, FY2011-2015
(billions of dollars)**

Provision	Total FY2011-2015 (\$ billions)
Depreciation of equipment in excess of the alternative depreciation system	109.0
Expensing of research and experimental expenditures	26.5
Depreciation of rental housing in excess of alternative depreciation system	24.8
Expensing under section 179 of depreciable business property	9.5
Amortization of business startup costs	5.3
Expensing of exploration and development costs, fuels	4.4
Election to expense 50 percent of qualified property used to refine liquid fuels	3.0
Depreciation of buildings other than rental housing in excess of alternative depreciation system	2.1

²⁶¹ For the most recent tax expenditure estimates prepared by the Joint Committee staff, see Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2011-2015* (JCS-1-12), January 17, 2012.

²⁶² Some economists assert that this may not represent the difference between tax depreciation and economic depreciation. If economic depreciation were calculated using the BEA methodology for NIPA instead of ADS, the tax expenditure would be a different amount. The BEA methodology for NIPA and its differences from ADS are discussed above under “*Measuring economic depreciation.*”

Provision	Total FY2011-2015 (\$ billions)
Expensing of timber growing costs	1.2
Five-year MACRS for certain energy property	1.1
Amortization and expensing of reforestation expenditures	1.1
Deduction for expenditures on energy-efficient commercial building property	0.9
15-year MACRS for certain electric transmission property	0.8
Amortization of air pollution control facilities	0.8
10-year MACRS for smart electric distribution property	0.7
Expensing of costs to remove architectural and transportation barriers to the handicapped and elderly	0.6
Amortization of geological and geophysical expenditures associated with oil and gas exploration	0.6
15-year MACRS for natural gas distribution line	0.6
Expensing of the costs of raising dairy and breeding cattle	0.5
Expensing of exploration and development costs, nonfuel minerals	0.3
Expensing by farmers for fertilizer and soil conditioner costs	0.3
Expensing of soil and water conservation expenditures	0.3
Special depreciation allowance for certain reuse and recycling property	0.1
Expensing of magazine circulation expenditures	0.1

Source: Joint Committee on Taxation.

Capital cost recovery and national investment

Changes in tax depreciation schedules may affect the overall level of investment in the economy. However, the magnitude of the effect is an empirical question. For example, the bonus depreciation provisions enacted in 2002, 2003, 2008, 2009, and 2010, substantially raised the first-year depreciation deduction a taxpayer could take and thereby increased an investment's rate of tax depreciation substantially. Although these provisions lowered the user cost of capital, the overall impact depends on the degree to which taxpayers respond to the lower cost of capital by making investments they otherwise would not have made. If the drop in the user cost of capital mainly benefits taxpayers who make a level of investment similar to the level that they would have made without bonus depreciation, then the effect of the change in tax law is muted.

The literature on the effects of more generous cost recovery methods and on the sensitivity of capital investment to its user cost more generally, on balance supports the theory that investment is responsive to taxes. One of the first major studies found that investment

responded strongly to changes in tax policy.²⁶³ The authors examined a range of tax policies that lowered the user cost of capital, such as accelerated depreciation, investment tax credits, and expensing. Their results are in line with conventional economic theory, which suggests that lowering the user cost of capital (such as through accelerated depreciation) increases national investment.

Some authors have found smaller effects. One study of the bonus depreciation provisions enacted in 2002 and 2003 concluded that the provisions had little impact on investment spending.²⁶⁴ Another study, analyzing the investment behavior of a large collection of firms from 1981 to 1991, estimated a relatively small response of capital investment to changes in its user cost.²⁶⁵ Various explanations for these results have been proposed in the economics literature. For example, if firms face high, fixed costs of adjusting their capital stocks, they may be less sensitive to tax incentives to invest in more capital.²⁶⁶ Also, lack of taxpayer awareness, tax law interactions, and the complexity costs of claiming a deduction under a new provision could reduce the sensitivity of investment to tax incentives. A study of the bonus depreciation provisions of 2002 and 2003, as well as legislation enacted in 2003 that increased the maximum section 179 deduction from \$25,000 to \$100,000, found that the fraction of small businesses claiming 179 expensing changed little between 2001 or 2002, and 2003, when the limitation on deductions was raised.²⁶⁷ Among small businesses, 39 percent of individuals and 54 percent of corporations claimed bonus depreciation in 2002, compared to 33 percent of individuals and 49 percent of corporations in 2003, when bonus depreciation was made more generous.²⁶⁸ Other research has found that utilization rates for the bonus depreciation measures were higher for industries, such as telecommunications, where the long-lived investments by a small number of firms accounts for the bulk of investment.²⁶⁹

²⁶³ Robert Hall and Dale W. Jorgenson, "Tax Policy and Investment Behavior," *American Economic Review*, vol. 57, no. 3, June 1967, pp. 391-414.

²⁶⁴ Darrel Cohen and Jason Cummins, "A Retrospective Evaluation of the Effects of Temporary Partial Expensing," *Board of Governors of the Federal Reserve System Finance and Economics Discussion Series: 2006-19*. However, a subsequent study criticizes the authors' use of five-year property and seven-year property as a treatment and control group, neither of which gets much benefit from bonus depreciation. Christopher House and Matthew Shapiro, "Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation," *American Economic Review*, vol. 98, June 2008, pp. 737-768.

²⁶⁵ Robert S. Chirinko, Steven M. Fazzari, and Andrew P. Meyer, "How Responsive Is Business Capital Formation to Its User Cost? An Exploration with Micro Data," *Journal of Public Economics* 74(1), 1999, pp. 53-80.

²⁶⁶ Ricardo J. Caballero and Eduardo M.R.A. Engel, "Explaining Investment Dynamics in U.S. Manufacturing: A Generalized (S, s) Approach," *Econometrica* 67(4), 1999, pp. 783-826.

²⁶⁷ Matthew Knittel, "Small Business Utilization of Accelerated Tax Depreciation: Section 179 Expensing and Bonus Depreciation," *National Tax Journal Proceedings-2005, 98th Annual Conference*, 2005, pp. 273-286.

²⁶⁸ *Ibid.*, p. 284.

²⁶⁹ Matthew Knittel, "Corporate Response to Accelerated Tax Depreciation: Bonus Depreciation for Tax Years 2002-2004," Office of Tax Analysis Working Paper 98, May 2007.

However, for the most part, the economic literature on tax policy and investment does lean toward the conclusion that changes in taxes do have a noticeable impact on investment. A well-known survey of the literature, for example, concluded that investment was highly responsive to changes in the cost of capital.²⁷⁰ One study looking at the period from 1953 to 1988, during which time accelerated depreciation and investment tax credit provisions were both enacted and repealed, found that tax policy had a strong effect on the level of investment, especially for machinery and equipment.²⁷¹ The authors also provided evidence that suggests firms with lower net cash flows, which may be more liquidity-constrained, are more responsive to changes in the cost of capital.²⁷² If this is true, then firms with less access to capital markets are particularly sensitive to changes in tax incentives for investment. Moreover, insofar as tax changes affect both net cash flows and the user cost of capital, some economists have found that the cash-flow effect is stronger.²⁷³ Recent research on the bonus depreciation provisions enacted in 2002 and 2003 found a noticeable impact of tax incentives on investment in capital goods.²⁷⁴ The authors argue that the demand for long-lived investment goods is extremely responsive to temporary changes in tax treatment because the value of these investments is not particularly sensitive to the date of purchase, while the cost could be if temporary tax incentives are in place.

International comparisons

The taxation of corporate capital income varies across countries. Table 17 reports statutory and effective marginal corporate income tax rates, including subnational taxes where relevant, for member countries of the Organization for Economic Cooperation and Development (“OECD”) in 2010.²⁷⁵ It also reports average tax rates (both weighted by GDP and unweighted)²⁷⁶ for the OECD countries shown and for members of Group of Seven (“G7”).²⁷⁷ In

²⁷⁰ Kevin A. Hassett and R. Glenn Hubbard, “Tax Policy and Business Investment,” *Handbook of Public Economics*, Volume 3, (eds. Alan J. Auerbach and Martin Feldstein), 2002, pp. 1293-1343.

²⁷¹ Alan J. Auerbach and Kevin Hassett, “Tax Policy and Business Fixed Investment in the United States,” *Journal of Public Economics*, vol. 4, 1992, pp. 141-170.

²⁷² *Ibid.*

²⁷³ Steven M. Fazzari, R. Glenn Hubbard, and Bruce C. Petersen, “Financing Constraints and Corporate Investment,” *Brookings Papers on Economic Activity*, vol. 1, 1988, pp. 141-195.

²⁷⁴ Christopher House and Matthew Shapiro, “Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation,” *American Economic Review*, vol. 98, June 2008, pp. 737-768.

²⁷⁵ Data are from Kevin A. Hasset and Aparna Mathur, “Report Card on Effective Corporate Tax Rates: United States Gets an F,” *American Enterprise Institute for Public Policy Research Tax Policy Outlook*, February 2011, available at <http://www.aei.org/files/2011/02/09/TPO-2011-01-g.pdf>.

²⁷⁶ The averages as reported in the last four rows of the table exclude the United States. Including the United States in the averages raises average statutory corporate income tax rates to 33.0, 26.0, 36.1, and 32.7 percent, respectively, and changes the average effective marginal tax rates to 22.0, 17.5, 23.9, and 23.3 percent, respectively.

²⁷⁷ The group of seven industrialized nations includes Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

2010, statutory corporate income tax rates range from a low of 12.5 percent in Ireland to a high of 39.5 percent in Japan and the United States. Effective marginal tax rates range from a low of 7.3 percent in Turkey to a high of 30.5 percent in Japan. The U.S. statutory corporate tax rate exceeds the OECD GDP-weighted average by 10 percentage points. However, this high statutory rate is partially offset by other features of the tax system such that the U.S. effective marginal tax rate exceeds the OECD average by only 2.5 percentage points. The U.S. effective marginal tax rate is on par with the average among G7 nations.

Table 17.—Statutory and Effective Marginal Tax Rates among OECD Countries, 2010

Country	Statutory Corporate Tax Rate	Effective Marginal Tax Rate	Country	Statutory Corporate Tax Rate	Effective Marginal Tax Rate
Australia	30.0%	17.0%	Netherlands	25.5%	15.1%
Austria	25.0%	18.2%	Norway	28.0%	22.1%
Belgium	34.0%	13.9%	Poland	19.0%	14.1%
Canada	29.5%	23.4%	Portugal	26.5%	12.2%
Chile	17.0%	11.5%	Slovak Republic	19.0%	19.3%
Czech Republic	19.0%	18.1%	Spain	30.0%	26.3%
Denmark	25.0%	16.5%	Sweden	26.3%	12.6%
Finland	26.0%	17.3%	Switzerland	21.2%	10.9%
France	34.4%	23.8%	Turkey	20.0%	7.3%
Germany	30.2%	20.7%	United Kingdom	28.0%	18.8%
Greece	24.0%	13.4%	United States	39.5%	23.6%
Hungary	19.0%	13.4%	OECD GDP-Weighted		
Ireland	12.5%	9.7%	Average (excl.US)	29.5%	21.1%
Italy	27.5%	22.6%	OECD Average (excl. US)	25.5%	17.3%
Japan	39.5%	30.5%	G7 GDP-Weighted		
Korea	24.2%	13.6%	Average (excl. US)	32.8%	24.2%
Luxembourg	28.6%	13.9%	G7 Average (excl. US)	31.5%	23.3%
Mexico	30.0%	27.7%			

Source: American Enterprise Institute and JCT staff calculations.

Effective marginal tax rates may vary as a result of variation in statutory rates, depreciation allowance, or how investment is financed due to differences in the tax treatment of debt and equity. Table 18 reports statutory corporate income tax rates, including subnational taxes where relevant, the present discounted value of depreciation allowances, and effective marginal tax rates (“EMTR”) for investments in equipment for members of the OECD in 2005.²⁷⁸ While the United States has a top statutory corporate tax rate exceeding the OECD

²⁷⁸ Data are from U.S. Department of the Treasury, “Treasury Conference on Business Taxation and Global Competitiveness Background Paper,” July 23, 2007, available at <http://www.treasury.gov/press-center/press-releases/Documents/07230%20r.pdf>. Since 2005, Germany, Japan, the United Kingdom, and others have lowered the statutory corporate tax rates and made other changes that may affect the effective marginal tax rate calculations shown here. More recent data on the present value of depreciation allowances are not available.

average by eight percentage points in 2005, this difference is partially offset by more generous accelerated depreciation than the average OECD country. This results in an effective marginal tax rate on equity-financed investment four percentage points higher in the United States than the average in the OECD and on par with the subset of nations which are members of the G7. Debt-financed investment faces a lighter burden of taxation in the United States relative to the effective marginal tax rate on average among OECD or G7 members, largely as a result of the higher statutory marginal tax rate in the United States increasing the value of interest deductions.

Table 18.—Statutory and Effective Marginal Tax Rates among OECD Countries for Investments in Equipment, 2005

Country	PDV of			
	Statutory Corporate Tax Rate	Depreciation Allowance - Equipment (Equity)	EMTR - Equipment Equity	EMTR - Equipment Debt
Canada	36%	73%	25%	-37%
France	34%	77%	20%	-36%
Germany	38%	71%	29%	-37%
Italy	37%	82%	19%	-48%
Japan	40%	73%	28%	-40%
United Kingdom	30%	73%	20%	-28%
United States	39%	79%	24%	-46%
OECD Average	31%	75%	20%	-32%
G7 Average	36%	76%	24%	-39%

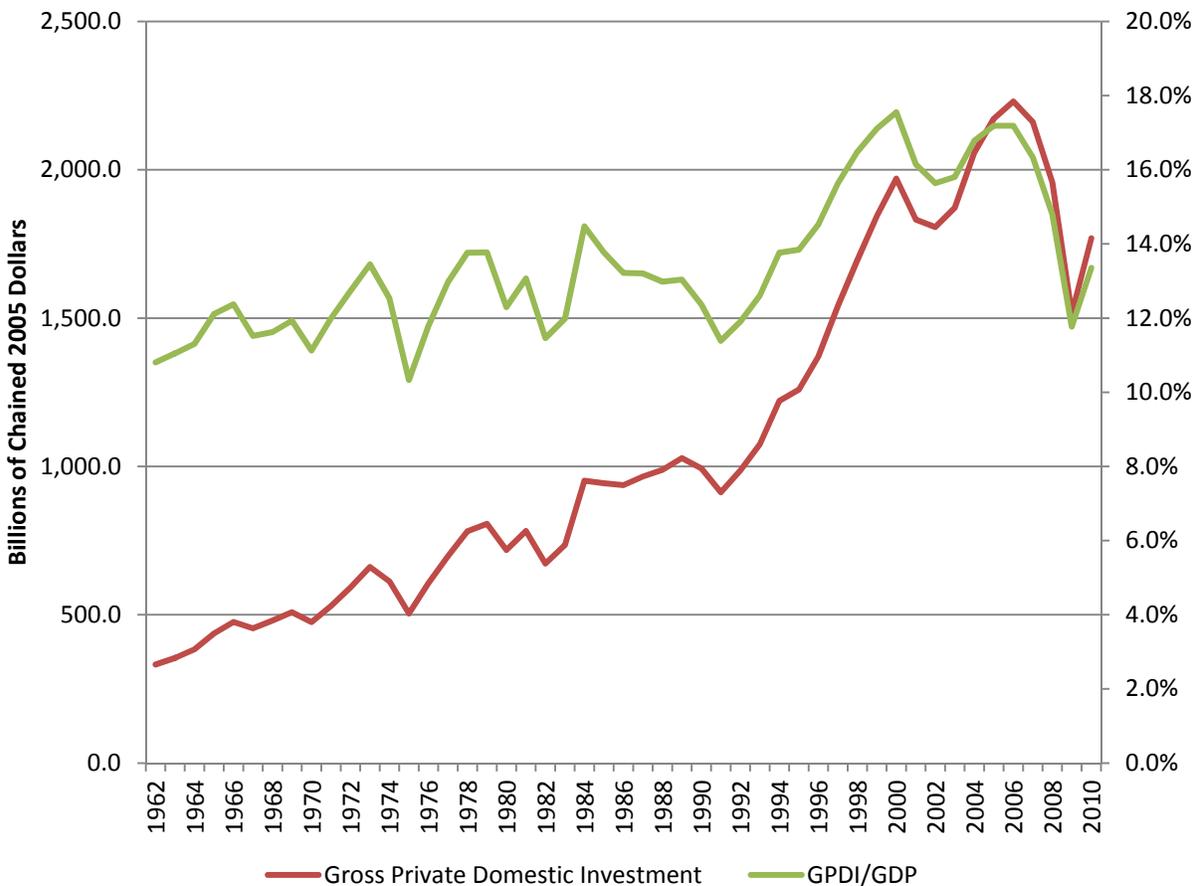
Source: Institute for Fiscal Studies, www.ifs.org.uk

B. Data on Cost Recovery and Investment

Investment and GDP

Investment, along with consumption, government expenditures, and net exports, is one of the primary components of gross domestic product (“GDP”). On the left axis, Figure 1 shows the amount of real gross private domestic investment in billions of chained 2005 dollars since 1962. On the right axis, Figure 1 shows the share of real GDP attributable to investment. In general, the level of investment rose steadily from the 1960s through the late 1980s. From the trough after the 1990-1991 recession, real investment more than doubled over the next decade, rising from \$912.7 billion in 1991 to \$1,970.3 billion in 2000. The level of investment peaked at \$2,230.4 billion in 2006, though it has fallen by more than 20 percent since then to \$1,769.3 billion. Over 80 percent of that decline is attributable to a drop in residential fixed investment (housing). As a share of GDP, investment fluctuates within a range of 12 to 14 percent, except for the decade from about 1997 to 2007 during which investment exceeded its historical average by several points.

Figure 1.—Gross Private Domestic Investment, Levels and Share of GDP, 1962-2010

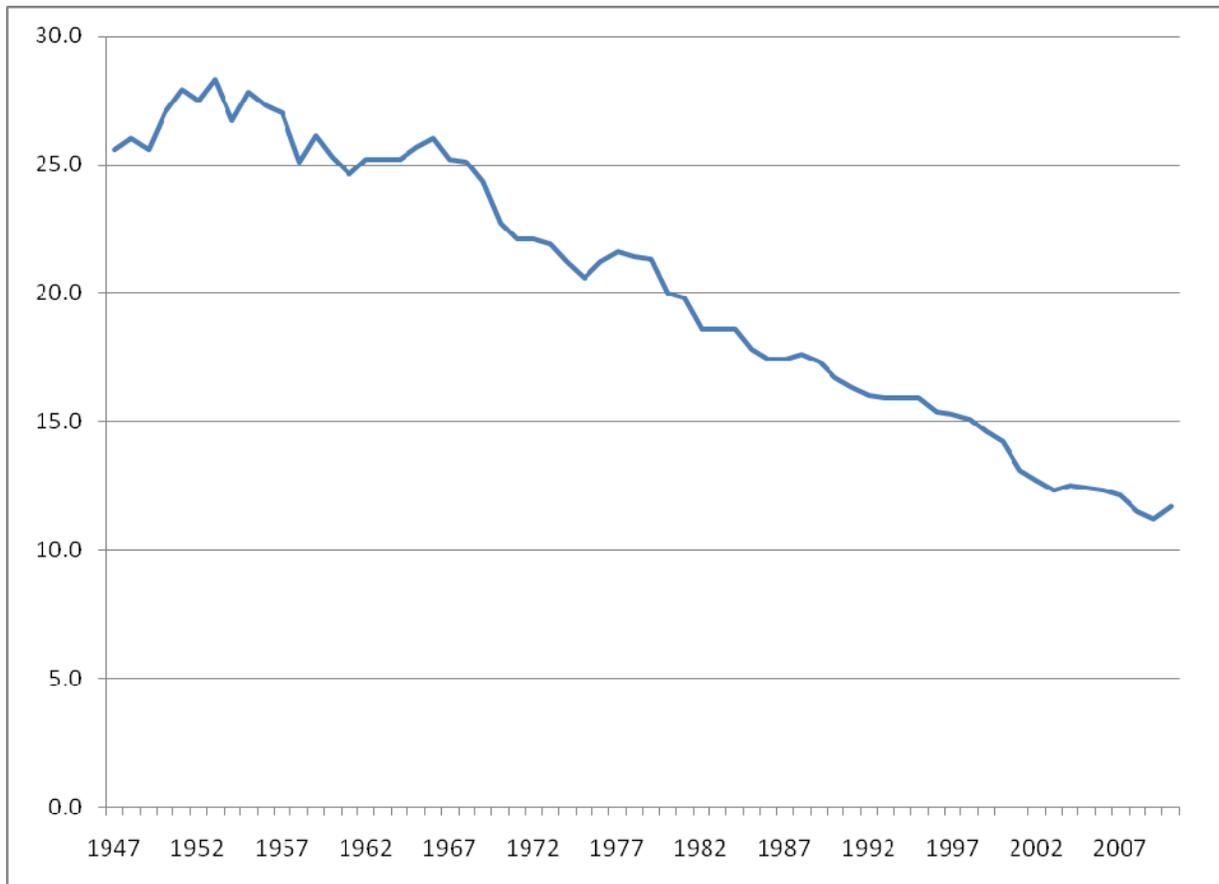


Source: Bureau of Economic Analysis, JCT staff calculations.

Manufacturing and GDP

Investment is often associated with the manufacturing sector of the economy. Figure 2 shows the share of GDP attributable to the value added by the manufacturing sector since 1947. Manufacturing has steadily declined as a share of GDP throughout the period. However, as shown in Figure 1, the share of GDP attributable to investment has remained more stable. This suggests that investment in other sectors has offset any decline in investment in manufacturing as a share of GDP.

Figure 2.-Manufacturing as a Share of GDP, 1947-2010



Source: Bureau of Economic Analysis, JCT staff calculations.

Corporate data by industrial sector

Corporations report information about their assets and various cost recovery deductions on their tax returns. These include depreciation (including expensing under section 179 and bonus depreciation), depletion, and amortization. In addition corporations may claim a variety of investment credits. For tax year 2009,²⁷⁹ approximately 46,700 active corporations claimed over

²⁷⁹ Data in this paragraph come from Internal Revenue Service, *2009 Estimated Data Line Counts Corporation Tax Returns*, Rev. 05-2012; Internal Revenue Service, *Corporation Income Tax Returns 2009*, Publication 16, Rev. 05-2012; and JCT staff calculations.

\$14.2 billion in deductions for domestic production activities.²⁸⁰ Nearly 3.3 million active corporations filed returns claiming \$712 billion in deductions for depreciation and \$191.3 billion of amortization. Of the depreciation deductions, \$25.3 billion represents section 179 expensing deductions by just under 1 million corporate returns and \$156 billion in bonus depreciation claimed by nearly 553,000 returns.²⁸¹ Approximately 13,000 returns claimed \$21.5 billion in depletion.²⁸² Current year regular investment credits for 2009 totaled \$513.6 million by 84 corporations, while more than 23,000 corporations claimed \$8.2 billion in research credits.²⁸³

Deductions for cost recovery vary by industry. Data by industrial sector are not available for all items. Table 19 reports selected tax attributes of active corporations²⁸⁴ for tax year 2009 by sector. Table 20 reports the percentage of the totals for each item by sector. While the greatest percentage of corporations are concentrated in the professional, scientific, and technical services and construction sectors, each of these only accounts for about one percent of total assets. The finance and insurance sector has the largest share of total assets at 44.3 percent, though the assets in this sector are not generally depreciable, depletable, or amortizable assets subject to cost recovery. Manufacturing accounts for the largest share (28.0 percent) of depreciable assets with nearly \$2.7 trillion in depreciable assets. This sector also has nearly one-quarter of all depletable assets of active corporations. Depletable assets are most highly concentrated in the mining sector (66.0 percent).

Consistent with its share of assets eligible for the various cost recovery deductions, the manufacturing sector has the largest share of depreciation and amortization deductions at 27.5 percent (\$195.7 billion) and 29.6 percent (\$56.6 billion), respectively. It also accounts for almost two-thirds of the domestic production activities deduction at \$8.9 billion claimed. The information sector is the only other sector in which the domestic production activities deduction exceeds \$1 billion. The depletion deductions are also highly concentrated by sector, with more than two-thirds of deductions claimed by active corporations in the mining sector.

²⁸⁰ In addition to the corporations, approximately 490,000 individual income taxpayers claimed nearly \$5.7 billion in deductions for domestic production activities for 2009. Individual data are from Internal Revenue Service, *2009 Estimated Data Line Counts Individual Income Tax Returns*, available at <http://www.irs.gov/pub/irs-soi/09inlinecount.pdf>.

²⁸¹ Approximately 11.8 million individual income tax returns claimed \$111.3 billion in deductions for depreciation, including 4.1 million that claimed \$41.3 billion in section 179 expensing and 1.5 million returns that claimed \$7.3 billion in bonus depreciation. More than 927,000 returns claimed \$2.1 billion in amortization.

²⁸² More than 80,000 individual income tax returns reported approximately \$700 million of depletion deductions on Schedule C.

²⁸³ Approximately 1,400 individual income tax returns claimed nearly \$7 million in investment credits while 49,000 individual income tax returns claimed \$433 million in credits for increasing research activities.

²⁸⁴ Active corporations include all corporations organized for profit that are required to file one of the 1120 forms that are part of the Statistics of Income study: Forms 1120, 1120S, 1120-L, 1120-PC, 1120-RIC, 1120-REIT, and 1120-F.

Private goods producing industries²⁸⁵ collectively account for almost 70 percent of domestic production activities deductions and over 90 percent of depletion deductions. They represent about one-third of deductions for depreciation and amortization. Collectively they represent just over 20 percent of returns. Service industries that are not particularly capital intensive account for a relatively small share of all cost recovery deductions. The administrative and support and waste management and remediation services; educational services; health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services sectors collectively account for less than one percent of all domestic production activities and depletion deductions and seven percent of depreciation and amortization deductions, respectively.

Tables 19 and 20 also include information about the research credit by sector. While data on the research credit are discussed more thoroughly below, the importance of the research credit to the manufacturing sector is worth noting here. More than two-thirds of all research credits claimed by active corporations are claimed by those in the manufacturing sector. Together with corporations in the manufacturing, information, and professional, scientific, and technical services sectors are responsible for almost 90 percent of all research credits claimed by corporations in 2009.

²⁸⁵ BEA classifies the following sectors as private goods producing industries: agriculture, forestry, fishing and hunting; mining; construction; and manufacturing. The remaining sectors are private service producing industries.

**Table 19.—Selected Tax Attributes of Active Corporations by Sector, 2009
(Millions of Dollars)**

Sector	Number of returns	Total assets	Depreciable assets	Depletable assets	Depreciation deduction	Depletion deduction	Amortization deduction	Domestic production activities deduction	Research credit
Agriculture, Forestry, Fishing, and Hunting	138,792	138,563	116,460	4,323	8,164	53	360	114	8
Mining	38,348	894,303	299,627	414,904	32,622	14,590	7,345	421	20
Utilities	6,072	1,554,188	1,252,578	12,367	64,974	323	6,501	541	52
Construction	742,436	679,234	278,326	1,744	19,207	138	1,459	388	24
Manufacturing	259,859	10,497,318	2,696,427	140,127	195,734	4,935	56,603	8,930	5,622
Wholesale Trade	375,922	1,994,732	486,518	47,481	45,198	905	12,018	594	364
Retail Trade	596,710	1,822,066	661,932	103	50,463	13	5,594	194	100
Wholesale and Retail Trade not Allocable	746	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Transportation and Warehousing	195,594	694,410	615,165	(1)	39,037	104	2,758	9	11
Information	116,514	2,419,798	911,201	331	78,727	(1)	39,285	2,447	889
Finance and Insurance	239,864	33,656,369	321,813	3,497	36,172	222	22,960	81	153
Real Estate and Rental and Leasing	647,037	1,437,758	860,851	818	44,982	39	2,841	22	13
Professional, Scientific, and Technical Services	864,803	835,675	170,630	228	16,187	35	8,781	318	815
Holding Companies	47,729	17,981,038	200,076	334	31,208	62	11,334	45	53
Administrative and Support and Waste Management and Remediation Services	273,900	297,885	132,942	2,519	9,835	87	4,467	21	29
Educational Services	55,309	52,162	17,381	(1)	1,658	(1)	499	(1)	4
Health Care and Social Assistance	429,339	315,093	170,477	(1)	11,617	(1)	3,039	12	36
Arts, Entertainment, and Recreation	122,225	104,136	77,199	(1)	4,803	(1)	1,048	(1)	1
Accommodation and Food Services	297,986	474,252	274,552	(1)	17,006	(1)	3,006	61	2
Other Services	375,059	115,939	69,297	(1)	4,645	(1)	1,421	12	1
Not Allocable	300	84	(1)	(1)	(1)	(1)	(1)	(1)	(1)
All	5,824,545	75,965,019	9,613,451	628,841	712,240	21,522	191,333	14,228	8,196
(1) Data not reported due to small sample size.									
Source: Internal Revenue Service, Statistics of Income, JCT staff calculations									

Table 20.—Percentage Distribution of Selected Tax Attributes of Active Corporations by Sector, 2009

Sector	Number of returns	Total assets	Depreciable assets	Depletable assets	Depreciation deduction	Depletion deduction	Amortization deduction	Domestic production activities deduction	Research credit
Agriculture, Forestry, Fishing, and Hunting	2.4%	0.2%	1.2%	0.7%	1.1%	0.2%	0.2%	0.8%	0.1%
Mining	0.7%	1.2%	3.1%	66.0%	4.6%	67.8%	3.8%	3.0%	0.2%
Utilities	0.1%	2.0%	13.0%	2.0%	9.1%	1.5%	3.4%	3.8%	0.6%
Construction	12.7%	0.9%	2.9%	0.3%	2.7%	0.6%	0.8%	2.7%	0.3%
Manufacturing	4.5%	13.8%	28.0%	22.3%	27.5%	22.9%	29.6%	62.8%	68.6%
Wholesale Trade	6.5%	2.6%	5.1%	7.6%	6.3%	4.2%	6.3%	4.2%	4.4%
Retail Trade	10.2%	2.4%	6.9%	(1)	7.1%	0.1%	2.9%	1.4%	1.2%
Wholesale and Retail Trade not Allocable	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Transportation and Warehousing	3.4%	0.9%	6.4%	(1)	5.5%	0.5%	1.4%	0.1%	0.1%
Information	2.0%	3.2%	9.5%	0.1%	11.1%	(1)	20.5%	17.2%	10.9%
Finance and Insurance	4.1%	44.3%	3.3%	0.6%	5.1%	1.0%	12.0%	0.6%	1.9%
Real Estate and Rental and Leasing	11.1%	1.9%	9.0%	0.1%	6.3%	0.2%	1.5%	0.2%	0.2%
Professional, Scientific, and Technical Services	14.8%	1.1%	1.8%	(1)	2.3%	0.2%	4.6%	2.2%	10.0%
Holding Companies	0.8%	23.7%	2.1%	0.1%	4.4%	0.3%	5.9%	0.3%	0.7%
Administrative and Support and Waste Management and Remediation Services	4.7%	0.4%	1.4%	0.4%	1.4%	0.4%	2.3%	0.1%	0.4%
Educational Services	0.9%	0.1%	0.2%	(1)	0.2%	(1)	0.3%	(1)	(1)
Health Care and Social Assistance	7.4%	0.4%	1.8%	(1)	1.6%	(1)	1.6%	0.1%	0.4%
Arts, Entertainment, and Recreation	2.1%	0.1%	0.8%	(1)	0.7%	(1)	0.5%	(1)	(1)
Accommodation and Food Services	5.1%	0.6%	2.9%	(1)	2.4%	(1)	1.6%	0.4%	(1)
Other Services	6.4%	0.2%	0.7%	(1)	0.7%	(1)	0.7%	0.1%	(1)
Not Allocable	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
All	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(1) Less than 0.05 percent.									
Source: Internal Revenue Service, Statistics of Income, JCT staff calculations									

Use of expensing and bonus depreciation in 2009 by industrial sector

The discussion below includes several tables that show the distribution of the section 179 deduction and bonus depreciation. These tables are broken down by the industry of the taxpayer, by size of the taxpayer’s gross receipts, and by the form of the reporting entity. Included in the tables are several usage measures that provide an estimate of the intensity of section 179 and bonus depreciation usage.

Table 21 shows the distribution of section 179 deductions by industry. The aggregate amount of section 179 expense deductions across all industries totaled \$51.57 billion in 2009. Agriculture and related industries, construction, wholesale and retail trade, and professional, scientific and technical services reported the largest share of section 179 deductions.

**Table 21.—Section 179 Expense Deduction, 2009
(Billions of Dollars)**

Sector	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Approximation of Sec. 179 Eligible Base	Sec. 179 Usage Index
Agriculture, Forestry, Fishing and Hunting.....	12.79	24.8%	46.22	27.7%
Mining.....	0.82	1.6%	40.49	2.0%
Utilities.....	0.06	0.1%	98.35	0.1%
Construction.....	5.95	11.5%	22.82	26.1%
Manufacturing.....	3.61	7.0%	166.16	2.2%
Wholesale and Retail Trade.....	5.70	11.1%	81.03	7.0%
Transportation and Warehousing.....	2.13	4.1%	60.18	3.5%
Information.....	0.77	1.5%	69.60	1.1%
Finance and Insurance.....	1.15	2.2%	22.29	5.1%
Real Estate and Rental and Leasing.....	1.44	2.8%	72.45	2.0%
Professional, Scientific, and Technical Services.....	5.54	10.7%	21.34	25.9%
Management of Companies.....	0.26	0.5%	14.83	1.7%
Administrative and Support and Waste Management and Remediation Services.....	2.41	4.7%	10.82	22.3%
Education Services.....	0.30	0.6%	2.36	12.7%
Health Care and Social Assistance.....	4.28	8.3%	16.02	26.7%
Arts, Entertainment, and Recreation.....	1.00	1.9%	9.14	11.0%
Accommodation and Food Services.....	1.50	2.9%	24.16	6.2%
Other Services.....	1.82	3.5%	7.49	24.3%
Unclassified.....	0.04	0.1%	0.10	38.7%
TOTAL.....	51.57	100.0%	785.84	6.6%

NOTE: Totals may not equal sum of components due to rounding.

Table 20 also shows the percentage distribution of section 179 deductions and a section 179 usage index. The reported “usage index” is the percentage of section 179 deductions divided

by the Joint Committee staff's estimate of the eligible base.²⁸⁶ The eligible base for 2009 was approximately \$785.8 billion. Taxpayers that make substantial annual purchases of eligible assets are not eligible to expense those acquisitions under section 179 because of the phase-out threshold (\$800,000 in 2009). Consequently, the usage index is high for sectors with heavy concentrations of small businesses such as agriculture, construction, and service industries, and the index is low for sectors with concentrations of larger or more capital intensive businesses such as manufacturing.

For passthrough entities, the \$250,000 maximum amount and the \$800,000 phase-out threshold under section 179²⁸⁷ are applied at both the entity level and at the level of the individual partner or S corporation shareholder. As a result, final section 179 deductions taken are less than the total amount reported in Table 20. For tax year 2009, it is estimated that the section 179 expense ultimately deducted on tax returns is approximately 7 percent lower than the \$51.57 billion reported, or \$47.96 billion. This 7-percent figure depends on the interaction of the maximum dollar amount that may be expensed and the phase-out threshold at the entity and at the partner or shareholder level.

Table 22 shows the distribution of bonus depreciation by business sector. Across all sectors, \$203.28 billion of bonus depreciation was reported in 2009. Bonus depreciation was concentrated in the manufacturing, wholesale and retail trade, information, utilities, and real estate and rental and leasing sectors.

²⁸⁶ This eligible base is approximated by the sum of section 179 reported, bonus depreciation reported, and the remaining three through 20 year MACRS investment basis excluding listed property placed in service during 2009 tax year using the general depreciation system.

²⁸⁷ In 2009, a \$250,000 maximum amount and \$800,000 threshold applied. See I.B.4 for information regarding applicable amounts for other years.

**Table 22.—Bonus Depreciation, 2009
(Billions of Dollars)**

Sector	Total Bonus Depreciation Reported	Percentage Distribution Bonus Depreciation	Approximation of Bonus Eligible Base	Bonus Usage Index
Agriculture, Forestry, Fishing and Hunting.....	5.67	2.8%	33.43	33.9%
Mining.....	10.99	5.4%	39.66	55.4%
Utilities.....	26.69	13.1%	98.28	54.3%
Construction.....	4.06	2.0%	16.87	48.1%
Manufacturing.....	40.67	20.0%	162.55	50.0%
Wholesale and Retail Trade.....	26.29	12.9%	75.33	69.8%
Transportation and Warehousing.....	9.18	4.5%	58.04	31.6%
Information.....	27.50	13.5%	68.82	79.9%
Finance and Insurance.....	6.39	3.1%	21.14	60.5%
Real Estate and Rental and Leasing.....	21.30	10.5%	71.01	60.0%
Professional, Scientific, and Technical Services.....	4.73	2.3%	15.81	59.8%
Management of Companies.....	4.42	2.2%	14.57	60.7%
Administrative and Support and Waste Management and Remediation Services.....	2.27	1.1%	8.41	53.9%
Education Services.....	0.68	0.3%	2.06	66.5%
Health Care and Social Assistance.....	3.92	1.9%	11.75	66.8%
Arts, Entertainment, and Recreation.....	1.60	0.8%	8.14	39.2%
Accommodation and Food Services.....	5.83	2.9%	22.66	51.4%
Other Services.....	1.07	0.5%	5.67	37.9%
Unclassified.....	0.02	0.0%	0.06	62.6%
TOTAL.....	203.28	100.0%	734.27	55.4%

NOTE: Totals may not equal sum of components due to rounding.

A bonus depreciation usage index is also shown that is calculated as the amount of bonus depreciation taken divided by the maximum potential bonus deduction (50 percent of the eligible base in 2009²⁸⁸). Measurement limitations make this usage index a somewhat imprecise measure.²⁸⁹

As shown, the usage index across all taxpayers in 2009 is 55.4 percent, that is, taxpayers did not benefit from bonus depreciation for approximately 45 percent of potentially eligible property. Why is the bonus usage index so low? An analysis of usage patterns provides no clear-cut formula that determines whether or not a taxpayer will opt out of the bonus

²⁸⁸ The eligible base is approximated as the sum of bonus depreciation taken plus the basis of three through 20 year recovery period MACRS property placed in service in 2009 computed after being reduced by section 179 and bonus depreciation deductions.

²⁸⁹ Expenditures for certain property eligible for bonus depreciation are not reported separately on the depreciation form, such as computer software and leasehold improvement expenditures; separate data are also not available for expenditures on property that does not qualify for bonus depreciation, or qualifies at less than the 50 percent rate, such as used property, property subject to binding contracts limitations, and property subject to the luxury car limitation of section 280(F). In addition, data for listed property are very limited and generally are omitted in the tables.

depreciation regime for various classes of property. However, much of this behavior is associated with taxpayers that have various deferred tax attributes or special circumstances. Low bonus depreciation usage rates tend to be associated with:

1. taxpayers in a tax net operating loss position;
2. taxpayers with deferred tax assets such as net operating loss or credit carryovers;
3. multinational businesses where the taxpayer would be in a domestic net operating loss position if bonus depreciation were taken in full; and
4. taxpayers using the percentage of completion method of accounting where the operation of bonus depreciation can produce a speed-up rather than a deferral of income recognition.²⁹⁰

Bonus depreciation accelerates deductions which otherwise would be taken in later years and thus provides a potential timing benefit to taxpayers. In some cases, bonus depreciation may introduce some undesirable volatility in taxable incomes. Another possible explanation for the low bonus usage rate is that some taxpayers may anticipate higher tax rates in the future and, for them, there may be a disincentive to speed up deductions into a low tax-rate year.

Use of expensing and bonus depreciation in the 2009 tax year by entity size

Table 23 shows the distribution of section 179 deductions by size of the reporting entity's gross business receipts. Due to the phase-out threshold, section 179 is limited to taxpayers with qualified investment below specified levels. As a result, larger businesses have a clear drop off in section 179 deductions. As shown, \$44.82 billion of the total \$51.57 billion section 179 deductions, or approximately 87 percent of these deductions, are reported by businesses with less than \$10 million in total business receipts.

The overall measure of section 179 usage is 21.7 percent for businesses with less than \$10 million in gross business receipts. The section 179 usage index falls off to 5.6 percent for businesses with gross business receipts between \$10 million and \$250 million. Usage is negligible for business with gross business receipts in excess of \$250 million.

The 21.7 percent usage index for businesses with less than \$10 million in gross receipts is lower than one might expect given that as much as \$250,000 of qualified property could be expensed in 2009. The most powerful factor here is most likely the taxable income limitation of section 179 (that is, the amount eligible to be expensed under section 179 for a taxable year may not exceed the taxable income for a taxable year that is derived from the active conduct of a trade or business (determined without regard to section 179)).

²⁹⁰ However, see section 460(c)(6) for a special rule that applied to property placed in service during 2010 with a recovery period of less than seven years.

Table 24 presents the distribution of bonus depreciation by size of the reporting entities' gross business receipts. Two thirds of the deductions for bonus depreciation were taken by businesses with total business receipts over \$250 million. As shown, small, medium, and large businesses reported bonus depreciation of \$36.37 billion, \$28.99 billion, and \$137.93 billion, respectively. The bonus usage index increases with the size class of the business as well, 44.9 percent, 51.0 percent, and 60.2 percent, respectively.

**Table 23.—Section 179 Expense Deduction by Size of Business Receipts, 2009,
(Billions of Dollars)**

Sector	Less than \$10 million			\$10 million to \$250 million			Over \$250 million		
	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index
Agriculture, Forestry, Fishing and Hunting.....	12.69	28.3%	28.9%	0.10	1.6%	6.3%	0.00	0.0%	0.0%
Mining.....	0.76	1.7%	8.7%	0.06	0.9%	0.8%	0.00	0.0%	0.0%
Utilities.....	0.06	0.1%	1.2%	0.00	0.1%	0.0%	0.00	2.8%	0.0%
Construction.....	4.92	11.0%	35.9%	1.02	15.2%	15.7%	0.01	15.9%	0.4%
Manufacturing.....	2.30	5.1%	23.8%	1.31	19.6%	5.6%	0.00	6.4%	0.0%
Wholesale and Retail Trade.....	3.58	8.0%	30.8%	2.09	31.3%	14.6%	0.03	55.0%	0.1%
Transportation and Warehousing.....	1.98	4.4%	17.3%	0.15	2.3%	1.2%	0.00	2.6%	0.0%
Information.....	0.63	1.4%	19.7%	0.14	2.1%	1.8%	0.00	0.4%	0.0%
Finance and Insurance.....	0.99	2.2%	16.4%	0.15	2.3%	5.3%	0.00	3.7%	0.0%
Real Estate and Rental and Leasing.....	1.39	3.1%	3.2%	0.04	0.7%	0.5%	0.00	0.2%	0.0%
Professional, Scientific, and Technical Services.....	4.79	10.7%	46.3%	0.74	11.1%	14.9%	0.01	9.3%	0.1%
Management of Companies.....	0.23	0.5%	13.1%	0.03	0.4%	1.9%	0.00	0.0%	0.0%
Administrative and Support and Waste Management and Remediation Services.....	2.26	5.0%	38.2%	0.15	2.2%	6.4%	0.00	1.4%	0.0%
Education Services.....	0.27	0.6%	41.2%	0.03	0.4%	5.3%	0.00	0.0%	0.0%
Health Care and Social Assistance.....	3.88	8.7%	44.8%	0.39	5.9%	11.3%	0.00	2.2%	0.0%
Arts, Entertainment, and Recreation.....	0.97	2.2%	25.4%	0.03	0.5%	0.9%	0.00	0.0%	0.0%
Accommodation and Food Services.....	1.32	2.9%	9.8%	0.18	2.7%	2.7%	0.00	0.0%	0.0%
Other Services.....	1.76	3.9%	28.1%	0.06	0.9%	9.5%	0.00	0.0%	0.0%
Unclassified.....	0.04	0.1%	38.8%	0.00	0.0%	0.0%	0.00	0.0%	n/a
TOTAL.....	44.82	100.0%	21.7%	6.68	100.0%	5.6%	0.06	100.0%	0.0%

**Table 24.—Bonus Depreciation by Size of Business Receipts, 2009
(Billions of Dollars)**

Sector	Less than \$10 million			\$10 million to \$250 million			Over \$250 million		
	Total Bonus Deduction Reported	Percentage Distribution Bonus Depreciation	Bonus Usage Index	Total Bonus Deduction Reported	Percentage Distribution Bonus Depreciation	Bonus Usage Index	Total Bonus Deduction Reported	Percentage Distribution Bonus Depreciation	Bonus Usage Index
Agriculture, Forestry, Fishing and Hunting.....	5.13	14.1%	32.9%	0.34	1.2%	43.5%	0.21	0.1%	59.9%
Mining.....	2.38	6.5%	59.4%	2.01	6.9%	49.5%	6.60	4.8%	56.1%
Utilities.....	0.91	2.5%	40.5%	1.15	4.0%	25.0%	24.64	17.9%	58.2%
Construction.....	1.77	4.9%	40.4%	1.58	5.5%	58.1%	0.70	0.5%	53.1%
Manufacturing.....	1.96	5.4%	53.2%	6.69	23.1%	61.1%	32.02	23.2%	48.1%
Wholesale and Retail Trade.....	1.54	4.2%	38.3%	3.93	13.6%	64.5%	20.82	15.1%	75.6%
Transportation and Warehousing.....	1.41	3.9%	29.8%	1.94	6.7%	29.8%	5.83	4.2%	32.8%
Information.....	0.78	2.1%	60.4%	2.04	7.0%	54.4%	24.68	17.9%	84.1%
Finance and Insurance.....	1.34	3.7%	52.8%	0.95	3.3%	70.0%	4.10	3.0%	61.4%
Real Estate and Rental and Leasing.....	10.92	30.0%	52.6%	2.33	8.0%	48.7%	8.06	5.8%	80.7%
Professional, Scientific, and Technical Services.....	1.24	3.4%	44.6%	1.36	4.7%	64.1%	2.13	1.5%	70.9%
Management of Companies.....	0.50	1.4%	66.2%	0.62	2.1%	81.1%	3.30	2.4%	57.2%
Administrative and Support and Waste Management and Remediation Services.....	0.79	2.2%	43.3%	0.59	2.0%	54.7%	0.89	0.6%	68.2%
Education Services.....	0.09	0.3%	48.3%	0.19	0.7%	83.3%	0.40	0.3%	66.0%
Health Care and Social Assistance.....	1.27	3.5%	53.3%	1.08	3.7%	69.8%	1.57	1.1%	81.2%
Arts, Entertainment, and Recreation.....	0.62	1.7%	43.6%	0.56	1.9%	29.6%	0.41	0.3%	55.0%
Accommodation and Food Services.....	3.02	8.3%	49.4%	1.43	4.9%	43.3%	1.38	1.0%	71.8%
Other Services.....	0.67	1.9%	29.9%	0.20	0.7%	69.8%	0.20	0.1%	68.2%
Unclassified.....	0.02	0.1%	62.3%	0.00	0.0%	n/a	0.00	0.0%	n/a
TOTAL.....	36.37	100.0%	44.9%	28.99	100.0%	51.0%	137.93	100.0%	60.2%

Use of expensing and bonus depreciation in the 2009 tax year by entity type

Tables 25 and 26 present the section 179 deduction and bonus depreciation aggregates and usage index measures broken down by the underlying reporting entity: sole proprietor and farm (grouped together), partnership, S corporation, and C corporation. As shown in Table 25, sole proprietorships and farms account for \$20.87 billion of section 179 deductions, followed by S corporations with \$17.45 billion, C corporations with \$7.85 billion, and partnerships with \$5.46 billion. In percentage terms, sole proprietorships and farms account for 40.4 percent of section 179 deductions, followed by S corporations with 33.8 percent, C corporations with 15.2 percent, and partnerships with 10.6 percent.

The section 179 deduction usage index for sole proprietorships and farms is substantially higher than that of other entities due to the generally smaller scale of these businesses. The section 179 deduction usage index for sole proprietorships and farms is 32.7 percent. S corporations have the next highest usage index, 21.6 percent, followed by partnerships with 2.9 percent and by C corporations with 1.7 percent.

Table 26 presents bonus depreciation by type of entity. As shown, C corporations claimed \$137.36 billion of the bonus depreciation deductions or 67.5 percent of the total. This follows from the high capital intensity of the C corporations. Partnerships reported \$40.77 billion or 20.0 percent of the total; S corporations reported \$18.12 billion or 8.9 percent of the total, and sole proprietorships and farms reported \$7.25 billion or 3.6 percent of total bonus depreciation deductions.

C corporations also have the highest aggregate bonus usage index, 61.1 percent. This is followed closely by S corporations with an aggregate bonus usage index of 57.4 percent. Next in line are partnerships at 45.3 percent and sole proprietorships and farms at 33.8 percent.

**Table 25.—Section 179 Expense Deduction by Reporting Entity, 2009
(Billions of Dollars)**

Sector	Sole Prop & Farm			Partnerships			Subchapter S Corporations			C Corporations		
	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index	Total Sec. 179 Deduction Reported	Percentage Distribution of Sec. 179 Reported	Sec. 179 Usage Index
Agriculture, Forestry, Fishing and Hunting.....	9.30	44.6%	31.0%	1.49	27.3%	18.9%	0.85	4.9%	18.0%	1.15	14.6%	31.9%
Mining.....	0.32	1.5%	23.0%	0.11	2.0%	0.8%	0.32	1.8%	15.2%	0.08	1.0%	0.3%
Utilities.....	0.00	0.0%	20.9%	0.00	0.1%	0.0%	0.03	0.2%	31.4%	0.02	0.3%	0.0%
Construction.....	1.82	8.7%	39.5%	0.43	7.8%	15.2%	2.68	15.4%	28.3%	1.02	13.1%	17.3%
Manufacturing.....	0.40	1.9%	45.6%	0.31	5.6%	1.4%	1.85	10.6%	14.5%	1.05	13.4%	0.8%
Wholesale and Retail Trade.....	0.97	4.7%	29.9%	0.59	10.8%	8.2%	2.76	15.8%	20.1%	1.38	17.5%	2.4%
Transportation and Warehousing.....	0.89	4.3%	23.6%	0.22	4.0%	0.9%	0.73	4.2%	11.1%	0.34	4.3%	1.3%
Information.....	0.18	0.9%	46.8%	0.08	1.4%	0.4%	0.36	2.1%	20.7%	0.15	2.0%	0.3%
Finance and Insurance.....	0.42	2.0%	35.7%	0.20	3.6%	4.7%	0.31	1.8%	27.9%	0.22	2.8%	1.4%
Real Estate and Rental and Leasing.....	0.55	2.6%	23.1%	0.23	4.3%	0.6%	0.48	2.8%	7.1%	0.17	2.2%	0.8%
Professional, Scientific, and Technical Services..	2.02	9.7%	55.5%	0.67	12.3%	17.4%	2.11	12.1%	47.0%	0.73	9.3%	7.8%
Management of Companies.....	0.00	0.0%	n/a	0.04	0.7%	4.3%	0.10	0.6%	18.8%	0.12	1.5%	0.9%
Administrative and Support and Waste Management and Remediation Services.....	0.84	4.0%	33.3%	0.16	2.9%	10.4%	1.14	6.5%	41.5%	0.28	3.6%	6.9%
Education Services.....	0.11	0.5%	35.2%	0.01	0.2%	1.9%	0.15	0.9%	30.2%	0.03	0.4%	2.9%
Health Care and Social Assistance.....	1.27	6.1%	47.7%	0.51	9.4%	14.4%	1.90	10.9%	46.1%	0.59	7.6%	10.4%
Arts, Entertainment, and Recreation.....	0.55	2.6%	29.0%	0.07	1.3%	3.0%	0.29	1.7%	18.9%	0.09	1.1%	2.6%
Accommodation and Food Services.....	0.25	1.2%	16.1%	0.26	4.8%	2.3%	0.79	4.5%	14.6%	0.20	2.6%	3.6%
Other Services.....	0.92	4.4%	29.1%	0.09	1.7%	11.9%	0.58	3.3%	27.8%	0.23	2.9%	15.5%
Unclassified.....	0.04	0.2%	38.7%	0.00	0.0%	n/a	0.00	0.0%	n/a	0.00	0.0%	n/a
TOTAL.....	20.87	100.0%	32.7%	5.46	100.0%	2.9%	17.45	100.0%	21.6%	7.85	100.0%	1.7%

**Table 26.–Bonus Depreciation by Reporting Entity, 2009
(Billions of Dollars)**

Sector	Sole Prop & Farm			Partnerships			Subchapter S Corporations			C Corporations		
	Total Bonus Deduction Reported	Percentage Distribution Bonus Depreciation	Bonus Usage Index									
Agriculture, Forestry, Fishing and Hunting.....	3.16	43.6%	30.5%	1.44	3.5%	45.1%	0.67	3.7%	34.7%	0.40	0.3%	32.4%
Mining.....	0.21	3.0%	40.0%	3.45	8.5%	52.4%	0.61	3.4%	69.2%	6.71	4.9%	56.7%
Utilities.....	0.00	0.0%	22.5%	2.42	5.9%	27.2%	0.03	0.2%	91.0%	24.24	17.6%	60.3%
Construction.....	0.48	6.6%	34.2%	0.56	1.4%	47.1%	1.86	10.3%	54.8%	1.15	0.8%	47.1%
Manufacturing.....	0.10	1.4%	43.0%	3.91	9.6%	36.2%	3.75	20.7%	68.9%	32.91	24.0%	50.8%
Wholesale and Retail Trade.....	0.40	5.5%	34.7%	1.84	4.5%	56.1%	3.53	19.5%	64.3%	20.52	14.9%	74.0%
Transportation and Warehousing.....	0.42	5.8%	29.1%	1.66	4.1%	13.4%	1.13	6.2%	38.4%	6.18	4.5%	48.5%
Information.....	0.04	0.6%	41.7%	7.27	17.8%	76.3%	0.45	2.5%	64.2%	19.74	14.4%	82.0%
Finance and Insurance.....	0.16	2.2%	42.1%	1.12	2.8%	56.0%	0.30	1.6%	75.0%	4.81	3.5%	61.8%
Real Estate and Rental and Leasing.....	0.44	6.1%	48.1%	10.71	26.3%	52.1%	1.82	10.1%	58.1%	8.33	6.1%	76.4%
Professional, Scientific, and Technical Services..	0.40	5.5%	49.4%	1.03	2.5%	64.7%	0.70	3.9%	59.0%	2.60	1.9%	60.2%
Management of Companies.....	0.00	0.0%	n/a	0.25	0.6%	55.8%	0.17	0.9%	80.9%	4.00	2.9%	60.3%
Administrative and Support and Waste Management and Remediation Services.....	0.31	4.3%	37.2%	0.41	1.0%	60.2%	0.45	2.5%	56.4%	1.09	0.8%	58.0%
Education Services.....	0.04	0.6%	41.0%	0.02	0.0%	8.3%	0.13	0.7%	76.1%	0.49	0.4%	92.3%
Health Care and Social Assistance.....	0.29	4.0%	41.3%	1.17	2.9%	76.8%	0.80	4.4%	72.2%	1.67	1.2%	65.5%
Arts, Entertainment, and Recreation.....	0.18	2.4%	26.4%	0.62	1.5%	55.1%	0.32	1.8%	51.0%	0.47	0.3%	28.9%
Accommodation and Food Services.....	0.25	3.4%	37.8%	2.77	6.8%	49.2%	1.08	6.0%	46.7%	1.72	1.3%	63.5%
Other Services.....	0.35	4.8%	30.7%	0.11	0.3%	34.2%	0.29	1.6%	38.3%	0.33	0.2%	52.5%
Unclassified.....	0.02	0.3%	62.6%	0.00	0.0%	n/a	0.00	0.0%	n/a	0.00	0.0%	n/a
TOTAL.....	7.25	100.0%	33.8%	40.77	100.0%	45.3%	18.12	100.0%	57.4%	137.36	100.0%	61.1%

Average tax rates by industrial sector

For a corporation in the highest marginal tax bracket, the domestic production activities deduction has the effect of lowering the *marginal* tax rate on qualified production activities income from 35 percent to 31.85 percent.²⁹¹ The more of a corporation's income that is qualifying income the greater the reduction in the *average* tax rate as a result of the deduction.²⁹² Table 27 shows the amount of domestic production activities deduction claimed per \$10,000 of total income for C corporations by industrial sector.

Table 27.—Domestic Production Activities Deduction per \$10,000 of Total Income, by Sector

Sector	2005	2006	2007	2008	2009	TOTAL
Agriculture, Forestry, Fishing and Hunting	\$ 5.54	\$ 9.14	\$ 25.81	\$ 31.11	\$ 31.67	\$ 20.77
Mining	41.77	42.73	68.94	57.89	24.92	48.65
Utilities	10.89	15.59	34.26	20.45	19.63	20.44
Construction	22.88	30.66	34.87	36.13	37.35	31.57
Manufacturing	25.88	31.63	59.26	52.75	43.68	42.53
Wholesale Trade	10.12	7.76	18.63	15.80	12.71	13.10
Retail Trade	0.93	1.52	2.35	2.68	2.86	2.07
Wholesale and Retail Trade not Allocable	(1)	(1)	(1)	(1)	(1)	(1)
Transportation and Warehousing	0.11	0.16	0.19	0.16	0.24	0.17
Information	12.88	14.36	28.96	26.56	31.79	22.91
Finance and Insurance	0.59	0.35	0.31	0.33	0.47	0.40
Real Estate, Rental and Leasing	1.22	0.68	1.35	1.38	1.65	1.23
Professional, Scientific, and Technical Services	1.96	3.53	6.13	6.52	7.46	5.22
Management of Companies	0.43	0.59	0.77	0.77	0.53	0.63
Administrative and Support and Waste Management and Remediation Services	0.38	0.78	1.85	0.89	1.39	1.06
Educational Services	0.66	0.24	0.38	1.73	4.42	1.77
Health Care and Social Assistance	0.19	0.12	0.09	0.21	0.32	0.19
Arts, Entertainment, and Recreation	2.38	1.06	2.73	0.97	1.26	1.68
Accommodation and Food Services	0.27	1.14	4.13	3.09	3.45	2.42
Other Services	1.15	1.17	2.50	3.27	2.34	2.10
Not Allocable	(1)	(1)	(1)	(1)	(1)	(1)
Total	\$ 10.08	\$ 11.30	\$ 20.49	\$ 19.17	\$ 16.04	\$ 15.50

(1) Data not reported due to small sample size.

²⁹¹ With a nine percent deduction, a corporation is taxed at a rate of 35 percent on only 91 percent of qualifying income, resulting in an effective tax rate of $0.91 * 35$, or 31.85 percent.

²⁹² Average tax rate for this purpose is calculated as the total amount of U.S. regular tax and alternative minimum tax divided by the sum of taxable income plus the domestic production activities deduction. For cases in which taxable income is zero, the denominator is net income less net operating loss deductions less special deductions plus the domestic production activities deduction. Variation in average tax rates based solely on taxable income would not account for variation in the usage of the domestic production activities deduction because the deduction is used to compute taxable income.

By calculating average tax rates based on U.S. taxes paid divided by taxable income plus the domestic production activities deduction, the effect of the reduction in tax rate as a result of the deduction may be observed. However, as shown in Table 28, the effect of the deduction on average tax rates is small. This is attributable to several factors. First, qualifying domestic production activities income accounts for only a fraction of taxable income, never approaching 9 percent of the tax base defined here. The domestic production activities deduction represents the largest share of the tax base for the agriculture, forestry, fishing, and hunting sector, averaging 2.9 percent over the five-year period shown, followed by 2.5 percent for construction, 2.4 percent for information, and 2.2 percent for manufacturing. At a 35-percent marginal rate, a firm with 3 percent qualifying income could expect at most to lower its average tax rate to 33.95 percent as a result of the domestic production activities deduction alone.

Firms may be engaged in foreign production activities or other activities that do not qualify for the deduction. The tax base in table 28 includes foreign income (which cannot qualify for the domestic production activities deduction), but the tax rate does not take into account any tax credits, including the foreign tax credit. The foreign tax credit, as discussed below, is an important factor in determining the average tax rate, particularly for manufacturers.

Table 28.—Average Tax Rate before Credits by Sector

Sector	2005	2006	2007	2008	2009	Total
Agriculture, Forestry, Fishing and Hunting	30.18%	29.33%	28.83%	26.58%	27.38%	28.62%
Mining	36.49%	35.46%	34.66%	34.70%	35.47%	35.27%
Utilities	35.36%	35.43%	34.48%	34.34%	34.44%	34.86%
Construction	32.88%	32.01%	31.51%	30.67%	30.47%	31.85%
Manufacturing	34.55%	34.48%	34.08%	34.04%	34.41%	34.31%
Wholesale Trade	34.30%	34.06%	34.43%	33.91%	34.12%	34.18%
Retail Trade	34.12%	34.57%	34.62%	34.50%	34.60%	34.48%
Wholesale and Retail Trade - N/A	15.26%	14.95%	14.74%	(1)	(1)	14.94%
Transportation and Warehousing	34.56%	34.50%	34.83%	34.67%	34.29%	34.58%
Information	34.79%	35.76%	34.26%	34.05%	33.87%	34.59%
Finance and Insurance	35.22%	35.95%	35.08%	35.49%	34.99%	35.38%
Real Estate, Rental and Leasing	32.95%	34.06%	33.83%	32.90%	31.84%	33.40%
Professional, Scientific, and Technical Services	33.76%	33.60%	33.81%	33.73%	33.88%	33.76%
Management of Companies	34.93%	34.93%	34.93%	34.95%	35.26%	34.97%
Administrative and Support and Waste Management and Remediation Services	34.72%	33.63%	34.00%	33.80%	33.92%	34.03%
Educational Services	34.36%	34.07%	34.10%	34.35%	34.59%	34.36%
Health Care and Social Assistance	34.17%	34.29%	32.75%	34.14%	33.96%	33.89%
Arts, Entertainment, and Recreation	33.63%	51.63%	33.52%	33.60%	34.06%	37.85%
Accommodation and Food Services	34.53%	34.53%	34.43%	34.26%	33.96%	34.37%
Other Services	29.38%	30.13%	29.88%	30.59%	29.32%	29.89%
Not Allocable	(1)	(1)	(1)	33.23%	34.00%	28.37%
Total	34.65%	34.84%	34.37%	34.26%	34.41%	34.52%

(1) Data not reported due to small sample size.

Additionally, the average tax rate depends on the composition of firms in each sector. Marginal corporate tax rates rise with taxable income, beginning at 15 percent for taxable income up to \$50,000 and rising to 35 percent for taxable income above \$10 million. The benefit of the lower rates is phased out such that corporations with taxable income in excess of \$18,333,333 are taxed at a flat rate of 35 percent. Average tax rates for certain sectors are considerably below 35 percent, suggesting there are many corporations with taxable income below the top statutory rate brackets. This seems to be particularly true of the agriculture, forestry, fishing, and hunting sector, as well as wholesale and retail trade not allocable, other services, and the not allocable sector. As the spread in rates may be as much as 20 percentage points, this effect can swamp any effect of the domestic production activities deduction.

Credits may also reduce the average tax rate for firms. Table 29 reports average tax rates after credits²⁹³ by industrial sector for each year from 2005 through 2009 and over the five-year period. The effect of various tax credits is to reduce average tax rates substantially. For all corporations, the average tax rate during the period drops from 34.52 percent before credits to 25.24 percent after credits, a decline of nearly 9.3 percentage points. The vast majority of the decline in average tax rates is attributable to the foreign tax credit. For example, in 2009, the average tax rate for all corporations was 34.41 percent before credits. After applying only the foreign tax credit, the average tax rate falls to 24.47 percent. After all tax credits are applied, the average tax rate is 22.89 percent. Over 86 percent of the difference between the average tax rate before and after credits is attributable to the foreign tax credit.

The largest declines in average tax rates occur in the manufacturing sector (14.88 percentage points), mining (13.99 percentage points), and accommodation and food services (11.80 percentage points). The foreign tax credit is particularly important for the mining and manufacturing sectors, accounting for about 90 percent of the difference between the average tax rate before and after credits in each case. By contrast, credits are of relatively little importance in lowering the average tax rate in the construction, agriculture, forestry, fishing, and hunting, educational services, and health care and social assistance services sectors, reducing average tax rates by no more than 1.06 percentage points during the five-year period.

²⁹³ Average tax rate for this purpose is calculated as the total amount of U.S. regular tax and alternative minimum tax after credits divided by the sum of taxable income plus the domestic production activities deduction.

Table 29.—Average Tax Rates after Credits by Sector

Sector	2005	2006	2007	2008	2009	Total
Agriculture, Forestry, Fishing and Hunting	28.55%	28.62%	28.42%	27.02%	27.58%	28.12%
Mining	23.92%	24.03%	20.78%	19.95%	15.87%	21.28%
Utilities	29.20%	29.67%	30.35%	32.39%	32.03%	30.44%
Construction	32.32%	32.02%	30.96%	30.12%	29.58%	31.42%
Manufacturing	20.03%	22.19%	20.85%	16.81%	16.76%	19.43%
Wholesale Trade	29.66%	30.04%	32.64%	30.96%	29.37%	30.65%
Retail Trade	32.20%	31.83%	32.52%	31.66%	30.52%	31.78%
Wholesale and Retail Trade - N/A	15.26%	14.95%	14.74%	(1)	(1)	14.94%
Transportation and Warehousing	30.63%	31.32%	30.97%	31.59%	30.39%	31.02%
Information	29.75%	31.26%	29.44%	26.01%	26.84%	28.88%
Finance and Insurance	28.71%	29.87%	29.75%	30.79%	30.25%	29.77%
Real Estate, Rental and Leasing	29.67%	30.97%	24.12%	29.59%	28.59%	28.23%
Professional, Scientific, and Technical Services	28.52%	28.61%	26.93%	29.33%	28.14%	28.29%
Management of Companies	28.18%	28.40%	27.28%	24.65%	17.92%	26.57%
Administrative and Support and Waste Management and Remediation Services	30.18%	27.74%	29.05%	28.20%	29.94%	29.02%
Educational Services	33.81%	33.20%	33.06%	33.86%	33.65%	33.56%
Health Care and Social Assistance	33.20%	32.73%	32.08%	33.25%	32.87%	32.82%
Arts, Entertainment, and Recreation	29.38%	48.65%	29.14%	30.38%	29.12%	33.97%
Accommodation and Food Services	25.69%	26.01%	23.92%	17.92%	16.78%	22.57%
Other Services	27.72%	27.97%	27.12%	28.51%	26.92%	27.68%
Not Allocable	(1)	(1)	(1)	33.23%	34.00%	29.82%
Total	25.77%	27.11%	26.14%	23.14%	22.89%	25.24%

(1) Data not reported due to small sample size.

C. Analysis of Deduction and Credit for Research Expenditures

Overview

Technological development is an important component of economic growth. However, although an individual business may find it profitable to undertake some research, it may not find it profitable to invest in research as much as it otherwise might because it is difficult to capture the full benefits from the research and prevent such benefits from being used by competitors. In general, businesses acting in their own self-interest will not necessarily invest in research to the extent that would be consistent with the best interests of the overall economy. This is because costly scientific and technological advances made by one firm may be cheaply copied by its competitors. Research is one of the areas where there is a consensus among economists that government intervention in the marketplace may improve overall economic efficiency.²⁹⁴ However, this does not mean that increased tax benefits or more government spending for research always will improve economic efficiency. It is possible to decrease economic efficiency by spending too much on research. However, there is evidence that the current level of research undertaken in the United States, and worldwide, is too little to maximize society's well-being.²⁹⁵ Nevertheless, even if there were agreement that additional subsidies for research are warranted as a general matter, misallocation of research dollars across competing sectors of the economy could diminish economic efficiency. It is difficult to determine whether, at the present levels and allocation of government subsidies for research, further government spending on research or additional tax benefits for research would increase or decrease overall economic efficiency.

If it is believed that too little research is being undertaken, a tax subsidy is one method of offsetting the private-market bias against research, so that research projects undertaken approach the optimal level. Among the other policies employed by the Federal government to increase the aggregate level of research activities are direct spending and grants, favorable anti-trust rules, and patent protection. The effect of tax policy on research activity is largely uncertain because there is relatively little consensus regarding the magnitude of the responsiveness of research to changes in taxes and other factors affecting its price. To the extent that research activities are responsive to the price of research activities, the research and experimentation tax credit should

²⁹⁴ This conclusion does not depend upon whether the basic tax regime is an income tax or a consumption tax.

²⁹⁵ See Zvi Griliches, "The Search for R&D Spillovers," *Scandinavian Journal of Economics*, vol. XCIV, 1992; M. Ishaq Nadiri, "Innovations and Technological Spillovers," National Bureau of Economic Research, Working Paper No. 4423, 1993; and Bronwyn Hall, "The Private and Social Returns to Research and Development," in Bruce Smith and Claude Barfield (eds.), *Technology, R&D and the Economy*: Brookings Institution Press 1996, pp. 1-14. These papers suggest that the rate of return to privately funded research expenditures is high compared to that in physical capital and the social rate of return exceeds the private rate of return. Griliches concludes, "in spite of [many] difficulties, there has been a significant number of reasonably well-done studies all pointing in the same direction: R&D spillovers are present, their magnitude may be quite large, and social rates of return remain significantly above private rates." Griliches, p. S43. Charles I. Jones and John C. Williams, "Measuring the Social Return to R&D," *Quarterly Journal of Economics*, vol. 113, November 1998, also conclude that "advanced economies like the United States substantially under invest in R&D" p. 1120.

increase research activities beyond what they otherwise would be. However, the present law research credit contains certain complexities and compliance costs that could affect this result.

Scope of research activities in the United States and abroad

In the United States, private for-profit enterprises and individuals, non-profit organizations, and the public sector undertake research activities. Total expenditures on research and development in the United States represent 2.8 percent of gross domestic product in 2009.²⁹⁶ This rate of expenditure on research and development exceeds that of the European Union (1.9 percent) and the average of all countries that are members of the Organisation for Economic Co-operation and Development (“OECD”) (2.3 percent), but is less than that of Japan (3.3 percent). In 2009, expenditures on research and development in the United States represented 41.24 percent of all expenditures on research and development undertaken by OECD countries; they were 35 percent greater than the total expenditures on research and development undertaken in the European Union, and were approximately 2.7 times such expenditures in Japan.²⁹⁷

Gross domestic expenditures on research and development in the United States grew from 2.7 percent of gross domestic product to 2.8 percent gross domestic product over the ten year period 1999-2009. This rate of growth exceeds that of the United Kingdom (0.0 percentage point increase), and Sweden (0.0 percentage point increase) over this same period, but is less than that of Germany (0.4 percentage point increase), Japan (0.3 percentage point increase), Israel (0.8 percentage point increase), and South Korea (1.19 percentage point increase).²⁹⁸

Business domestic expenditures on research and development in the United States were 2.0 percent of gross domestic product in 2009. This exceeds that of the United Kingdom (1.1 percent), France (1.4 percent) and Germany (1.9 percent), but is less than that of Israel (3.4 percent), Japan (3.5 percent), and South Korea (3.5 percent).²⁹⁹

A number of countries, including the United States, provide tax benefits to taxpayers who undertake research activities. The United States provides two types of benefits: tax credits for

²⁹⁶ OECD, *Science, Technology and Industry Scoreboard, 2011*. This data represents outlays by private persons and by governments.

²⁹⁷ *Ibid.* While the OECD attempts to present this data on a standardized basis, the cross-country comparisons are not perfect. For example, the United States reporting for research spending generally does not include capital expenditure outlays devoted to research, while the reporting of some other countries does include capital expenditures.

²⁹⁸ *Ibid.* The annual real rate of growth of gross domestic expenditures on research and development as a percentage of gross domestic product for the period 1999-2009 in the European Union and in all OECD countries was 0.18 percentage points and 0.17 percentage points, respectively. All reported growth rates are calculated in terms of U.S. dollars equivalents converted at purchasing power parity.

²⁹⁹ *Ibid.* The annual real rate of growth of business expenditures on research and development as a percentage of gross domestic product for the period 1999-2009 in the European Union and in all OECD countries was 0.06 percentage points and 0.13 percentage points, respectively. All reported growth rates are calculated in terms of U.S. dollar equivalents converted at purchasing power parity.

research activity and current expensing of research-related expenditures.³⁰⁰ These two types of benefits each carry different incentives with potentially different effects on research activity. For example, incentive effects of incremental credits per dollar of revenue loss may be larger than the incentive effects in expensing policies which are not incremental. However, expensing of research costs may have lower administrative and compliance costs than incremental credits.

The OECD has attempted to quantify the relative value of such tax benefits in different countries by creating an index that measures the total value of tax benefits accorded research activities relative to a simple expensing of all qualifying research expenditures. Table 30, below, reports the value of this index for selected countries. A value of zero results if the only tax benefit a country offered to research activities was the expensing of all qualifying research expenditures. Negative values reflect tax benefits less generous than expensing. Positive values reflect tax benefits more generous than expensing. For example, in 2008, in the United States qualifying taxpayers could expense research expenditures and, in certain circumstances, claim the research and experimentation tax credit. The resulting index number for the United States is 0.066.³⁰¹

³⁰⁰ In the case of expensing, amounts are expended to create an asset with a future benefit. In most other instances this would result in the capitalization and recovery through amortization of such costs. The inherent issue with expenses incurred in research and development is whether or not an asset of any value is being (or will be) created. At the time the amounts are expended, such a determination is often impossible. Further, research and development costs usually are incurred with the goal of creating a new or improved product, service, process or technique, but more often than not, the efforts do not result in success. As such, U.S. GAAP does not require the capitalization and amortization of R&D costs.

³⁰¹ OECD, *Science, Technology and Industry Scoreboard, 2009*. The index is calculated as one minus the so-called “B-index.” The B-index is equal to the after-tax cost of an expenditure of one dollar on qualifying research, divided by one minus the taxpayer marginal tax rate. Alternatively, the B-index represents the present value of pre-tax income that is necessary to earn to finance the research activity and earn a positive after-tax profit. In practice, construction of the B-index and the index number reported in Table 1 requires a number of simplifying assumptions. As a consequence, the relative position of the tax benefits of various countries reported in the table is only suggestive.

**Table 30.–Index Number of Tax Benefits for Research Activities
in Selected Countries, 2008**

Country	Index Number ¹
Germany	-0.020
United States	0.066
United Kingdom	0.105
Ireland	0.109
Japan	0.116
Italy	0.117
Canada	0.180
Spain	0.349
France	0.425

¹ Index number reported is only that for “large firms.” Some countries (notably Canada and the United Kingdom) have additional tax benefits for research activities of “small” firms. Source: OECD, OECD Science, Technology and Industry Scoreboard, 2009.

Scope of tax expenditures on research activities

The tax expenditure related to the research and experimentation tax credit was estimated to be \$4.9 billion for fiscal year 2009. The related tax expenditure for expensing of research and development expenditures was estimated to be \$3.1 billion for 2009, growing to \$6.5 billion for 2013.³⁰² The expenditures for fiscal years 2011 to 2015 are \$18.8 billion and \$26.5 billion for credits and expensing, respectively.³⁰³

As noted above, the Federal Government also directly subsidizes research activities. Direct government outlays for research have substantially exceeded the annual estimated value of the tax expenditure provided by either the research and experimentation tax credit or the expensing of research and development expenditures. For example, in fiscal 2011, the National Science Foundation gross outlays for research and related activities were \$5.8 billion, the Department of Defense’s gross outlays for research, development, test and evaluation was \$83.7 billion, the Department of Energy’s science gross outlays were \$5.9 billion, and the Department

³⁰² Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2009-2013* (JCS-1-10), January 11, 2010, p. 29. These estimates reflect the expiration of the research credit on December 31, 2009.

³⁰³ Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2011-2015* (JCS-1-12), January 17, 2012, p. 33. These estimates reflect the expiration of the research credit on December 31, 2011.

of Health and Human Services' budget for the National Institutes of Health was \$37.4 billion.³⁰⁴ However, such direct government outlays are generally for directed research on projects selected by the government. The research credit provides a subsidy to any qualified project of an eligible taxpayer with no application to a grant-making agency required. Projects are chosen based on the taxpayer's assessment of future profit potential.

Tables 31 and 32 present data for 2009 on those corporations that claimed the research tax credit by industry and asset size, respectively. Over 23,000 corporations (including both C corporations and S corporations) claimed nearly \$8.2 billion of research tax credits in 2008.³⁰⁵ Corporations whose primary activity is manufacturing account for somewhat less than one-half of all corporations claiming a research tax credit. These manufacturers claimed nearly 70 percent of all credits. Firms with assets of \$50 million or more account for 17.4 percent of all corporations claiming a credit but represent more than 87 percent of the credits claimed. Nevertheless, as Table 31 documents, a large number of small firms are engaged in research and are able to claim the research tax credit. C corporations claimed \$7.8 billion of these credits and, furthermore, nearly all of this \$7.8 billion was the result of the firm's own research. Only \$169 million in research credits flowed through to C corporations from ownership interests in partnerships and other passthrough entities.

By comparison, individuals claimed \$433 million in research tax credits on their individual income tax returns in 2009. This \$433 million includes credits that flowed through to individuals from passthrough entities such as partnerships and S corporations, as well those credits generated by sole proprietorships.

³⁰⁴ Office of Management and Budget, *Appendix, Budget of the United States Government, Fiscal Year 2013*, pp. 1245, 297-300, 429, and 490.

³⁰⁵ The \$8.2 billion figure reported for 2009 is not directly comparable with the Joint Committee on Taxation Staff's \$4.8 billion tax expenditure estimate for 2009 (Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2009-2013* (JCS-1-10), January 11, 2010, p. 29). The tax expenditure estimate accounts for the present-law requirement that deductions for research expenditures be reduced by research credits claimed. Also, the \$8.2 billion figure does not reflect the actual tax reduction achieved by taxpayers claiming research credits in 2009, as the actual tax reduction depends upon whether the taxpayer had operating losses, was subject to the alternative minimum tax, and other aspects specific to each taxpayer's situation.

**Table 31.—Percentage Distribution of Corporations Claiming Research Tax Credit
and Percentage of Credit Claimed by Sector, 2009**

Industry	Percent of Corporations Claiming Credit	Percent of Total R & E Credit
Manufacturing	42.6%	68.6%
Information	4.9%	10.9%
Professional, Scientific, and Technical Services	28.5%	10.0%
Wholesale Trade	7.1%	4.4%
Finance and Insurance	3.1%	1.9%
Retail Trade	1.8%	1.2%
Holding Companies	4.8%	0.7%
Utilities	0.4%	0.6%
Health Care and Social Services	1.3%	0.4%
Administrative and Support and Waste Management and Remediation Services	1.2%	0.4%
Construction	1.1%	0.3%
Mining	0.2%	0.2%
Real Estate and Rental and Leasing	0.5%	0.2%
Transportation and Warehousing	0.3%	0.1%
Agriculture, Forestry, Fishing and Hunting	0.5%	0.1
Educational Services	(1)	(1)
Accommodation and Food Services	1.4%	(1)
Arts, Entertainment, and Recreation	0.1%	(1)
Other Services	0.1%	(1)
Not Allocable	(2)	(2)
Wholesale and Retail Trade not Allocable	(2)	(2)

(1) Less than 0.1 percent.

(2) Data undisclosed to protect taxpayer confidentiality.

Source: Joint Committee on Taxation staff calculations from Internal Revenue Service, Statistics of Income data.

Table 32.—Percentage Distribution of Corporations Claiming Research Tax Credit and of Credit Claimed by Corporation Size, 2009

Asset Size (\$)	Percent of Firms Claiming Credit	Percent of Credit Claimed
0	2.5%	1.1%
1 thru 99,999	11.4%	0.1%
100,000 thru 249,999	1.4%	(1)
250,000 thru 499,999	4.4%	0.2%
500,000 thru 999,999	6.0%	0.4%
1,000,000 thru 9,999,999	38.6%	5.3%
10,000,000 thru 49,999,999	18.4%	5.8%
50,000,000 +	17.4%	87.1%

(1) Less than 0.1 percent.

Totals may not add to 100 percent due to rounding.

Source: Joint Committee on Taxation staff calculations from Internal Revenue Service, Statistics of Income data.

Flat versus incremental tax credits

For a tax credit to be effective in increasing a taxpayer's research expenditures, it is not necessary to provide that credit for all the taxpayer's research expenditures (*i.e.*, a flat credit). By limiting the credit to expenditures above a base amount, incremental tax credits attempt to target the tax incentives to have the largest effect on taxpayer behavior.

Suppose, for example, a taxpayer is considering two potential research projects: Project A will generate cash flow with a present value of \$105 and Project B will generate cash flow with a present value of \$95. Suppose that the research cost of investing in each of these projects is \$100. Without any tax incentives, the taxpayer will find it profitable to invest in Project A and will not invest in Project B.

Alternatively, consider the situation where a 10-percent flat credit applies to all research expenditures incurred. In the case of Project A, the credit effectively reduces the cost to \$90. This increases profitability, but does not change behavior with respect to that project, since it would have been undertaken in any event. However, because the cost of Project B also is reduced to \$90, this previously neglected project (with a present value of \$95) would now be profitable. Thus, the tax credit would affect behavior only with respect to this marginal project.

Incremental credits do not attempt to reward projects that would have been undertaken in any event, but rather to target incentives to marginal projects. To the extent this is possible, incremental credits have the potential to be far more effective per dollar of revenue cost than flat credits in inducing taxpayers to increase qualified expenditures. In the example above, if an

incremental credit were properly targeted, the government could spend the same \$20 in credit dollars and induce the taxpayer to undertake a marginal project so long as its expected cash flow exceeded \$80. Unfortunately, it is nearly impossible as a practical matter to determine which projects would be undertaken in the absence of a credit and to provide credits only to those projects which would not have been undertaken. In practice, almost all incremental credit proposals rely on some measure of the taxpayer's previous experience as a proxy for a taxpayer's total qualified expenditures in the absence of a credit. This amount is referred to as the credit's base amount. Tax credits are provided only for amounts above this base amount.

Because a taxpayer's calculated base amount is only an approximation of what would have been spent in the absence of a credit, in practice, the credit may be less than optimally effective per dollar of revenue cost. If the calculated base amount is too low, the credit is awarded to projects that would have been undertaken even in the absence of a credit. If, on the other hand, the calculated base amount is too high, then there is no incentive for projects that are on the margin.

Nevertheless, the incentive effects of incremental credits per dollar of revenue loss can be many times larger than those of a flat credit. However, a flat credit generally has lower administrative and compliance costs than an incremental credit. Another important consideration is the potentially less than optimal allocation of resources and unfair competition that could result as firms with qualified expenditures determined to be above their base amount receive credit dollars, while other firms with qualified expenditures determined to be below their base amount receive no credit.

Fixed base versus moving base credit

Taxpayers effectively have the choice of two different research credit structures for general research expenditures: the regular credit and the alternative simplified credit.³⁰⁶ The regular credit is a wholly "incremental" credit, while the alternative simplified credit has an incremental feature. In addition, the base is determined differently in each case. The regular credit is a "fixed base" credit. With a fixed base credit, the incremental amount of qualified research expenditures is determined with reference to prior qualified research expenditures incurred over a fixed period of time. The alternative simplified credit is a "moving base" credit. With a moving base credit, the incremental amount of qualified research expenditures for a given year is determined by reference to qualified research expenditures incurred on a rolling basis in one or more prior years. The distinction can be important because, in general, an incremental tax credit with a base amount equal to a moving average of previous years' qualified expenditures is considered to have an effective rate of credit substantially below its statutory rate. On the other hand, an incremental tax credit with a base amount determined as a fixed base generally is considered to have an effective rate of credit equal to its statutory rate.

³⁰⁶ A taxpayer election into one of these structures is permanent unless revoked by the Secretary. However, historically, permission to revoke an election has routinely been granted by the Secretary, effectively making the choice an annual election.

To understand how a moving base creates a reduction in the effective rate of credit, consider the structure of the alternative simplified credit. The base of the credit is equal to 50 percent of the previous three years' average of qualified research expenditures. Assume a taxpayer has been claiming the alternative simplified credit and is considering increasing his qualified research expenditures this year. A \$1 increase in qualified expenditures in the current year will earn the taxpayer 14 cents in credit in the current year but it will also increase the taxpayer's base amount by 16.7 cents (50 percent of \$1 divided by three) in each of the next three years. If the taxpayer returns to his previous level of research funding over the subsequent three years, the taxpayer will receive two and one-third cents less in credit than he otherwise would have. Assuming a nominal discount rate of 10 percent, the present value of the one year of credit increased by 14 cents followed by three years of credits reduced by two and one-third cents is equal to 8.19 cents. That is, the effective credit rate on a \$1 dollar increase in qualified expenditures is 8.19 percent.

An additional feature of the moving average base calculation of the alternative simplified credit is that it is not always an incremental credit. If the taxpayer never alters his research expenditures, the alternative simplified credit is the equivalent of a flat rate credit with an effective credit value equal to one half of the statutory credit rate. Assume a taxpayer spends \$100 per year annually on qualified research expenses. This taxpayer will have an annual base amount of \$50, with the result that the taxpayer will have \$50 of credit eligible expenditures on which the taxpayer may claim \$7 of tax credit (14 percent of \$50). For this taxpayer, the 14-percent credit above the defined moving average base amount is equivalent to a seven-percent credit on the taxpayer's \$100 of annual qualifying research expenditures.

The moving average base calculation of the alternative simplified credit also can permit taxpayers to claim a research credit while they decrease their research expenditures. Assume as before that the taxpayer has spent \$100 annually on qualified research expenses, but decides to reduce research expenses in the next year to \$75 and in the subsequent year to \$50, after which the taxpayer plans to maintain research expenditures at \$50 per year. In the year of the first reduction, the taxpayer would have \$25 of qualifying expenditures (the taxpayer's prior three-year average base is \$100) and could claim a credit of \$3.50 (14 percent of the \$75 current year expenditure less half of three year average base). In the subsequent four years, the taxpayer could claim a credit of \$0.58, \$1.75, \$2.92, and \$3.50.³⁰⁷ Of course, it is also the case that a taxpayer may claim a research credit as he reduces research expenditures under a fixed base credit as long as the taxpayer's level of qualifying expenditures is greater than the fixed base.

Some have also observed that a moving base credit can create incentives for taxpayers to "cycle" or bunch their qualified research expenditures. For example, assume a taxpayer who is claiming the alternative simplified credit has had qualified research expenditures of \$100 per year for the past three years and is planning on maintaining qualified research expenditures at \$100 per year for the next three years. The taxpayer's base would be \$50 for each of the next three years and the taxpayer could claim \$7 of credit per year. If, however, the taxpayer could

³⁰⁷ In the subsequent four years, 50 percent of the prior three years' expenditures equals \$45.83, \$37.50, \$29.17, and \$25.00. In each year, the taxpayer's expenditure of \$50 exceeds 50 percent of the prior three years' expenditures.

bunch expenditures so that the taxpayer incurred only \$50 of qualified research next year, followed by \$150 in the second year and \$100 in the third, the taxpayer could claim no credit next year but \$15.17 in the second year and \$7 dollars in the third. While the example demonstrates a benefit to cycling, as the majority of qualified research expenditures consist of salaries to scientists, engineers, and other skilled labor, the potential for cycling would likely be limited in practice.

The responsiveness of research expenditures to tax incentives

As with any other commodity, economists expect the amount of research expenditures a firm incurs to respond positively to a reduction in the price paid by the firm. Economists often refer to this responsiveness in terms of price elasticity, which is measured as the ratio of the percentage change in quantity to a percentage change in price. For example, if demand for a product increases by five percent as a result of a 10-percent decline in price paid by the purchaser, that commodity is said to have a price elasticity of demand of 0.5.³⁰⁸ One way of reducing the price paid by a buyer for a commodity is to grant a tax credit upon purchase. A tax credit of 10 percent (if it is refundable or immediately usable by the taxpayer against current tax liability) is equivalent to a 10-percent price reduction. If the commodity granted a 10-percent tax credit has an elasticity of 0.5, the amount consumed will increase by five percent. Thus, if a flat research tax credit were provided at a 10-percent rate, and research expenditures had a price elasticity of 0.5, the credit would increase aggregate research spending by five percent.³⁰⁹

While most, if not all, published studies report that the research credit induces increases in research spending, the elasticity of the evidence generally indicates that the price elasticity for research is less than one.³¹⁰ For example, one survey of the literature reaches the following conclusion:

“In summary, most of the models have estimated long-run price elasticities of demand for research and development on the order of -0.2 and -0.5. However, all of the measurements are prone to aggregation problems and measurement errors in explanatory variables.”³¹¹

³⁰⁸ For simplicity, this analysis assumes that the product in question can be supplied at the same cost despite any increase in demand (*i.e.*, the supply is perfectly elastic). This assumption may not be valid, particularly over short periods of time, and particularly when the commodity—such as research scientists and engineers—is in short supply.

³⁰⁹ It is important to note that not all research expenditures need be subject to a price reduction to have this effect. Only the expenditures that would not have been undertaken otherwise—so called marginal research expenditures—need be subject to the credit to have a positive incentive effect.

³¹⁰ One author has suggested that the variability in estimates of the price elasticity of research highlights the dependence of the estimates on the choice of dataset and the precise estimating methodology. For example, the results yield a range of estimates for the effect of tax incentives on research expenditures, with a larger elasticity in data sets drawn from tax returns than in those drawn from publicly available data. Nirupama Rao, “Do Tax Credits Stimulate R&D Spending? The R&D Credit in Its First Decade,” available at <http://economics.mit.edu/files/5540>.

³¹¹ Charles River Associates, “An Assessment of Options for Restructuring the R&D Tax Credit to Reduce Dilution of its Marginal Incentive,” final report prepared for the National Science Foundation, February 1985, p. G-

If it took time for taxpayers to learn about the credit and what sort of expenditures qualified, taxpayers may have only gradually adjusted their behavior. Such a learning curve might explain a modest measured behavioral effect. A more recent survey of the literature on the effect of the tax credit suggests a stronger behavioral response, although most analysts agree that there is substantial uncertainty in these estimates.

“[W]ork using US firm-level data all reaches the same conclusion: the tax price elasticity of total research and development spending during the 1980s is on the order of unity, maybe higher. . . . Thus there is little doubt about the story that the firm-level publicly reported research and development data tell: the research tax credit produces roughly a dollar-for-dollar increase in reported research and development spending on the margin.”³¹²

14. The negative coefficient in the text reflects that a decrease in price results in an increase in research expenditures. Often, such elasticities are reported without the negative coefficient, it being understood that there is an inverse relationship between changes in the “price” of research and changes in research expenditures.

In a 1983 study, the Treasury Department used an elasticity of 0.92 as its upper range estimate of the price elasticity of R&D, but noted that the author of the unpublished study from which this estimate was taken conceded that the estimate might be biased upward. See Department of the Treasury, “The Impact of Section 861-8 Regulation on Research and Development,” p. 23. As stated in the text, although there is uncertainty, most analysts believe the elasticity is considerably smaller. For example, the General Accounting Office (now called the Government Accountability Office) summarizes: “These studies, the best available evidence, indicate that spending on R&E is not very responsive to price reductions. Most of the elasticity estimates fall in the range of 0.2 and 0.5. . . . Since it is commonly recognized that all of the estimates are subject to error, we used a range of elasticity estimates to compute a range of estimates of the credit’s impact.” See Government Accountability Office, *The Research Tax Credit Has Stimulated Some Additional Research Spending* (GAO/GGD-89-114), September 1989, p. 23. Similarly, Edwin Mansfield concludes: “While our knowledge of the price elasticity of demand for R&D is far from adequate, the best available estimates suggest that it is rather low, perhaps about 0.3,” in Edwin Mansfield, “The R&D Tax Credit and Other Technology Policy Issues,” *American Economic Review*, vol. 76, no. 2, May 1986, p. 191.

³¹² Bronwyn Hall and John Van Reenen, “How Effective Are Fiscal Incentives for R&D? A Review of the Evidence,” *Research Policy*, vol. 29, 2000, p. 462. This survey reports that more recent empirical analyses have estimated higher elasticity estimates. One recent empirical analysis of the research credit has estimated a short-run price elasticity of 0.8 and a long-run price elasticity of 2.0. The author of this study notes that the long-run estimate should be viewed with caution for several technical reasons. In addition, the data utilized for the study cover the period 1980 through 1991, containing only two years under the revised credit structure. This makes it empirically difficult to distinguish short-run and long-run effects, particularly as it may take firms some time to appreciate fully the incentive structure of the revised credit. See Bronwyn H. Hall, “R&D Tax Policy During the 1980s: Success or Failure?” in James M. Poterba (ed.), *Tax Policy and the Economy*, vol. 7, The MIT Press 1993, pp. 1-35. Another recent study examined the post-1986 growth of research expenditures by 40 U.S.-based multinationals and found price elasticities between 1.2 and 1.8. However, the estimated elasticities fell by half after including an additional 76 firms that had initially been excluded because they had been involved in merger activity. See James R. Hines, Jr., “On the Sensitivity of R&D to Delicate Tax Changes: The Behavior of U.S. Multinationals in the 1980s” in Alberto Giovannini, R. Glenn Hubbard, and Joel Slemrod (eds.), *Studies in International Taxation*, University of Chicago Press 1993. Also see M. Ishaq Nadiri and Theofanis P. Mamuneas, “R&D Tax Incentives and Manufacturing-Sector R&D Expenditures,” in James M. Poterba, (ed.), *Borderline Case: International Tax Policy, Corporate Research and Development, and Investment*, National Academy Press, 1997. While their study concludes that one dollar of research tax credit produces 95 cents of research, they note that time series empirical work is clouded by poor measures of the price deflators used to convert nominal research expenditures to real expenditures.

However, this survey notes that most of this evidence is not drawn directly from tax data. For example, effective marginal tax credit rates are inferred from publicly reported financial data and may not reflect limitations imposed by operating losses or the AMT. The study notes that because most studies rely on “reported research expenditures,” a “relabeling problem” may exist whereby preferential tax treatment for an activity gives firms an incentive to reclassify expenditures as qualifying expenditures. If this occurs, reported expenditures increase in response to the tax incentive by more than the underlying real economic activity. Thus, reported estimates may overestimate the true response of research spending to the tax credit.³¹³

A more recent analysis of changes to the research credit enacted in the Omnibus Budget Reconciliation Act of 1989 (“OBRA89”)³¹⁴ finds a larger elasticity for research expenditures.³¹⁵ These changes redefined the base amount used to calculate qualified incremental research expenditures that determine the amount of the credit. Fewer firms overall were eligible for the credit as a result of these changes, but a greater percentage of eligible firms had sufficient positive tax liability to utilize the credit. This study finds that the research credit “induced approximately \$2.08 of additional R&D spending per revenue dollar foregone by the U.S. Treasury in the post-OBRA89 period.”³¹⁶

Other research suggests that many of the elasticity studies may overstate the efficiency of subsidies to research. Most R&D spending is for wages and the supply of qualified scientists is small, particularly in the short run. Subsidies may raise the wages of scientists, and hence research spending, without increasing actual research. See Austan Goolsbee, “Does Government R&D Policy Mainly Benefit Scientists and Engineers?,” *American Economic Review*, vol. 88, May 1998, pp. 298-302.

³¹³ Hall and Van Reenen, “How Effective Are Fiscal Incentives for R&D? A Review of the Evidence,” p. 463.

³¹⁴ Pub. L. No. 101-239.

³¹⁵ Sanjay Gupta, Yuhchang Hwang, and Andrew P. Schmidt, “Structural Changes in the Research and Experimentation Credit: Success or Failure?,” *National Tax Journal*, vol. 64, June 2011, pp. 285-322.

³¹⁶ *Ibid*, p. 316.