

THE CASE FOR RESPONSIBLE BUSINESS TAX REFORM

A Report by the U.S Department of the Treasury's Office of Tax Policy



January 2017

THE CASE FOR RESPONSIBLE BUSINESS TAX REFORM

The U.S. system for taxing business income has not been systematically overhauled since the mid-1980s. Since that time, the corporate tax rate has been increased from 34 percent to 35 percent and there have been a number of new business tax preferences introduced. For example, following the 1986 *Tax Reform Act*, the last major tax reform, the general business credit consisted of 5 credits. By 2016 that number had grown to 36.

In addition, the tax code has maintained or expanded important structural features that interfere with productive business decisions. First of all, the corporate tax, and business taxes generally, impose taxes on capital income. These taxes may discourage savings and investment generally, and so discourage capital formation, which is a key contributor to economic growth. The current tax system also maintains tax differences across legal forms of organization (C corporations vs. S corporations vs. partnerships), across broad categories of assets (e.g., equipment vs. structures), across industries, across financings sources (debt vs. equity), and in favor of very specific targeted activities. Very few of these tax differences can be justified on the basis of sound economic criteria. This chapter reviews a number of these tax differences, and the problems that they potentially cause.

Domestically, the effects of these structural deficiencies are apparent in the growth of the pass-through business sector, in the erosion of corporate tax revenues, and the complexity and administrative burden the tax system imposes. For example, the share of net business income received by pass-through businesses (sole proprietorships, S corporations, and partnerships) has increased from 24 percent in 1986 to 53 percent in 2012.¹ Corporate tax revenues, which have historically been an important source of financing the government and reducing the deficit and contribute to the progressivity of the tax system, have continued in a downward trend as a share of GDP and of total revenues over the past 50 years, though the trend has flattened somewhat since the Tax Reform Act of 1986. These revenues have come with a substantial compliance burden on businesses, as the Internal Revenue Service (IRS) estimates that in 2009 corporations and partnerships incurred \$104 billion in compliance costs (Contos et al, 2012).

The U.S. system of taxing multinational businesses is also out of date. Over the past thirty years economic, financial, and institutional changes have placed increasing pressure on our business tax system and on the ability of U.S. companies to operate effectively in the world economy. Countries have become increasingly interdependent as the integration of trade, finance, investment, people, information and ideas in one global marketplace has increased cross-border trade and led multinational businesses to establish production facilities and distribution networks around the globe. In 1983 trade in goods to and from the United States represented 13 percent of GDP while thirty years later, it accounted for over 23 percent of GDP. Including services raises this to more than 30 percent of GDP. Similarly, there has been a twenty-fold increase in U.S. direct investment abroad over this period (BEA, 2016). Financial innovation and increasingly sophisticated legal and accounting practices have helped companies avoid tax by shifting income to lower-taxed jurisdictions and using tax motivated transactions to reduce their burden, sometimes to the detriment of the United States. In light of these changes, many other countries around the world have lowered their tax rates, sometimes financed by broadening their tax base, other

¹ Office of Tax Analysis (OTA) calculations using Internal Revenue Service (IRS) Statistics of Income Integrated Business Data. See also Nelson, 2016.

times by relying more on consumption taxes, to attract economic activity and investment from mobile businesses and capital.

As a result of these changes domestically and in the international business environment, our business tax system has become an increasing drag on our economy, more difficult to administer and enforce, while also contributing a diminishing share of our nation's tax revenues. Put succinctly, our business tax system is unsuited to today's dynamic and globalized economy and imposes inefficient distortions to business activity and investment decisions here at home.

At the same time, it is important to recognize that the current tax system also has many advantages. It continues to produce substantial revenues (especially when considering both pass-through businesses and corporations), which would be difficult to replace without imposing tax or other costs elsewhere in the economy. It is progressive: e.g., almost 70 percent of the burden of the corporate tax falls on high-income taxpayers (Cronin et al, 2012). Its structures are familiar and well understood, making substantial changes costly. Finally, the similarity between (a) the combined shareholder and company statutory tax rate on corporate income and (b) the top individual income tax rate that applies to pass-through businesses and wages substantially reduces the scope for costly and inefficient tax avoidance behavior, and reduces the need for complex and onerous rules differentiating each type of income. If not done carefully and responsibly, changes to the current system could worsen long-term budget deficits, make the tax system less progressive by shifting more of the burden onto low- and middle-income taxpayers, create new distortions, or worsen existing ones.

Improving the business tax system therefore requires balanced, well-conceived changes that address the major distortions without creating new ones that are worse, and retain those pieces that are necessary for a simple, well-functioning system.

This paper first discusses a set of major, frequently-identified domestic distortions. These include those caused by the tax on corporate profits and targeted tax preferences. The paper then goes on to review problems with the current U.S. system for taxing the income of multinational businesses and some of the changes other countries have made to their tax systems in response.

PART I: DOMESTIC CONSIDERATIONS

Under our current income tax system, corporate profits are taxed twice, and at a combined rate that exceeds the rate on pass-through business income. Profits are taxed once at the corporate level (under the separate income tax applied to corporations) and again at the shareholder level (under the individual income tax) as dividend or capital gains income. For example, if corporate profits are subject to tax at the full 35 percent corporate tax rate, and taxed again as dividends at a 23.8 percent tax rate, then the combined rate would be over 50 percent. In contrast, profits earned by so called pass-through businesses—sole proprietorships, partnerships, and S corporations—are taxed only once, under the individual income tax, at a rate no higher than 43 percent, and often at a much lower rate depending on the owner's tax rate.

At the individual level, capital gains and dividends are currently taxed at lower rates (a maximum of 23.8 percent) compared to ordinary income tax rates. This acts to mitigate the disadvantage faced by corporations for ordinary income compared to pass-through businesses. However, pass-through businesses receive a further advantage: Capital gains earned by corporations are taxed at the full corporate tax rate, while capital gains earned by pass-through businesses are taxed at preferential rates at the individual level (Desai, 2006). Recent research estimates that 45 percent of income received by partnerships is characterized as dividend or capital gains income and hence taxed at preferential rates (Cooper et al, 2015).

The relatively high rate of tax on corporate profits is likely to discourage investing in corporations, or using the corporate form of legal organization. The lowering of individual tax rates in the early 2000's increased the tax wedge between corporate and pass-through business forms, resulting in more business income flowing through partnerships and S corporations in particular (DeBacker and Prisinzano, 2015). Similarly, the loosening of limitations on the pass-through businesses over the last thirty years, such as increasing the number of owners allowed for S corporations from 35 to 100, has contributed to more business activity occurring in S corporations. As a result, a majority of business income is now earned by pass-through entities, which avoid the corporate tax entirely.

The current U.S. tax system also creates an incentive for corporations to finance with debt rather than with equity, because corporations can deduct interest paid to investors but not dividends. Thus, the income from corporate debt-financed investment generally is taxed at most once, if at all, as income of the lender. In contrast, income from corporate equity-financed investment is taxed at the corporate level under the corporate income tax and possibly again at the shareholder level.

In addition, special tax preferences that reduce taxes for specific types of business activities may create distortions that can vary by type of investment. In theory, tax preferences can improve economic outcomes by correcting for market failures, for example, by encouraging investments in activities whose returns to society as a whole exceed their returns to their investors. In practice, many tax preferences are not supported by good evidence of market failures. As a result, these special preferences are difficult to justify because they encourage investments based on tax considerations rather than economic fundamentals, and encourage over-investment in tax-favored activities. Furthermore, even if investors are completely unresponsive to a tax preference, so that the preference is a pure windfall, the preference still narrows the tax base and so requires higher taxes on other sources of income in order to meet

revenue goals. These higher taxes may distort choices elsewhere in the economy. Tax preferences also add complexity to the tax system and contribute to substantial tax compliance and enforcement burdens.

There also is a widely (but, of course, not universally) held view that the tax burden on *new* capital investments in the U.S. is too high.² On this view, lower taxes on new investments are needed in order to stimulate more investment and economic growth. Indeed, a large group of prominent economists hold the view that the optimal tax on new investments is very low if not zero (Initiative on Global Markets, 2012). There are several reasons for this. One is that income taxes on new capital investments can be shifted onto labor, either through reduced saving or through reduced international flows of capital. To the extent that this is true, then the capital income tax is equivalent to a labor income tax plus an excess burden caused by the reduced capital stock. So it would be better to use a labor income tax to begin with. There also is the point that in order to avoid distorting the allocation of consumption over time, the tax rate on the normal return to saving (the time value of money) should be zero, lest the tax system favor current over future consumption. If other tax instruments are available (e.g., a progressive wage or consumption tax), the distortion in the allocation of consumption over time may buy little in terms of revenue or a fairer distribution of the tax burden, and so should be avoided. Another argument emphasizes the distorting effect of capital income taxes on investment decision because the taxes accumulate over time.

The implications of these arguments for tax reform are not straight forward, however, because these arguments apply specifically to new, marginal (break-even) capital investments whereas the current individual and corporate income tax systems apply to a base that includes not just the marginal return to new investments, but also to economic rents such as from monopoly profits and higher-than-expected returns to capital already in place, and to a mix of capital and labor income. Indeed, in the business sector, the majority of business income appears to arise from economic rents rather than the normal return to new investments (Cronin et al, 2012; Frerick and Power, 2016), and a substantial portion of the business income of pass-through sector may be more properly considered labor income. Hence, these arguments apply more clearly to tax changes that reduce the tax rate on new investments (such as expensing or accelerated depreciation) rather than to reductions in statutory corporate or individuals rates, which apply to a much broader base of income.

Measuring Economic Distortions in the Corporate Income Tax: Effective Marginal Tax Rates

Many of the key distortions in the existing tax system can be illustrated by comparing differences in effective marginal tax rates (EMTR) across investments in different assets and sectors and with different sources of financing. The extent to which EMTRs vary across such margins provides a measure of how strongly the business and corporate income tax systems impose distortions to those business decisions.

The EMTR summarizes the effects of major provisions of the tax code on investment incentives.³⁴ It measures the total fraction of an investment's pre-tax rate of return, excluding economic

² For a discussion of the issues and tradeoffs, see Atkinson and Stiglitz, 1976; Judd, 1985; Chamley, 1986; Mirrlees and Adam, 2011; Auerbach, 2012.

³ Those major provisions include federal tax rates on corporate and non-corporate business income, accelerated tax depreciation, business interest deductions, investment tax credits, and various individual-level taxes (e.g., tax rates on capital

depreciation, needed to pay taxes over the lifetime of a hypothetical marginal investment, i.e., an investment assumed to just break even. The EMTR is the rate of tax that, if applied to a tax base of economic income, would have the same marginal investment incentive effect as the combined effect of the tax rates, income-measurement rules, and other features of the actual tax system, including accelerated depreciation and tax credits that are included in the calculation of the marginal tax rate.⁵

If the tax system had economic income as its base, then the effective marginal tax rate would equal the statutory tax rate.⁶ If the tax system allows deductions greater than or sooner than those implied by economic income, or offers credits or exclusions of income, the effective marginal tax rate is below the statutory tax rate and vice versa. In general, the lower is the effective marginal tax rate, the greater is the incentive to invest.

The EMTR calculations in Table 1.1 include taxes at both the shareholder and the firm level. They also allow for differences in the taxation of income from debt-financed investments and from equity-financed investments and the presence of both taxable and tax-exempt investors.⁷

gains, dividend income, interest income, distributions of nonqualified annuities, and deductions for home mortgage interest and real estate taxes). They also include the domestic production activities deduction, although its impact on the current-law effective marginal tax rates is small.

⁴ Effective marginal tax rates are calculated using a cost of capital model based on the effective tax rate/cost of capital methodology described in Fullerton, Gillette, and Mackie, 1987; Gravelle, 1994; Mackie, 2002; Ozanne and Burnham, 2006.

⁵ The Haig-Simons definition of income is the amount of consumption plus the change in net worth. This broad definition includes income that is received, accrued, self-produced, and in-kind as well as in cash minus any costs of earning or producing that income.

⁶ For corporations, this would be adjusted to reflect taxes at the corporate and the shareholder levels.

⁷ Although effective marginal tax rates are informative, their results, like those of any other calculation or simulation, must be interpreted with caution. For example, the usual EMTR calculation includes a number of prominent features of the tax system but does not include all deductions, credits, and special allowances, such as percentage depletion and other targeted tax preferences discussed later in this section. It also does not include carryforwards and carrybacks. In addition, the EMTR is a calculation for a hypothetical marginal investment. But there is no clear marginal investor and no clear marginal source of funds. Finally, effective marginal tax rates can depend on assumed parameter values, such as tax rates, interest rates, and inflation rates, about which there is not universal agreement.

Table 1.1 Effective Marginal Tax Rates on New Investment (in Percent), 2016

	Current Law
Business	27.3
Corporate Business	28.9
Financing	
Equity-financed	34.5
Debt-financed	-5.0
Asset Type	
Equipment ^a	24.2
Structures ^b	29.4
Land ^c	36.1
Inventories ^{c,d}	39.5
Intangibles ^e	2.4
Pass-through Business	24.4
Owner-occupied Housing	-2.3
Total	19.7

Source: U.S. Department of the Treasury, Office of Tax Analysis

Notes: LIFO = last in first out; FIFO = first in first out; EMTR = effective marginal tax rates.

The effective marginal tax rates shown include firm-level taxes and individual-level taxes. They also include Section 179 expensing and the R&E tax credit but exclude bonus depreciation. Bonus depreciation is available in 2017, 2018, and 2019.

a. Equipment includes both nonresidential and residential equipment.

b. Structures include nonresidential, tenant-occupied, and owner-occupied structures.

c. The economic depreciation rate is set to zero and no tax depreciation is included when calculating EMTR.

d. For inventories, the effective marginal tax rate is calculated using a cost of capital that is a weighted average of the cost of capital under LIFO accounting and the cost of capital under FIFO accounting.

e. Intangible assets include research and development (R&D), artistic originals, and advertising. R&D and advertising are assumed to be expensed. Artistic originals are assumed to be depreciated over 15 years using the straight-line method.

Discouraging Saving and Investment.

Taxing the capital income from new investments can discourage savings and investment. As mentioned above, many prominent economists argue that certain taxes on capital income distort consumption, savings, and investment choices, and that the costs of these distortions are large. The calculations in Table 1.1 show the effective tax rates on new investments in a variety of capital assets. New investments in the business sector are taxed at a 27 percent effective marginal rate, for example. Including owner-occupied housing, whose return is effectively untaxed, as discussed below, brings the economy wide rate down to just below 20 percent. Nevertheless, the taxes imposed on new investments are likely to discourage saving and capital formation.

Behind these average rates are EMTRs that vary by source of financing, asset type, and by sector. This variation is an additional source of inefficiency. Because investments with higher effective marginal tax rates need higher pre-tax rates of return in order to offer investors a sufficient after-tax rate of return, differences in effective marginal tax rates imply that capital may be inefficiently allocated across investments. Total output (which is determined by pre-tax returns) would increase if a dollar of capital were moved from a low-tax project to a high-tax project.

Corporate equity vs. debt financed investment

The EMTR calculations in Table 1.1 show the effect of the different tax treatment given income from corporate debt-financed and corporate equity-financed investments. While the overall EMTR for corporate businesses is 28.9 percent, the EMTR on income from a representative equity-financed investment is 34.5 percent. The EMTR on equity-financed investment happens to be roughly equal to the statutory corporate rate even though it incorporates both the corporate and shareholder-level taxes. It is lower than would be a simple combination of corporate and personal tax rates because of tax preferences, such as accelerated depreciation, expensing of research and development (R&D), deferral of capital gains tax on appreciation in corporate shares, and holding of corporate equity by tax-exempt organizations such as retirement savings plans.

Because the calculations reflect the marginal saver's returns to debt and equity holdings, they capture that corporate equity can be held in fully taxable accounts, temporarily-deferred accounts, as well as nontaxable accounts. This fact is critical given the decline of U.S. corporate stock held in fully taxable accounts over the last several decades.⁸ Approximately 30 percent of U.S. corporate stock is held by households in taxable accounts, 35 percent in retirement plans, 15 percent by nontaxable entities including foreigners and nonprofits, and the rest in a catch-all category.⁹ To the extent that fewer dividends are taxed immediately or at all, the EMTR is lower.

In contrast to the tax on income from an equity-financed investment, the EMTR on income from a debt-financed investment (i.e., interest) is negative -5.0 percent. The primary reason that this is lower than the EMTR on income from a corporate equity-financed investment is that interest is deductible and thus avoids the corporate income tax. The tax rate is negative because the statutory corporate tax rate against which corporations deduction interest expense is larger than the statutory tax rate that creditors, in the aggregate, pay on interest income. This treatment of interest can create a subsidy for debt-financed corporate investment because of accelerated depreciation (or other cost recovery provisions, such as expensing of R&D)¹⁰ and because interest flows are not indexed for inflation.¹¹

⁸ While the EMTR analysis reflects the household sector's ownership percentages, the percentages for corporate shares have a similar pattern.

⁹ These are unpublished OTA estimates using data from 2000 through 2010 but are similar to the more recent estimates of Rosenthal and Austin (2016), although the foreign share has grown rapidly in recent years.

¹⁰ Accelerated depreciation is discussed more completely below.

¹¹ As described in Mackie (2002), corporations deduct the inflation component of the interest rate (which is a return of principal) at a high rate, while lenders include it in income at a lower rate. The difference creates a subsidy. Similarly, accelerated depreciation effectively operates as loan from the government to investors. The loan is granted during the early years of an investment, when tax depreciation exceeds economic depreciation, and is repaid later, when the depreciation deductions reverse. Because of the tax rate differential, the size of the loan that is granted, which depends on the corporate rate, is larger than the amount of the loan that is repaid, which is determined by the lender's tax rate.

The heavier tax burden placed on corporate profits relative to that on interest earned on debt-financed corporate investments potentially creates a large tax-induced distortion in business decision making. According to at least one prominent theory of capital structure, the tax difference encourages corporations to use excessive leverage and so bear increased costs from the risk of financial distress, including bankruptcy. According to this theory, firms trade-off increased risk of bankruptcy and financial distress for greater tax savings, and so choose debt/equity ratios that are “too high” in the sense that they are higher than would be chosen if debt and equity returns were equally taxed. Debt can impose these costs on a firm in a way that equity cannot because debt and the associated contractual covenants require ongoing payments to creditors (which equity generally does not) and allow creditors to force a firm into bankruptcy, a restructuring of ownership that entails high administrative, legal, and other costs, even when a firm continues to operate in some form. Even a solvent firm with limited liquidity that struggles to make debt payments may lose customers, suppliers, and employees. In the face of financial distress, such firms may feel forced to engage in asset “fire sales” and forego economically profitable investments. Heavily leveraged firms also may choose to make high-risk investments with negative-expected-returns in the hope of keeping the winnings if the dice fall their way because the upside risk for managers and shareholders is unlimited, while creditors would bear the bulk of the downside risk. Not all economists who study corporate financial theory are persuaded that debt’s tax advantage encourages firms to borrow too heavily and the empirical evidence is mixed. Nonetheless, a substantial body of work and opinion lists excessive borrowing among the important problems with the existing system of taxing capital income.¹²

The Relationship between Corporate and Pass-through Business Activity

Discouraging Corporate Investment

The double tax on corporate profits typically is viewed as discouraging investment in that sector (and in heavily incorporated industries) compared to investment in other sectors and industries, such as pass-through businesses.¹³ This is generally thought to reduce the productivity of the capital stock, because pretax returns across sectors are not equalized.

In Table 1.1 the effective marginal tax rate on income from investment in the pass-through business sector is 24.4 percent which is considerably lower than the 28.9 percent rate applying to income from investment in the corporate sector. Reform proposals that focus on lowering the corporate tax rate without changing individual tax rates will narrow this differential.

This tax wedge between the corporate and non-corporate sectors was first analyzed in a general equilibrium context by Harberger (1962). Dividing the economy into the corporate and non-corporate sectors, Harberger finds the corporate income tax distorts the allocation of resources and, because of shifting, is likely to be borne in both sectors by capital owners. The output in the corporate sector bearing the higher tax shrinks (and output in the non-corporate sector rises) as capital (and labor) flows to the non-corporate sector in order to make the after-tax prices of labor and capital the same across the sectors, as required in equilibrium. In particular, in order to make up for the tax, capital must flow out of the corporate sector until its pre-tax return rises sufficiently to cover the tax and still yield the same

¹² See the discussion in Auerbach, 2002; Graham, 2003; and De Mooij, 2012.

¹³ See Mackie, 2002; and Gravelle, 2014a.

after-tax return as offered in the non-corporate sector. This means that resources are not allocated efficiently, i.e., in a way that maximizes the value of output. The inefficiency can be seen by noting that in the presence of the higher tax on corporate capital, moving a unit of capital from the non-corporate sector into the corporate sector would raise the value of the economy's output because of corporate capital's higher pre-tax return. The same shifting that leads to the allocational inefficiency also spreads the burden of the tax to capital in the non-corporate sector, which (in the standard case) would earn a lower pretax return (because more capital is employed there) and hence a lower after tax return than before the imposition of the corporate tax. An important extension of the Harberger analysis points out that because the tax on corporate capital may raise the overall tax burden on capital, it could discourage savings (Ballentine, 1978). The reduction in savings would lower the stock of capital, and so lower labor productivity and hence wages. In this way, much of the burden of the corporate tax (and of capital taxes in general) could be shifted onto workers.

Since the tax differential is a result of the corporate level tax, this has motivated interest in corporate integration proposals which lower the tax penalty on corporate investment. Under a typical approach to integration, taxable shareholders receive a credit for the taxes paid at the corporate level, such that the tax wedge is reduced if not eliminated. Alternatively, many of the benefits of integration can be realized by simply reducing the corporate tax rate. Based on Harberger, corporate integration should result in resources flowing to the corporate sector and increased output (in value) for the economy as a whole. However, how to make up the revenue loss from integration is a major stumbling block.

Moving towards equality in the taxation of income earned by corporations and income earned by non-corporate businesses necessarily involves lowering the corporate tax burden relative to the tax burden on non-corporate businesses. In the presence of a binding revenue constraint, it probably involves raising taxes on at least some non-corporate businesses, compared to the taxes that they pay currently. This may lead to a relative shifting of economic activity into the corporate form of legal organization and into industries heavily dominated by corporations. But from the point of view of economic efficiency, this is likely to be a benefit, not a cost, of business tax reform since the shifts arise because taxes would have less (not more) influence on the choice of organization form.

Business Tax Rules that Apply Across Organizational Form

The primary source of distortions to organizational form are differences in statutory tax rates—that is, the difference between the combined statutory rates paid by corporations and their shareholders compared to the rate on the single-level tax paid by pass-through business owners. While these rates differ, the tax base for corporations and pass-throughs is otherwise largely similar. For instance, corporate and pass-through businesses generally use the same depreciation schedules, use the same accounting rules, and benefit from the same general business tax credits.

The similar treatment of corporate and pass-through businesses is an important source of simplification and familiarity in the current tax system, and one that most reform efforts have sought to preserve. For instance, proposals that broaden the tax base, such as lengthening depreciation lives, in order to make up the revenue loss from lowering statutory tax rates on corporations typically broaden the base for corporations and non-corporate businesses alike. Indeed, applying the same rules across

business entities is consistent with the objectives of reforming the taxation of business income to promote simplicity and reduce differential tax treatment by form of business organization.

Corporations as Tax Shelters

Currently, the top corporate rate is 35 percent, while the top individual income tax rate is 39.6 percent (although the net investment income tax can raise this rate). This similarity between the top individual and corporate statutory tax rates is a desirable feature of the existing tax system. It helps to forestall certain types of tax arbitrage behavior. For example, it reduces (if not eliminates) the tax incentive to recharacterize labor income as corporate profits. It also helps to reduce the tax incentive to accumulate earnings within a corporation. With a corporate tax rate much lower than the top individual tax rate, as would occur in several business tax reform proposals, some business owners may have a tax incentive to organize as a corporation and retain as much money within the corporation as possible, rather than pay out earnings as wages (or dividends) (Halperin, 2010). Indeed, at some times in the past, when individual income tax rates were very high, such tax shifting likely existed in the United States. In particular, in the 1970's high income shareholders could have marginal personal income tax rates significantly higher than the corporate income tax rate such that retained earnings sheltered income from the high individual tax rates (Feldstein and Slemrod, 1980). Some also have expressed concern that corporate tax rate cuts would make corporations a generally tax advantaged form of business relative to pass-throughs.

These concerns should help to guide tax policy choices. After all, a primary goal of lowering the corporate tax rate is to reduce the role of taxes in business decisions. That goal would not be achieved if the tax reform went too far in lowering corporate tax rates relative to tax rates on other forms of businesses or on labor income. However, it seems unlikely that modest reductions in the statutory corporate rate would lead to a substantial tax advantage for corporations, especially for large widely held corporations, over pass-through businesses. It also seems unlikely that modest cuts in the corporate income tax rate would promote wide use of corporations as tax shelters, e.g., as vehicles for accumulating earnings, or as ways to reduce taxes on labor income. For example, consider a cut in the corporate rate to 28 percent, which is close to the rate that seems plausible in a revenue neutral, base broadening, rate reducing business income tax reform plan (Keightley and Sherlock, 2012). When combined with an individual income tax rate on dividends in the low 20 percent range, a 28 percent corporate rate gives an overall tax rate on corporate equity income above 40 percent. Even allowing for capital gains taxation on the return (with its attendant advantages of deferral and tax free step up in basis at death) gives a combined tax rate in the low to mid 30 percent range. These tax rates are well above the tax rates paid by most pass through business owners. For example, 83 percent of pass-through business owners faced a marginal income tax rate of 25 percent or lower in 2007 (Knittel et al, 2011). Accounting for payroll taxes complicates the comparison, but it seems as if such taxes can be avoided using both corporate and pass-through forms of business organization (Treasury, 2016), so their effect on the choice of business organization is unclear.

Even with a 28 percent statutory corporate rate, though, there certainly would be a tax incentive for some high income business owners to choose to organize as a corporation in order to minimize taxes on their income, whether labor income or capital income. A combined corporate rate in the low to mid 30 percent range is below the top individual income tax rate of 39.6 percent, and even further below the top rate once payroll taxes (currently at 3.8 percent for high wage earners) or depending, on the form of

income, the 3.8 percent net investment income tax, are considered. At corporate rates much below 28 percent there is likely to arise more significant tax motivated shifting into the corporate form, whether that shifting represents simply business income that otherwise would occur in the pass-through sector, represents using corporations as accumulation vehicles, or as vehicles to reduce taxes (income and payroll) on what really is wage income.

With a statutory corporate tax rate in the neighborhood of 15 percent, as has been proposed by the House Republicans and by the incoming Trump Administration, there could be a large tax incentive to organize as a corporation. Both of these plans, however, would lower the tax rate on pass-through businesses. Indeed, that would occur more or less automatically under current law, because the “check the box” rules allow pass-throughs to be taxed as corporations if they so choose (Pillow et al, 1997). Making a lower tax rate available to all forms of business organization potentially helps to reduce any tax distortion in the choice of organizational form. But, in the face of ordinary income tax rates in the mid to upper 30 percent range, plus payroll taxes, in many cases it leaves a strong tax incentive to recharacterize labor income as business income and use businesses as vehicles for accumulating income.

These concerns, furthermore, are not merely academic. As mentioned above, there is some evidence that in the 1970s corporations may have serviced as tax shelters. In addition, there is evidence that pass-through business owners have made tax sensitive decisions about how to divide their income between capital income and wages that are sensitive to employment taxes and have been effective in avoiding employment taxes.¹⁴

Furthermore, owner-managers in high tax brackets are empirically important. In 2007 about half of pass-through income accrued to owners in the top two tax brackets of 33 and 35 percent (Knittel et al, 2011). According to Nelson (2016), essentially all of the wages paid as S-corporation officer compensation represented payments to individuals who were both owners and employees. In aggregate, these wages equaled about 57 percent of aggregate S-corporation net business income. Moreover, about 70 percent of that officer compensation accrued to individuals in the top 1 percent of the income distribution, who would have greatest incentive to shift the form of their income if corporate (or pass-through) business rates declined substantially relative to the rate on labor income. The same pattern also appears in the C corporate sector. For instance, small, closely-held C-corporations appear to pay out a majority of their income in the form of executive compensation, and this compensation represents the majority of all officer compensation paid by C corporations. Hence, the risks of substantial income shifting in response to the decoupling of effective corporate, pass-through, and individual tax rates is large.

Existing law has rules requiring business owners to pay themselves “reasonable compensation”¹⁵ as well as rules that limit the tax incentive to accumulate earnings within a business.¹⁶ These rules could be toughened and expanded in order to deal with the tax arbitrage problems caused by having a

¹⁴ See Nelson, 2016; and Treasury, 2016.

¹⁵ For corporations, current law’s reasonable compensation test works in the opposite direction – it limits corporations’ ability to pay out excessive amounts of income as wages, and so avoid the corporate level tax. On the other hand, the reasonable compensation test applied to S-corporations limits the ability of owners to pay themselves distributions rather than wages, and so avoid employment taxes. See Looney and Levitt (2015) for a detailed discussion.

¹⁶ See Eustice and Brantley (2000) ¶7.20 and ¶7.01 for a brief description of the accumulated earnings tax (IRC section 531) and the tax on personal holding companies (IRC sections 542 and 541).

corporate (or business) tax rate that is well below the top tax rate on ordinary income (e.g., on wages). However, such rules offer neither an elegant or a complete solution. It would be very difficult, for example, to develop reasonable compensation rules that do a good job in mirroring wages that would be paid in an arms-length transaction.¹⁷ The required information is simply too difficult to obtain. It seems likely that any such rules that were imposed would provide pretty rough justice, or be subject to lots of disputes between the Internal Revenue Service (IRS) and taxpayers, or be ineffective because of work-arounds, or some combination of the three.

Other than regulatory approaches that seek in one way or another to mechanically separate labor income from capital income, and to limit accumulation within business, there are only modest limitations to such tax arbitrage behaviors, especially in closely held businesses that have great flexibility in determining their organization and payout policies. One limitation is the potential for a capital gains tax on retained corporate profits, although that tax can be minimized in some cases, e.g., when gains can be held until death. Another limitation is the graduated individual income tax rate structure. But these provide only a modest check. The only complete solution to tax arbitrage is to tax all forms of income at the same rate, and that is explicitly set aside in many business tax reform plans.

Distortions caused by special tax preferences

The current U.S. system for taxing business income includes numerous special tax preferences that reduce taxes for particular types of activities, industries, and businesses.¹⁸ These provisions take the form of exclusions from income, increased or accelerated deductions, preferential tax rates, deferral of income, and tax credits. Some of these provisions are intended to ease tax compliance and administration, such as those allowing cash accounting for small corporations; others were intended by Congress to encourage particular types of activities or to compensate for other problems with the tax code. Regardless of intent, many of these provisions are often identified as creating tax differentials that interfere with a productive allocation of capital and labor.

A rationale for some special tax preferences is that they address various “market failures,” i.e., in the absence of government intervention, the market would provide too little of an activity that has spillover benefits (such as technological research) and too much of an activity that has negative spillovers (such as environmental pollution). Even in cases of market failure, however, government intervention is only justified if the benefits from intervention exceed the costs.

¹⁷ These rules probably would focus on small, closely held companies and could specify labor income directly, or instead, as in Norway, specify a return to capital for the entire firm and tax the rest as labor income. A recent suggestion by Kleinbard, (2015) taxes all of the income of owner/managers at the same rate as labor income (in present value), to the extent that the income exceeds an estimate of the owner’s share of the normal return on capital invested in the firm. This offers some advantages over the Nordic approach and over an approach that imputes a dollar value of compensation. But it is untried and has complications of its own, e.g., it relies on identifying owner/managers and on imputed (estimated) returns to capital. It also would tax the entire return to entrepreneurial ability at the tax rate applied to labor income generally, which may run counter to a desire to tax entrepreneurial returns at a preferentially low rate.

¹⁸ For a description of tax expenditures provided under current law, see (“Tax Expenditures, Fiscal Year 2018,” 2016). Tax expenditures are defined as “revenue losses attributable to provisions of the Federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of liability. See *The Congressional Budget Act of 1974* (Public Law 93-344). These exceptions may be viewed as alternatives to other policy instruments, such as spending or regulatory programs.

If the external benefits are not sufficiently large to be justified by the size of the tax preference, then expansion of activities that benefit from favorable taxation tends to occur at the expense of other economic activities that have greater value. Thus, tax preferences may lead to an inefficient allocation of capital and other resources throughout the economy because they encourage investments based on tax advantages, rather than on underlying economic fundamentals. In addition, even if the tax preference is justified by the external benefits, it still must be financed by revenue raised with distorting taxes. This means that \$1 of tax benefit costs more than \$1.¹⁹

Tax incentives may impose costs on society even when the tax preference is unsuccessful in expanding the tax-favored activity. If other taxes are raised to offset the revenue needed to cover the tax incentives, these other taxes introduce distortions of their own. If a general reduction in tax revenue (or burden) is intended, then it can be more efficient to lower the statutory tax rate, rather than provide the targeted tax cut, and thereby reduce the distortions caused by the tax system. In addition, lobbying expenditures made to win favorable tax treatment are a pure loss to society to the extent that their effect is to transfer economic resources from one group to another.

The last major overhaul of the U.S. tax code in 1986 removed many tax preferences but retained others. Major tax expenditures left in place included many incentives for oil and gas exploration and production as well as the insurance industry. In addition, other tax preferences have been added or enhanced since 1986. Below we describe some of these major preferences that distort corporate activity.

Accelerated depreciation

The largest (domestic) business tax preference is accelerated depreciation.²⁰ Accelerated depreciation refers to depreciation allowances that occur sooner or otherwise have larger discounted present value (i.e., are more generous) than would allowances based on economic depreciation. The extreme is to allow businesses to expense or currently deduct the cost of a capital investment.

An accurate measurement of income requires that businesses be allowed to subtract the decline over time in the economic value of durable assets (including intangible assets, such as advertising and copyrights) used up in the process of generating income. This decline is called economic depreciation. The existing set of tax depreciation allowances is more generous than economic depreciation. This may be a problem in and of itself, to the extent that it implies that income from an investment receiving accelerated depreciation is being taxed at an effective rate that is in some sense too low. In addition, depreciation allowances also differ in generosity across assets in a way that causes variation in effective tax rates and thus potentially distorts the allocation of capital investments.

To assess the appropriateness of current-law cost recovery allowances, Table 1.2 compares the discounted present value (PV) of tangible assets' tax depreciation under the Modified Accelerated Cost

¹⁹ This assumes that other spending programs are held fixed. If spending is reduced, then the cost is the foregone benefit of eliminated or scaled back spending programs.

²⁰ See "Tax Expenditures, Fiscal Year 2018."

Recovery System (MACRS) with the PV of a widely used estimate of their economic depreciation.²¹ At current expected inflation rates,²² the PV of MACRS allowances per dollar of investment in equipment is \$0.83 compared to the PV of economic depreciation of \$0.69. MACRS allowances have a higher PV because MACRS allowances are deducted sooner than economic depreciation allowances. MACRS allowances are more generous than economic depreciation for all three broad categories of depreciable property: equipment, nonresidential structures, and residential structures.

Because of differences in the degree to which tax depreciation is accelerated,²³ effective marginal tax rates vary across assets within the corporate and pass-through business sectors. For example, as shown in Table 1.1, because of relatively accelerated depreciation, the effective marginal tax rate is lower for a corporate investment in equipment (24.2 percent) than for structures (29.4 percent).²⁴ In addition, because tax depreciation is on average accelerated relative to economic depreciation, the effective marginal tax rates on depreciable assets are lower than those on land (36.1 percent) (which is assumed not to depreciate and receives no depreciation deductions) and inventories (39.5 percent). Thus, these calculations suggest that the tax system tends to encourage investment in depreciable property, especially equipment, compared to investment in non-depreciable assets like land and inventories. This leads to an inefficiently allocated capital stock in which tax-preferred investments, such as equipment, are favored.

Table 1.2 Comparison of Depreciation Allowances (Discounted Present Value)

	MACRS	Economic	MACRS/Economic
	(1)	(2)	(3)
Aggregated assets:			
Equipment	\$0.83	\$0.69	1.20
Nonresidential Structures	\$0.53	\$0.37	1.45
Residential Structures	\$0.44	\$0.25	1.78

Source: U.S. Department of the Treasury, Office of Tax Analysis

Notes: MACRS = Modified Accelerated Recovery System

The existing depreciation system certainly creates some distortions. It might be too generous from the perspective of economic depreciation and it treats some assets more favorably than others. However, it also has some benefits. The acceleration helps to narrow the differential between the EMTRs on tangible business assets compared to that for intangible assets and owner-occupied housing, which is effectively untaxed, as discussed below. This helps to contribute to a more efficient allocation of capital between the business and the owner-occupied housing sectors of the economy.

²¹ Economic depreciation rates are taken from Hulten and Wykoff (1981) and the U.S. Department of Commerce (2003) publication “Fixed Assets and Consumer Durable Goods in the United States, 1925-1997”. For an update of BEA’s September 2003 depreciation estimates, see http://www.bea.gov/national/pdf/BEA_depreciation_rates.pdf.

²² For a detailed discussion of the effects of inflation on the present value of tax depreciation allowances, see the “Report To The Congress On Depreciation Recovery Periods And Methods,” (2000).

²³ Tax depreciation does not provide an accurate measure of economic depreciation or a uniform investment incentive. To provide all assets the same tax burden, a depreciation system must give a greater degree of acceleration to longer-lived assets than it does to shorter-lived assets. The reason for this effect is that depreciation represents a larger proportion of the pre-tax cash flow for a short-lived asset than it does for a long-lived asset. For a discussion, see *supra* 47

²⁴ The EMTRs by asset type for pass-through businesses are not provided on Table 1.1, but show a similar pattern to those for the corporate sector.

The acceleration also helps to lower the tax rate on capital income generally, and so helps to encourage domestic investment and supports economic growth. Indeed, from the perspective of a consumption tax, the current U.S. depreciation system is too slow, not too fast. A consumption tax would allow immediate expensing (deduction) of the cost of an investment, rather than recovering the cost over time as required by depreciation.²⁵

Expensing of Intangible Assets and the Research and Experimentation (R&E) Tax Credit

Intangible assets include the value of knowledge (including ‘learning by doing’) and specialized products produced as a result of research spending, and the value of brand names produced in part through advertising. They also include the value of customer and supplier relationships built through the normal operation of a business.

As discussed above, the cost of purchasing a tangible asset generally is recovered over time through depreciation allowances. In contrast, the cost of new investment in intangible assets generally is deducted immediately (expensed), even though intangible assets generally produce income over several years.

Administrative costs help to explain some of the rationale for allowing these expenditures to be deducted currently rather than capitalized and deducted gradually over time, as the created intangible assets wears out. It is simply difficult to track and differentiate all the associated expenditures. In addition, there is not agreement over an appropriate cost recovery period or method, although there are estimates of the economic depreciation rate, which we use in our calculations.²⁶

Nonetheless, compared to capitalizing and depreciating these costs, expensing provides a substantial tax benefit to intangibles over tangible assets. For example, because of expensing, the effective marginal tax rate for a corporate investment in R&D and advertising intangibles is 2.4 percent, compared to 24.2 percent for a corporate investment in equipment and 29.4 percent for a corporate investment in structures (Table 1.1).²⁷

The effective marginal tax rates shown in Table 1.1 include the R&E tax credit which is an incremental credit of up to 20 percent on qualified research spending that exceeds a base level of R&E spending. The EMTR for investment in R&D is below zero, i.e., taxes reduce the cost of undertaking such an investment below what it would have been in a world without taxes. This generous treatment may be justified on the grounds that research generates “spillover” benefits. Investors in research are unable to capture the full benefits of their investments because some of the knowledge it produces can

²⁵ Accelerated depreciation also may compensate (roughly) for the failure to index depreciation allowances for inflation, although that may be less important in today’s low inflation environment than it has been in the past. For a brief discussion of this issue, see (“Reducing the Deficit: Spending and Revenue Options,” 2011).

²⁶ For example, see Hulten and Wykoff, 1981; and U.S. Department of Commerce, 2003.

²⁷ Intangible assets in Table 1.1 include R&D, artistic originals, and advertising. R&D and advertising are assumed to be expensed. Artistic originals are assumed to be depreciated over 15 years using the straight-line method.

be used by other businesses free of charge.²⁸ However, this justification may be less convincing for advertising and marketing expenses where significant spillover benefits seem less likely.

Even if merited, however, the R&E tax credit is not well designed. In measuring the incremental increase in R&E spending that qualifies for a credit, firms often must rely on information on their business activities from over twenty-five years ago in measuring the base level of R&E spending. In addition they must decide between two versions of the credit, a traditional credit of up to 20 percent or a simplified credit, whose base is measured using recent information, but that offers a lower rate of 14 percent. Simplifying and updating the R&E credit calculation could help make it more effective.²⁹

Domestic Production Activities Deduction

Another of the major business tax preferences is the domestic production activities deduction, which allows firms to claim a special additional deduction in computing taxable income, generally 9 percent of qualified income.³⁰ The deduction is structured to be similar in effect to a reduction in the statutory tax rate, e.g., from 35 percent to 32 percent.³¹ While it often is referred to as a “manufacturing deduction,” the deduction actually is available fairly broadly.³² Overall, Treasury’s Office of Tax Analysis estimates that the deduction is roughly equivalent to a reduction in the corporate tax rate of about 1 percentage point, similar to estimates by others.³³ The deduction also is available to pass-through businesses.

The domestic production activities deduction is difficult to justify without clear evidence that it provides offsetting social benefits of some kind. Without such a social benefit, then to the extent that it is targeted to particular industries or activities it could inefficiently encourage such activities over others that do not benefit. Even if best thought of as a broadly available tax rate cut, the deduction is poorly conceived because it is much more complicated than would be a simple rate cut and so creates relatively large compliance and enforcement costs.³⁴

There are differing views on whether the deduction is justified on social or economic grounds. A variety of policy analysts across the political spectrum have argued that it is not, even if narrowed somewhat to target only “real manufacturing.”³⁵ According to critics, arguments intended to support a lower tax rate on manufacturing, e.g., arguments that posit potential market failures, jobs, and income

²⁸ A recent review of the literature on the return to R&D concluded that the returns to R&D are positive in many countries and usually higher than those to ordinary capital. Moreover, social returns to R&D are almost always estimated to be substantially greater than private returns, see Hall, Mairesse and Mohnen, 2010.

²⁹ For further discussion, see “Research and Experimentation (R&E) Credit,” 2016.

³⁰ Beginning in 2010, the deduction is 6 percent for oil-related qualified production activities income.

³¹ The amount of the deduction is limited to 50 percent of the amount of wages paid by the taxpayer in the taxable year.

³² The deduction applies to receipts derived from the lease, rental, sale, exchange, or other disposition of tangible personal property, computer software, sound recordings, and films, to the extent such items are produced in the United States. Besides manufacturing, such production activities include farming, mining, drilling and refining of petroleum products, production (but not the transmission or distribution) of electricity, natural gas, or potable water, and construction of real property (including any associated engineering or architectural services).

³³ See, for example, Gravelle, 2014a.

³⁴ For example, the deduction can be subject to a limitation based on the taxpayer’s wage bill and its calculation requires distinguishing domestic content from foreign content and qualifying activities from ineligible activities.

³⁵ See, for example, Romer, 2012. Also, see the opinions expressed in a blogpost by Khimm, Klein, and Plumer (2012).

distribution benefits, fail to hold up to scrutiny. Alleged effects are either nonexistent or seem too small to matter. On the other hand, proponents of a tax subsidy for manufacturing see small effects as nonetheless significant. They also point to manufacturing's direct competition with foreign products and to manufacturing's historic position as a source of economic growth, including jobs at relatively high wages, as persuasive rationales.³⁶

LIFO Inventory Accounting

Last-in first-out inventory (LIFO) accounting allows the cost of the most recently purchased or produced inventory items to be used in computing profits from sales. The major alternative to LIFO is first-in first-out inventory (FIFO) accounting. FIFO measures profits from sales using the cost of the oldest goods purchased or produced and still held in inventory. During periods of rising prices, LIFO reduces taxable income compared to FIFO, because LIFO allows higher prices to be used in computing the cost of goods sold. During periods of rising prices, LIFO results in a measure of ending inventory that is lower than FIFO, because LIFO inventory is measured using the costs of the oldest items acquired, while FIFO inventory is measured using the costs of the most recently acquired items.

Many tax accountants and lawyers see LIFO as an unwarranted tax break that favors industries, such as petroleum producing and refining, that have large inventories of goods whose prices have risen significantly over time (Kleinbard, Plesko, and Goodman, 2006). They argue that LIFO allows these industries to inappropriately defer recognition of the real capital gain realized on inventory held during periods of rising prices. In addition, LIFO can be used as a planning tool to help reduce tax liability over time. For example, if a firm anticipates a high tax liability in a particular year, then it can purchase inventory at the end of the year (at current, relatively high prices), which, under LIFO, can increase deductible costs and reduce taxable income. LIFO opponents also point out that LIFO is not allowed under international financial accounting standards and so may interfere with the U.S. adopting such standards.

A contrary view is held by some tax economists (Viard, 2006). Economists tend to focus on LIFO's ability to partially index inventories for increases in the general price level (inflation). In this view, LIFO helps to properly measure income and tax liability by reducing (or at least deferring) the tax on purely inflationary gains. LIFO helps reduce the EMTR on income from inventory investments, and thus helps to promote a more uniform, efficient, tax structure given current cost recovery rules for other assets. This points out that the decision about moving to LIFO should be consistent with general depreciation reforms and that the impact on EMTRs should be taken into consideration.

Tax Preferences for Oil and Gas

Under current law, the capital costs of oil and gas wells, coal mines, and other fossil-fuel properties owned by independent producers or royalty owners³⁷ are allowed to be recovered through a special percentage depletion deduction, which is a statutory percentage of the gross income from the property. In the case of certain oil and gas producers, for example, the percentage ranges from 15-to-25

³⁶ See "The President's Framework for Business Tax Reform: An Update," 2016 and the references cited therein

³⁷ The term independent producers is used to distinguish entities from integrated oil and gas companies. Independent producers are those without marketing, transportation, or refinery operations.

percent.³⁸ Percentage depletion is more generous than would be economic based cost recovery allowances for an asset and this preference along with other preferences effectively provides a lower rate of tax with respect to the favored source of income.³⁹

The percentage depletion subsidy increases as oil and gas prices increase, because the size of the deduction is a fixed percentage of revenue. There is no rationale for a tax provision that reduces the effective marginal tax rate when the price of the good sold increases (Krueger, 2009). Further, because percentage depletion is computed without regard to the taxpayer's basis in the depletable property, a taxpayer may continue to claim percentage depletion after all the expenditures incurred to acquire and develop the property have been recovered.⁴⁰

Percentage depletion is one of several special subsidies for carbon-based fuels. These subsidies are even harder to justify once the external costs of the pollution caused by using these fuels is taken into account. Because polluters are not charged for the use of clean air and water as dumping grounds for their pollutants, these costs are not directly borne by those involved in the production activities. Subsidizing carbon-based fuels leads to even greater use of these as inputs and so to even greater pollution.⁴¹

Residential real estate

A major distortion of the tax system is the favorable treatment afforded investment in residential structures, particularly owner-occupied housing.⁴² This tax treatment is seen as pushing capital out of the business sector and into owner-occupied housing, with an attendant reduction in the value of total output of the economy (including housing).⁴³

As clear from Table 1.1, both C corporations (28.9 percent) and pass-through businesses (24.4 percent) are taxed more heavily than is owner-occupied housing (-2.3 percent). The preference for owner-occupied housing arises primarily because taxable income does not include the value of the rental service flow that the homeowner received by living in his house and allows a deduction for mortgage

³⁸ The amount of the deduction is subject to several limitations. For example, may not exceed 100 percent of the taxable income from the property. In addition, the percentage depletion deduction for oil and gas properties may not exceed 65 percent of the taxpayer's overall taxable income (determined before the deduction and with certain other adjustments). In addition, oil and gas producers may claim percentage depletion only with respect to up to 1,000 barrels of average daily production of domestic crude oil or an equivalent amount of domestic natural gas (applied on a combined basis in the case of taxpayers that produce both). Only independent producers and royalty owners are eligible for percentage depletion.

³⁹ Even without accounting for cost-recovery provisions and intangible drilling costs associated with drilling oil and gas wells, the Congressional Budget Office estimates that corporate investments in mining and drilling structures have a marginal effective tax rate of 15 percent and corporate investments in petroleum and natural gas structures have a marginal effective tax rate of 19 percent. The corresponding marginal effective tax rates for pass-through entities are 10 and 14 percent respectively. See "Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options," 2014.

⁴⁰ Percentage depletion does not reduce basis less than zero, and, accordingly, percentage depletion in excess of basis is not subject to recapture.

⁴¹ In addition, there may be a small effect on increasing carbon emissions.

⁴² The tax advantage for owner-occupied housing might not be addressed directly by all approaches to business tax reform. However, a business tax reform that lowered the marginal tax rate on business investment would move in the right direction. As mentioned at the end of this paper, the extent to which business tax reform can lower the marginal tax rate on business investment is an open and difficult, issue. Its resolution depends in an important way on the form tax reform takes and perhaps on the revenue constraint placed on the reform.

⁴³ See, for example, Furman, 2008.

interest.⁴⁴ While some level of subsidy for owner-occupied housing may be justified because it yields externalities such as better maintained and more stable neighborhoods, current subsidy levels far exceed any measured externalities (Slivinski, 2008).

Moreover, the residential rental property sector is also generally taxed preferred under the current income tax system. The discounted present value of tax depreciation allowances for residential structures is almost twice that implied by economic depreciation (1.78 in Table 1.2).

In addition, one of the major corporate tax expenditures is the low income housing tax credit (LIHTC). The LIHTC may have some social rationale, e.g., as a way to increase the standard of living of low and moderate income families. However, rather than directly subsidizing the rents paid by low-income households, the LIHTC provides investors in low-income rental housing a tax credit equal to some portion of development costs (up to 91 percent of the present value of the costs, depending on the credit type). The efficiency of the LIHTC in encouraging new housing supply is disputed, and many economists argue that a more efficient approach would be to provide housing subsidies.⁴⁵ In any event, in the absence of compelling evidence of large externalities, in combination these tax provisions for housing encourage inefficient overinvestment in residential real estate and underinvestment in more productive business capital.

Other targeted tax preferences

The tax code contains numerous other tax preferences that give special tax treatment to particular investments and activities. These provisions reduce the tax burdens for the industry or businesses that are eligible for them in ways that are difficult to justify. These include special capital gains treatment, such as for like-kind exchanges, and the expensing of certain production costs, such as for growing timber, as well as numerous other tax breaks.

As one example, consider “like-kind” exchanges. In general, when a capital asset is sold or exchanged, any associated capital gain or loss is recognized. However, no gain or loss is recognized when the business or investment property is exchanged for “like-kind” property.⁴⁶ This enables deferral of the tax on capital gains, particularly for real estate, vehicles, art, and collectibles. While the historic justification for allowing this deferral is that this property is hard to value, in reality businesses must know the value of these properties. How else could they agree on the exchanges? Furthermore, recently many of these exchanges have been facilitated by intermediaries and involve complex three-party exchanges that defer tax. Clearly the interested parties have a pretty good idea of the value of their properties, otherwise such complex exchanges would not be possible. Moreover, the tax benefits are sufficiently large to pay for the help of intermediaries.

⁴⁴ Property taxes also are deductible from federal income taxes, and capital gains on the sale of owner-occupied housing also receive favorable tax treatment.

⁴⁵ The LIHTC is thought to be most effective in housing markets where supply is constrained. See Sinai and Waldfoegel, 2005.

⁴⁶ Like-kind exchanges can also be done by individuals but more than three-quarters of the tax expenditure estimates reflect corporate tax receipts.

Individually, many of these specific provisions might have only a small economic effect. For example, the reduced tax rate for nuclear decommissioning funds and expensing of timber growing costs benefit specific industries at an approximate annual revenue cost of \$250 million and \$400 million, respectively (OMB, 2016). Their small size (relative to the whole tax system or economy) and targeted benefit, of course, can make them difficult to repeal individually. Each would be actively supported by its beneficiaries, while each costs the fisc little. However, this is not a sound economic argument for keeping them. If they have no demonstrable economic or social benefit they should be repealed and the revenue used for socially valuable purposes. As it now stands, they clutter up the tax code and provide opaque subsidies to favored activities. This creates the impression of unfairness and contributes to overall dissatisfaction with the tax system, even if it does not entail huge revenue costs or other large economic distortions. Furthermore, when added together the numerous small targeted tax breaks can be a more important source of revenue cost and economic distortion than if considered individually.⁴⁷ Thus, fundamental tax reform that repealed them all at once may offer a better method of removing them than would piecemeal repeal as part of the normal, day to day tax legislative process.

Tax preferences and the corporate alternative minimum tax

The purpose of the corporate alternative minimum tax (AMT) is to ensure that taxpayers with substantial economic income do not avoid significant tax liability by using preferential exclusions, deductions and credits. Taxpayers calculate tax liabilities, one under the regular tax and a second under the alternative minimum tax, and pay the greater of the two. A tax system with a broader base that raised sufficient revenue would not need to resort to a backup tax system such as the AMT. The existence of the AMT may itself be a sign that the current tax system is broken.

The AMT has a broader definition of income and a less generous set of deductions than does the regular tax. In addition, the AMT rules prevent companies from using most business tax credits, such as the R&E credit. The AMT statutory tax rate (20 percent) is lower than the regular tax rate (35 percent).⁴⁸ Any AMT paid can be carried forward indefinitely as a credit against a corporation's regular tax in subsequent years.⁴⁹

The AMT can potentially reduce the total amount of tax preferred activity, but eliminating tax preferences directly is fundamentally different from, and generally to be preferred to, including them in

⁴⁷ Other tax expenditures that benefit corporations include exclusion of interest income on State and local bonds, tax credit for orphan drug research, exemption of credit union income, exclusion and deferral of income earned on life insurance and annuity contracts, business deduction of charitable contributions, special tax rules for ESOPs, tax exemption of insurance income earned by tax-exempt organizations, the new markets tax credit, tax credit for certain employer contributions to social security, tax credits for various types employees, tax incentives for preservation of historic structures, exemption from tax for certain mutual and cooperative telephone and electric companies, shipping companies choosing to pay a tonnage tax in lieu of an income tax, exclusion or alternative tax for small insurance companies, special treatment of agricultural production costs, deduction of endangered species recovery costs, and tax credits for rehabilitation of structures and maintaining railroad tracks.

⁴⁸ The AMT is equal to 20 percent on alternative minimum taxable income in excess of a \$40,000 exemption amount. The exemption amount is phased out by an amount equal to 25 percent of the amount that the corporation's alternative minimum taxable income exceeds \$150,000.

⁴⁹ A corporation with average gross receipts of less than \$7.5 million for the prior three taxable years is exempt from the AMT. Pass-through businesses do not pay AMT, but preferences and adjustments associated with the operation of their business may make a taxpayer subject to the individual AMT.

the AMT (Lyon, 1997). Corporations paying the regular tax are eligible for the full tax benefits from tax preferences for a given investment, whereas corporations paying the AMT are not. Because the activities not undertaken by corporations that pay the AMT may instead be undertaken by corporations that pay the regular tax, the AMT may simply change which corporations undertake a particular activity rather than the overall level of the activity. This difference in tax treatment for the same activity may worsen economic efficiency, because it results in an activity being undertaken by a corporation based on its tax position rather than by a corporation that is most skilled at it.

Even if the AMT succeeds in reducing the overall level of tax-preferred activity, however, it creates inefficiency in the allocation of capital among firms undertaking an activity by increasing the resources devoted to tax planning. Because the AMT only affects corporations that undertake certain tax-preferred activities, those corporations will have to plan their investments to reduce the effect of the AMT.

The AMT also creates widely varying investment incentives for corporations that are subject to both the regular tax and the AMT at different points in time and affects the source of financing for the investment (Lyon, 1990). For example, investment tax incentives could increase for corporations that invest and deduct investment costs at the higher regular corporate tax rate and subsequently pay tax on the income generated by the investment at the lower AMT rate. Investment incentives could be reduced for corporations in the opposite situation. This may affect the timing of investment. For example, a firm currently paying the regular tax, but that expects to pay the AMT, may accelerate investment before AMT liability begins. Further, the AMT has a more adverse effect on debt-financed investment than equity-financed investment because of the reduced tax savings from the deduction for interest expense.

The disparate investment incentives created by the AMT are difficult to justify. There is no reason why a corporation paying the regular tax should have a greater incentive to undertake an activity than a corporation paying the AMT. Further, there is no rationale for the AMT's effects on the timing of investment. Although there may be reasons for discouraging the use of debt finance (discussed above), concerns with the use of debt finance generally apply regardless of whether a firm is or is not on the AMT.

Average effective actual tax rates

As a result of the availability of accelerated depreciation and other targeted tax preferences, such as the domestic production activities deduction and tax credits, the effective "actual" corporate income tax rate is significantly lower than the top U.S. federal statutory corporate tax rate (35 percent). The effective actual tax rate is defined as taxes actually remitted or paid divided by book or financial statement income (rather than taxable income). This measure takes into account numerous narrowly targeted tax preferences and the corporate AMT. It also reflects the effects of tax planning, compliance, and enforcement on taxes paid.⁵⁰

Compared to EMTRs, an average effective actual tax rate has advantages and disadvantages as a measure of the effects of taxes on firms' economic choices. An advantage is that it is based on actual tax liability reported by corporations on their tax returns and, thus, reflects the effects of all tax

⁵⁰ This measure includes taxes paid at the corporate level, but not at the shareholder level.

provisions, not just those judged most important and put into the hypothetical marginal tax rate calculations. On the other hand, it is not clear what this type of effective tax rate is measuring. It does not capture the incentive effects of current-law tax policy on new investment because it includes taxes paid on earnings from past investments, and the same effective tax rate may not apply to new investment. The numerator mixes apples and oranges because it is calculated as taxes paid on earnings from investments made in prior years less credits received on investments made in the current year. Finally, with this type of effective tax rate, temporarily high profits or losses can affect the tax rate even with no change in tax law. This final point is a concern with regard to some periods (e.g., 2007-2011) over effective tax rates may be calculated.

Despite limitations average effective actual tax rates like those in Table 1.3 are often used to illustrate the distributional and incentive effects of business tax policies. Based on data from federal corporate income tax returns for 2007 through 2011, the U.S. effective actual tax rate on income earned by profitable corporations with over \$10 million in assets was 22 percent, well below the top statutory rate of 35 percent. This may suggest that overall preferences substantially reduce the tax burden on corporate profits. Though not shown in the table, the effective average tax rate declined from 26 percent in 2007 to 20 percent in 2010 and 2011. This decline may reflect a number of factors including changes in tax law governing depreciation deductions, and the business cycle. In particular, this was a period of the financial crisis where many firms, particularly in the financial sector, were experiencing losses. The calculations in Table 1.3 include only corporations with positive income such that the sample of firms included in the average effective actual tax rate calculation changes over time. Further, the business cycle could affect the calculations as realizations of key components of taxable income are closely related to the business cycle. For example, capital gains and rents were at cyclical highs in 2007 prior to crashing in the financial crisis while bad debt write-offs rose from low levels in 2007 through 2009.

The calculations in Table 1.3 also show that the overall actual tax rate masks a large amount of variation by industry. Average effective actual corporate tax rates ranged from 10 percent for the utilities industry to 28 percent for services. This suggests that some industries benefit more from tax preferences than do other industries, so that the tax system may inefficiently push resources into low-tax industries.

Table 1.3 Average Effective Actual Federal Corporate Tax Rates by Industry: 2007 – 2011

Agriculture, Forestry, Fishing and Hunting	25%
Mining	20%
Utilities	10%
Construction	27%
Manufacturing	22%
Wholesale and Retail Trade	27%
Transportation and Warehousing	16%
Information	21%
Insurance	22%
Finance	19%
Real Estate	20%
Leasing	15%
All Services	28%

Average Effective Actual Tax Rate **22%**

Source: U.S. Department of the Treasury, Office of Tax Analysis

Complexity and Compliance

Complexity of the tax code can lead to increased administrative costs for the government and compliance costs for businesses, as well as efficiency losses. Reducing compliance and administrative costs is an important policy goal and one on which progress might be made through reforming the way we tax business income.

At the outset of any discussion of these matters, however, it is worth putting to rest unrealistic expectations about tax simplicity. In particular, all tax systems require some government administration and oversight. This includes income taxes, consumption taxes, sales taxes, customs duties, and any other tax that might be imagined. No matter the tax system, enforcement will be required, disputes will have to be settled, and matters of law will need clarification. Consequently, it is not realistic to think that any reformed tax system could in any meaningful way eliminate the IRS. If the IRS were “eliminated” it would just have to be replaced with some other agency whose name might be different but whose duties include administering, enforcing, and interpreting the tax laws.

That said, the existing system of taxing business income is complicated and a reformed system might do better. Measuring and taxing income, especially capital income, is inherently complicated.⁵¹

⁵¹ The measurement of true labor income is also complex and difficult since labor income is a return to human capital. In particular, one should then have to decide which expenditures on or by an individual are investments in human capital, which are expenditures intended to maintain that human capital, and which are consumption expenditures. Like consumption expenditures, the investment expenditures would not be deductible, but would be capitalized and then depreciated, or

That is because income itself can be a rather nebulous concept that is difficult and costly to measure. For a business, a conceptually simple measure of income would be the change over the taxable year in the net market value of the entity's net worth (i.e. total assets, less total liabilities). But finding the correct market value for all assets and liabilities is not easy because not all assets are regularly traded on public exchanges or otherwise traded sufficiently to measure their value with confidence. Indeed, the meaning of "value" in this context is not always clear, especially when ready markets for trading many assets do not exist. In addition, taxing all income (all accretions to value) each year as it accrues may cause liquidity problems for taxpayers whose income is not converted to cash. Long-standing policies that tax different sources or types of income at different rates add additional complexity, as different sources of income must be separately tracked.⁵²

Instead of marking-to-market all assets, the existing U.S. tax code uses a variety of accounting rules to attempt to approximate (to one degree or another) an accurate measure of income. These rules determine which types of receipts are counted as income and which types of costs are counted as deductions, and when to count them. In some cases, these rules also impute income where there is no receipt of payment from a third party and impute deductions when no payment is made to a third party. While perhaps more practical than marking-to-market, these measurement rules nonetheless are complicated, as evidenced by the thousands of pages of ever evolving tax law and regulation intended to describe, explicate, and perfect the rules.

Not only is it inherently difficult to measure business income properly and fairly, the current tax code is made unnecessarily complex by the myriad of targeted tax provisions. Targeted tax incentives require rules and regulations to ensure that the incentives are limited to their intended beneficiaries. Taxpayers have to spend time and money learning about tax incentives. The IRS has to spend resources monitoring and enforcing the rules. Disputes invariably will arise between the IRS and taxpayers, and society will expend resources adjudicating these disputes. Some of the special credits and deductions might be well-intentioned attempts to encourage worthy activities, but there are so many that it is difficult for taxpayers to know how to use them all. Indeed, approximately one-third of tax expenditures listed in the Budget are for less than \$100 million a year and include items like the small life insurance deduction that are narrowly targeted.⁵³ Similarly, as discussed previously, there are now 36 credits included in the general business credit. Each of these credits requires its own separate calculations subject to specific limitations and definitions, generally on its own form. Some of them are allowed against the alternative minimum tax (AMT) but some are not.

As mentioned above, the AMT is a result of the many targeted tax preferences and other incentives (in particular accelerated depreciation and timing preferences) and adds to taxpayer compliance and planning burdens. The corporate AMT makes corporations perform the expensive and burdensome task of complying with two separate tax systems. A corporation must calculate its tax under both the regular tax rules and the AMT rules even though it may owe no AMT. Similarly, pass-

otherwise recovered, in later years. Similarly, maintenance expenditures on human capital should be deductible but we generally ignore the investment

⁵² The lack of liquid markets is also an important source of some of these policies not to recognize all income as it accrues.

⁵³ "Analytical Perspectives Budget of the U.S. Government, FY 2017, Tax Expenditures," (2016) lists the larger tax expenditures while smaller ones are not included in the analysis.

through businesses, even though they pay no entity-level tax, must make certain AMT calculations and provide them to their partners or shareholders.

Tax administrative costs are primarily the Federal budget expenses for the IRS. Allocating these expenses between businesses and individuals is not straight forward given that much of the pass-through income flows down to individual owners. Operating costs were \$11.4 billion in 2015 from a peak of \$12.4 billion in 2011. While business income taxes made up 12 percent of net tax collections, employment taxes, which are often collected by businesses, accounted for another 35 percent, so roughly half of IRS expenses are related to business administrative costs.⁵⁴ However, allocation of administrative costs by the amount of tax collected may be misleading since the IRS may need to spend more to collect \$1 of tax from a business than from an individual. Of course, the IRS provides customer services to taxpayers, which reduce their costs of compliance, and enforces tax compliance, reducing the burden of the deficit on compliant taxpayers. Hence, the budgetary costs of the IRS should be weighed against the benefits it provides.

The cost of tax compliance for businesses is significant. The IRS estimated that corporations and partnerships incurred compliance costs of \$104 billion in tax year 2009 (Contos et al, 2012). Much of this cost, moreover, is borne by smaller businesses. Of this \$104 billion, the IRS estimates that businesses with assets under \$10 million incurred \$84 billion in compliance costs, or 81 percent of the total federal income tax compliance costs for corporations and partnerships. For businesses with less than \$10 million in total receipts, these figures rise to \$91 billion and 88 percent.

In addition, many small businesses face significant fixed compliance costs combined with decreasing marginal costs as the business grows. As a result, compliance costs do not vary in proportion to firm size, and smaller businesses tend to bear a relatively heavier compliance burden than do larger businesses. This can be an undesirable and inefficient tax burden on small businesses, one that discourages entrepreneurship, for example.

As shown in Table 1.4, businesses with receipts between \$100,000 and \$1 million had average annual compliance costs of about \$12,500, whereas businesses about 10 times larger (those with receipts between \$1 million and \$10 million) had average compliance costs of \$34,000, less than 3 times more than the costs incurred by the smaller businesses.⁵⁵

⁵⁴ See Table 1 in “Databook 2015,” 2016.

⁵⁵ Discussion with Contos, et al. (2012) authors indicate the tax burden can also vary by industry, with small businesses in manufacturing, construction, and retail trade devoting more time to compliance than businesses in other industries.

Table 1.4 Estimated Average Income Tax Compliance Costs by Gross Receipts, 2009

Total Receipts	C & S corporations and Partnerships
Less than \$100,000	\$5,300
\$100,000 to \$1 million	\$12,500
\$1 million to \$10 million	\$34,000
\$10 million to \$500 million	\$128,200
\$500 million or more	\$925,400
All Receipt Sizes	\$11,600

Source: Table 9, Contos et al (2012)

The current tax code contains some provisions intended to simplify compliance primarily for small businesses though at the cost of not correctly measuring income. For example, expensing (section 179) allows small businesses to deduct immediately the cost of their investments in equipment and other qualifying property and thus avoid the complexities of depreciation accounting. The deduction limit was \$500,000 starting in 2010 (with a phase-out beginning at \$2 million in qualifying investment).⁵⁶ Many small businesses are allowed to use simplified accounting rules, such as cash instead of accrual accounting rules. There are also a number of limited exceptions to the inventory accounting rules that lower the burden for small businesses.⁵⁷ In addition, the very complicated uniform capitalization rules, which require taxpayers to measure and impute a wide range of direct and indirect costs to purchased inventory and to self-produced assets, do not apply to a taxpayer acquiring personal property for resale (but not a producer of inventory or other property) if the taxpayer had \$10 million or less in average annual gross receipts.

Although these simplified provisions are helpful, the fact remains that the compliance burden on small businesses is high, especially for the smallest businesses. This appears to be the general case as average compliance costs also vary inversely with the size of the business for other tax bases, such as the value added tax base.⁵⁸ The time and money spent complying with the tax code are resources that do not provide a return for the business. The hours spent on recordkeeping and understanding tax provisions means that small business owners have less time and energy for innovation and developing their business. Taxpayers may grow frustrated with the tax code, leading to weakened compliance and a higher gap between tax revenue owed and tax revenue paid. Moreover, complexity weakens the ability of tax policy to achieve its intended purpose. For example, small business owners might not take advantage of investment incentives if they feel the tax code is too complex to understand or that it is too costly to comply with all of its requirements. Although some burden and some complexity are unavoidable in measuring business income fairly and ensuring compliance with the law, a goal of business tax reform should be to identify and reduce the unnecessary compliance burden, particularly that imposed on small businesses.

⁵⁶ The limits are adjusted for inflation starting in 2016.

⁵⁷ These exceptions apply to any small business with \$1 million or less in average annual gross receipts, and certain nonfarm businesses (whose activity is not classified as mining, manufacturing, information, wholesale trade, or retail trade) with \$10 million or less in average annual gross receipts (\$5 million or less in the case of corporations).

⁵⁸ For example, Sandford and Hasseldine (1992) find business compliance costs are regressive for employee tax withholding, fringe benefit tax, VAT, and income tax.

Some Tax Preferences Potentially Justified on Efficiency Grounds

Many of the tax preferences that litter the present U.S. tax code would not pass a serious cost benefit analysis. Some however are justified, and could even be expanded to good effect. These would include preferences that address desirable social or economic policy goals, such as promoting activities that yield social benefits larger than the benefits received by those engaged directly in the activity, or that simplify the tax code for some filers where the value of simplicity outweighs the costs of measuring income less precisely.

R&D is one such activity that potentially yields external benefits, as discussed briefly above. Another set are environmental goods, such as reduced greenhouse gas emissions. While a tax on carbon emissions or an emissions trading scheme may be the preferred approach by economists, political reality may argue for incentives for the reduction in greenhouse gas emissions, since the costs of producing renewable energy are borne by the utility, solar company, or homeowner. Even if these utilities receive a private market premium for green energy and consumers get satisfaction from producing or consuming solar or other green energy, investments in green energy may still not adequately reflect the fact that everyone, not just the utility and homeowner, benefits from the reduced emissions. In both the research and renewable energy cases, tax incentives can generate outcomes that account for at least some of the values of those “external” businesses and individuals.

The tax code can be an efficient way of encouraging certain investments because tax incentives can leave important, situation-specific decisions up to the individual business in a way that other policy approaches may not. Thus, the government does not have to “pick winners.” In the case of the current tax law’s renewable energy investment credit and renewable production credit, for example, the tax incentive approach has the advantage of working to increase low-carbon energy supply. However, when either taxes or incentives are layered on top of regulations, the desired outcome can be difficult to achieve.

In the case of the R&E credit, the business plans a research program that best suits its market conditions and technical needs. Under the tax incentive approach, the government does not need to dictate the specific items in the business’s research program and does not need to compare it with other businesses’ research plans to determine which particular programs are “best,” a determination involved under alternative policy approaches such as grants. Of course, the business activity receiving the credit must still qualify as research and experimentation.

In addition, the R&E credit should not be the only policy tool for effective public policy. Grants and public research, such as that carried out by the National Institute of Health, have alternative desirable features and can be useful as a complement to the research and experimentation credit, particularly for targeting a specific research activity to meet an identifiable public need. But tax incentives can effectively work as part of our policy tool kit, and particularly so when a light-handed and general approach can substitute for more specific government policies.

LIFO inventory accounting is another tax preference could be justified on efficiency grounds. As discussed above, LIFO accounting can help keep the EMTR on inventories in line with the EMTR on other business assets, and so help to reduce tax distortions.

Accelerated depreciation allowances, or some form of expensing also may be justified on efficiency grounds. Undoubtedly, the existing tax depreciation system could be improved upon, for example by allowing a more uniform degree of acceleration for all assets. But, in the aggregate, accelerated depreciation offers an investment incentive that helps to stimulate capital formation by holding down the EMTR and helps to lower tax differences between business investment and owner-occupied housing. Slowing depreciation certainly can provide an important source of revenue to use in pursuing other goals, but that revenue comes at an economic cost that should be considered in formulating a tax reform proposal.

Another set of potentially desirable tax preferences include those that effectively promote simplicity by reducing administrative and compliance burdens in cases where the cost of measuring and taxing the income accurately exceeds its benefit. These might include the current tax provision that allows small businesses to expense, rather than capitalize and depreciate, up to \$500,000 of (certain) investment costs. However, for various reasons, the actual expensed amount can be significantly less than what appears to be eligible. For example, for C corporations, approximately half of eligible filers and 40 percent of the eligible dollars were taken in 2013. Moreover, when the \$25,000 eligible investment limit increased to \$500,000, the average eligible investment expenses went from \$8,000 to \$23,000 for small businesses but increased from \$20,000 to \$213,000 for larger businesses. This suggests that further increases would not be as well targeted to help small businesses.⁵⁹ In addition, on several dimensions, the merits of providing special tax breaks to small (as opposed to all) businesses may be questioned.⁶⁰

Most tax preferences worth keeping, moreover, are worth making permanent. Indeed, many temporary provisions that had been regularly extended, like the R&E credit, were finally made permanent in 2015, providing greater certainty to businesses and for the Federal budget outlook. Nevertheless, as it currently stands, more than 50 tax provisions are scheduled to expire in 2016 or over the subsequent 5 years (Joint Committee on Taxation, 2017). While these tax provisions generally are extended each time they expire, that is not always the case.

Even if typically continued from year to year, these temporary provisions further complicate tax law and make it harder for taxpayers and the IRS to plan. This increases both compliance costs for businesses and the administrative costs of the tax system. Moreover, the increased volatility makes it less likely that the intended incentive effects occur. Businesses are less likely to make long-term investment decisions based on temporary tax incentives, particularly when the provisions are renewed at the 11th hour. Instead of encouraging more of a particular activity, such as investing in new equipment, temporary extensions may simply reduce taxes for investment or other business activity that may have been undertaken anyway. This costs the government revenue without having the desired incentive effect.

Expiring tax provisions also can distort Federal budget decisions. By convention, the revenue cost of permanent extension of expiring, but regularly extended, provisions is not reflected in baseline

⁵⁹ 2013 tax data analyzed by OTA. Small businesses are defined as those with gross receipts of less than \$10 million a year. The \$25,000 expense limit started phasing out at \$200,000 of investment while the \$500,000 limit phased out starting at \$2 million.

⁶⁰ See Viard and Roden, 2009; and Gale and Brown, 2013.

tax receipts. Thus, receipts consistently overestimate the amount of revenue actually likely to be realized, and so underestimate the size of the deficit. Truth in budgeting favors making permanent those tax incentives that are worthwhile, and letting the rest expire.

Some Economic Consequences of Domestic Distortions

Our current business tax system influences a variety of economic decisions. Compared to a system that taxes income from all investments equally, our system discourages equity-financed corporate investment relative to debt-financed investment, discourages investment in tangible capital relative to investment in intangible capital, discourages investment in certain industries, and discourages the structuring of businesses as C corporations. In short, our current system discourages domestic savings from flowing to the most productive capital investment, which leads to less national income.

Estimates suggest that these distortions may impose sizeable costs on the U.S economy. One of largest distortions, at least when measured by relative EMTRs, is the way our system discourages equity financed corporate investment relative to debt-financed investment. Recent surveys of the empirical literature indicate that reducing the corporate tax rate by 10 percentage points would reduce the corporate debt-asset ratio by nearly 3 percentage points.⁶¹ This extra leverage is calculated to cost the economy approximately 0.15 percent of GDP in wasted resources, which is approximately 6 to 7 percent of projected corporate revenues.⁶²

Estimates also suggest that tax incentives that encourage investments in some assets over others may impose fairly large economic costs. For example, one study estimates that within the corporate sector, the inter-asset distortion might be as large as 0.1 percent of GDP (Auerbach, 1996).

The economic cost of the higher taxation of corporate income relative to non-corporate income, which discourages using the corporate form of business organization and investment in heavily corporate industries, has been extensively studied. Some recent estimates of the current discouragement of corporate investment relative non-corporate investment suggest a cost of around the same magnitude as that caused by the debt-equity distortion, approximately 0.15 percent of GDP.⁶³ To put this into perspective, with GDP at approximately \$16 trillion per year, this cost would be about \$24 billion per year, which is approximately 6 to 7 percent of the revenue collected from the corporate income tax.

Some recent work by DeBacker and Prisinzano (2015) and Nelson (2016) has highlighted the growth in the pass-through sector over the past 35 years. In 1980, regular corporations (C corporations) received nearly 80 percent of the profits (net income) earned by all business in the United States, and pass-through businesses around 20 percent. In 2013, C corporations and pass-through businesses each generated about 50 percent of business profits. Both S corporations and partnerships contributed to the growth of pass-through income in the United States. Nelson shows that a substantial amount of income earned by S corporations is paid as wages to owners. Accounting for this substantially increases the share of total business income earned by S corporations (and hence by pass-through businesses as a group) and the growth in S corporate income over time.

⁶¹ See Feld, Heckemeyer and Overesch, 2013 and De Mooij, 2011.

⁶² See discussion in De Mooij, 2011 and Gravelle, 2014a.

⁶³ See Gravelle, 2014a.

The growth of pass-through income has been attributed in part to tax changes over this time period. In addition, some temporary income shifting and changes in the form of income seem to be explained by tax changes. All in all, the large and growing size of the pass-through business sector, combined with its apparent tax sensitivity, suggests revenue and efficiency effects from business tax reform that could be larger than those expected by focusing only on the current size of the traditional C corporate business sector.

While the economic costs of taxing investment by corporate businesses more heavily than pass-through business are important, a larger distortion exists between the tax treatment of business investment overall versus investment in owner-occupied housing. Economic studies estimate that the efficiency cost of this distortion may range from 0.5 percent to 2.2 percent of GDP.⁶⁴

The economic cost of discouraging business investment generally also has been studied. The measurement of this cost depends on many factors, such as how revenue from capital taxes is recovered, whether the tax reform maintains distributional neutrality, and many other details regarding the type of economic model used and assumed behavioral responses. Some models suggest that replacing capital taxes with taxes on wage income would lead to little to no gain in national income (Auerbach and Kotlikoff, 1987). Similar models suggest replacing capital taxes with consumption taxes could lead to gains ranging from 2 to 6 percent of national income over a period of decades.⁶⁵ Similarly, there is also a wide range of estimates of the efficiency costs of taxing capital income, though generally the efficiency gains are smaller than the gains in national income.⁶⁶

As mentioned above, there are significant compliance and enforcement costs associated with the current tax system. While no reformed system would eliminate all of these costs, a suitably simpler tax system certainly could reduce them by billions of dollars per year.

Implications and lessons for reform

Many approaches to business tax reform would lower the corporate tax rate while simultaneously broadening the business tax base in order to how tax revenue roughly constant. The combination of a broader tax base and a lower corporate rate would reduce certain economic distortions that cause businesses to base investment decisions on tax rules rather than economic returns, and it would lead to greater tax parity between large corporations and their large non-corporate counterparts. Furthermore, in conjunction with reforms to the international tax system, a lower U.S. corporate rate would encourage greater investment here at home and reduce incentives for U.S. companies to move their operations abroad or to shift profits to lower-tax jurisdictions.

A primary purpose of such a base broadening, rate reducing income tax reform is to improve the allocation of resources by taxing the returns from alternative investments more equally.⁶⁷ To illustrate

⁶⁴ See Skinner, 1996 and Berkovec and Fullerton, 1992.

⁶⁵ These results assume most of the progressivity of the income tax is maintained in the reform. If the replacement tax is a flat consumption tax, then the gains in output would be even larger, see Altig et al, 2001 and Carroll et al, 2006.

⁶⁶ For further discussion see Auerbach, 1996 and Gravelle, 1994.

⁶⁷ Gravelle and Hungerford (2011) estimate that the cost of corporate tax distortions to be about 10 percent to 15 percent of corporate tax revenue with about a third due to the debt-equity distortion and the remainder largely due to the distortion between corporate and all other investment.

the potential gains from a stylized broaden the base and lower the rate reform, Table 1.5 compares the effective marginal tax rates on new investment presented in Table 1.1 (current law) to estimates of effective rates that would apply under a hypothetical reform in which corporate rates were reduced to 28 percent, most corporate tax expenditures were eliminated, capital recovery was slowed by replacing MACRS with ADS, and net interest deductions for C corporations were modestly reduced. Such a reform would leave roughly unchanged the tax revenue collected from business taxes.

Table 1.5 Effective Marginal Tax Rates on New Investment (in Percent)

	Current Law	Broader Base/Lower Rate
Business	27.3	27.9
Corporate Business	28.9	28.7
Asset Type		
Equipment	24.2	28.0
Structures	29.4	29.5
Land	36.1	32.3
Inventories	39.5	37.3
Intangibles	2.4	-0.3
Financing		
Debt-financed	-5.0	14.0
Equity-financed	34.5	31.6
Pass-through Business	24.4	26.4
Owner-occupied Housing	-2.3	-2.3
Total	19.7	20.2
Variation, Cost of Capital		
Standard Deviation	0.0154	0.0153
Coefficient of Variation	0.2729	0.2690

Source: U.S. Department of the Treasury, Office of Tax Analysis

Some provisions, such as cutting the statutory corporate tax rate or restricting interest deductions increase neutrality.⁶⁸ The corporate rate cut helps to reduce the current tax bias in favor of investment in pass-through businesses (as opposed to corporations), while both the corporate rate cut and the interest deduction help to reduce the current tax bias in favor of financing corporate investment using debt rather than equity (although at the cost of increasing the tax bias against corporate investment in the case of limiting interest deductions). Other provisions, such as the slowing of depreciation deductions, potentially increase neutrality on some decision margins (between business investments in equipment and structures), but not on others (between business investment and owner-occupied housing, and between business investments in depreciable property and business investments in intangibles). Repealing the LIFO accounting method for inventories, which would increase the effective marginal tax

⁶⁸ Even provisions to limit the deductibility of corporate interest can have an ambiguous impact. Reducing the distortion between debt and equity financing reduces deadweight loss, however, this raises the overall tax burden on corporate investment, which can increase the distortion between investment in corporate versus non-corporate capital. The first effect would likely dominate, but the total result depends on the overall structure of the reform.

rate, is likely to reduce tax neutrality because inventories are a high taxed investment under current law (Viard, 2006). Effective rates on intangibles would remain significantly lower than the effective tax rate faced by other assets.⁶⁹

However, the effects of such an income tax based reform on long-term growth are less certain. Although the efficiencies described above would provide economic benefits and raise the level of output by allocating capital to better uses and improving the quality of investment, this type of reform is unlikely to lower the effective tax rate on new investment. Hence, the effects of this type of reform on economic growth is likely to be small and possibly negative. The simplest intuition is that, because of the revenue neutrality constraint, the effects of the rate cut must be roughly offset by the effects of base broadening, leaving overall investment incentives roughly unchanged. In actuality, however, the situation is likely to be somewhat less favorable to growth. This is because the rate reduction applies not only to new investment, but also provides a windfall to existing business investments. In contrast, the cost recovery provisions apply only to new investment. With a revenue neutral constraint (and even with modest revenue reductions), this would require that the tax burden on new investments rise to offset the tax windfall to investments already in place. Estimates of the effective marginal tax rates that would apply under a stylized tax reform in which the lower rate was financed, in part, by repeal of accelerated depreciation, as reported in the table above, illustrate the net effect of a slight increase in the EMTR on income from business investment.

Indeed, a recent, and thorough, estimate of the economic effects of the Tax Reform Act of 2014 by the Joint Committee on Taxation (JCT) provides reasons to temper expectations that base-broadening reforms would result in substantial economic growth (JCT, 2014). This was a reform of the entire US income tax (business and individual) intended to be roughly revenue neutral. The business reforms are similar to those illustrated in Table 1.5 above – a cut in the corporate rate financed largely by slowing depreciation deductions. In the JCT analysis, the tax burden on new investment increases and capital investment most likely declines. The increases in GDP that JCT estimates for the total plan (ranging from 0.1 to 1.6 percent of GDP over the 10-year budget window) mostly stem from increases in labor supply resulting from reductions in marginal income tax rates on labor income, which would not be a part of business tax reform. That is, the growth and efficiency gains, such as they are, come from the individual income tax part of that reform, not from the business income tax part.

Another important factor in determining the longer-term impact of tax reform is the budgetary effects arising from revenue changes. Reductions in tax revenues that led either to crowding out of private investment as the result of larger government deficits, or that necessitated future changes in fiscal policy that eventually increases taxes or reduces government spending to pay for the lower tax revenues from tax reform would reduce the longer-term economic effects of reform or could even reduce long-term growth.

⁶⁹ Amortizing R&E costs and 50 percent of advertising expenses over a 10-year period, as was proposed by in the Tax Reform Act of 2014, would increase the effective tax rate faced by intangibles.

PART II: INTERNATIONAL TAXATION

Much of the impetus for business tax reform is the result of problems that plague the international tax system. In the simplest terms, the U.S. corporate tax applies different tax rates to corporate income earned domestically versus abroad, and applies different rules to U.S.-resident firms and foreign firms on income related to U.S. and foreign activities. As a result, both the tax residence of the company (U.S. or foreign) and the source of earnings (U.S. or foreign) help determine a multinational company's (MNC's) tax burden. In particular, the U.S. corporate tax applies immediately to the domestic earnings of U.S. resident companies and to the U.S. subsidiaries of foreign firms. However, foreign-parented corporations can create debt and other deductible payments to shift income out of the U.S. tax base (e.g. through "interest stripping") when U.S. firms cannot. The foreign earnings of U.S. resident companies are taxed at a lower effective rate because payment of taxes may be deferred indefinitely and because of the allowance of a credit for foreign taxes while the foreign earnings of the foreign-parented companies of U.S. subsidiaries generally are not subject to U.S. tax.

Because effective tax rates differ based on a corporation's residence and geographic source of income, the tax system generates strong incentives to shift the location of profits outside of the United States, either by locating real activity abroad or artificially reporting income abroad, or by moving their tax residence. Firms have become increasingly aggressive in the shifting of profits to low-tax or untaxed jurisdictions, eroding our corporate tax base. U.S. firms have also sought to shift their tax residence to lower-taxed jurisdictions through inversions. And MNCs may be shifting real activity and investments to other countries to avoid the U.S. system. These activities erode corporate revenues, may reduce economic activity in the U.S., and generate inequities and distortions in the tax treatment of different businesses and industries based on their ability to avoid taxes.

When taxes are based on residence and geographic source of profit, countries are encouraged to compete to lower corporate tax rates or provide favorable treatment to multinational earnings in attempts to draw reported profits and business activity. Indeed, reductions in foreign rates have resulted in the United States becoming a relatively high-tax country by some measures. This relatively high U.S. corporate income tax rate is seen as making U.S. multinational corporations (MNCs) less competitive. However, when corporate tax deductions and tax credits are taken into account, U.S. effective tax rate measures are generally in line with other developed countries. Similarly, U.S. firms investing abroad do not appear to be at a significant disadvantage relative to foreign competitors as evidenced by the low U.S. tax burden on repatriated earnings. However, to obtain this low tax burden, U.S. firms must incur transaction costs, which act as something like implicit taxes. So the situation is more complicated than suggested by simple comparisons of the top statutory tax rates.

This dynamic presents a particular challenge in the U.S. because it is unlikely that the U.S. could or even should achieve reductions in the statutory corporate rate comparable to those in other countries. There are multiple reasons for this. These include: revenue constraints (concerns about the deficit) may limit the rate cut, even without substantial shifting; both revenue and efficiency could be reduced by the likelihood that substantial income would shift into the corporate sector from the large domestic pass-through business sector and from the wages of business owners to take advantage of substantially lower rates; the fact that the vast majority of U.S. corporate equities are held by tax-exempt investors; and the fact that many other countries are less reliant on business income taxes. Hence, the statutory corporate

tax is only one of many considerations in designing a reform; practical solutions to the problems of the international corporate tax system also will need to focus on redefining or strengthening the tax base.

In particular, in order to provide durable policies and reduce economic burdens, reform efforts must address profit shifting, residence choices, the lock-out effect, hybrid instruments and entities, and controlled foreign corporation rules, among other issues. In fact, many of these problems, such as incentives for U.S. companies to shift income or locate investments abroad rather than in the United States, would be exacerbated under the territorial systems used elsewhere. Any attempt at international tax reform needs to balance the incentives to shift profits between the U.S. and foreign jurisdictions with incentives to incorporate in the U.S. versus abroad. At the same time, any changes on the international side should not exacerbate domestic problems cited in the previous section.

This section first provides a brief overview of U.S. rules for taxing multinational corporations. It examines the role of taxes in decisions of where multinational businesses locate their real operations, with an emphasis on three frequently cited tax rate measures. It next discusses in some detail the role of the existing U.S. tax system in giving multinational firms an incentive to shift income into low-tax jurisdictions. Next is an analysis of the importance of the residual tax on repatriated foreign source earnings, with an emphasis on the ability of firms to defer that tax. The problem of profit shifting and base erosion then is discussed, followed by a description of the problem of inversions. The challenges with a territorial system, which is often put forth as a cure-all, are next outlined. The section ends with a summary that concludes the U.S. international tax system has serious problems that are in need of repair.

A Brief Overview of U.S. Tax Rules for Multinational Corporations.

The details of the U.S. tax rules governing multinational corporations are extremely complicated. In theory, U.S. corporations are subject to corporate tax on their worldwide income. This means that, in principle, a U.S. resident multinational company is taxed at the U.S. rate on all of its income, including income earned by foreign subsidiaries (under U.S. controlled foreign corporation (CFC) rules) regardless of where that income is earned. However, the United States does not tax all foreign source income currently, as that income is earned. Rather, it allows deferral of tax on much of the income earned by certain foreign subsidiaries until the profits are repatriated to the U.S. parent corporation as a dividend. But not all foreign source income can benefit from deferral.⁷⁰ For example, the U.S. taxes passive and highly mobile income, such as interest, rents, and royalties, as that income is earned by a foreign subsidiary. Such income is referred to as Subpart F income, and it does not benefit from deferral of U.S. tax. However, in practice it is easy to avoid current taxation of Subpart F income due to check-the-box regulations and the CFC look-through rule.⁷¹ Moreover, expenses of a U.S. corporation (e.g.,

⁷⁰ Income of foreign branches is taxed currently.

⁷¹ The check-the-box regulations were introduced in the mid-1990s. For United States income tax purposes, a business entity may elect to be treated either as a corporation or as other than a corporation simply by “checking a box” on a tax return. If an entity is not classified as a corporation, it is treated as a flow through entity for U.S. tax purposes, so that the income is not taxed at the entity level but rather at the owner level. Although the primary intent of the regulations was to simplify complex entity classification rules for small domestic companies, the rules allow U.S. corporations to easily “disregard” certain foreign entities for U.S. tax purposes, which implies that income that otherwise would have been taxable under Subpart F would become invisible from the U.S. tax perspective. This happens because check-the-box allows two or more foreign entities to be considered as a single entity for U.S. tax purposes. Therefore, any passive income flows among these entities – which would be taxed currently under the Subpart F rules if the entities are treated as separate corporations – can be treated

the parent of a CFC) attributable to foreign source income are deductible currently in the United States, whether or not the income is taxed currently or tax is deferred.

Under a worldwide tax system, some allowance for taxes paid to foreign countries is required to prevent the same income from being taxed in both the foreign country and in the United States. To avoid such double taxation of income, the U.S. parent corporation is allowed a foreign tax credit against its U.S. tax liability for foreign taxes paid, including a deemed foreign tax credit linked to foreign tax on earnings of foreign subsidiaries. The total amount of foreign taxes that can be credited against U.S. income tax is limited and cannot exceed the amount of U.S. income tax that is due on that net foreign income after deductions, including allocated overhead expenses to the parent, such as interest expenses.

In calculating the foreign tax credit limitation, the U.S. parent's interest expense and certain other expenses, such as parent overhead expenses, are allocated to foreign source income to determine the net foreign source income on which the credit can be claimed. The allocation of expenses to foreign source income can increase U.S. tax by reducing the amount of foreign tax that can be credited that year. This foreign tax credit limitation is applied separately to foreign-source income that is passive versus active. Passive income encompasses income such as certain rents, royalties and interest, while active income encompasses all the rest. However, the credit limitation does allow active income subject to high foreign taxes (usually active earnings of foreign subsidiaries distributed to U.S. parent corporations as dividends) to be mixed with active income subject to low foreign taxes (usually royalties or interest), reducing residual U.S. taxation on the low-tax income.

The United States also taxes the income earned in the United States by foreign-owned businesses. Their U.S. base income is taxed under the same rules applied to a U.S. domestic business. However, because other countries have territorial tax systems, foreign-headquartered MNCs are not always taxed on other foreign source income in their home country (e.g. income earned in a third jurisdiction). This potentially puts foreign-headquartered MNCs at a tax advantage relative to U.S.-headquartered MNCs, which are liable for U.S. tax on their foreign earnings, either currently or with deferral. In addition, even though both U.S.-owned and foreign-owned multinationals operating in the United States are taxed on their U.S. source income, foreign-owned domestic corporations have the added advantage of greater opportunities and flexibility in profit shifting out of the U.S.⁷² The prospect of avoiding U.S. tax on foreign source income, including income shifted or stripped from the United States to foreign sources, motivates U.S. MNCs to obtain a foreign residence through inversions or expatriations.

U.S. System as a Hybrid Tax System

The major alternative to a world-wide tax system is a territorial tax system. Under a pure territorial tax system, a corporation's country of residence does not tax the corporation's income earned

as occurring within a single entity and therefore not taxable under Subpart F. The CFC "look-through" rules allow income that would otherwise be classified as Subpart F income to escape current taxation by allowing "passive" income transferred between related parties to be treated as "active" (non-Subpart F income) if the original source of the income was from the active conduct of trade or business. Both of these rules have accelerated the shifting of U.S. owned foreign income to low tax foreign jurisdictions by limiting the application of Subpart F.

⁷² See Grubert, 1998; Goodspeed, Grubert, and Swenson, 1993; Collins and Shackelford, 2003.

in foreign countries. A country's tax base, rather, is income earned within its borders. Territorial tax systems frequently are implemented through a dividend exemption system for the active foreign-source income of their corporate taxpayers. Often countries exempt less than 100 percent of dividends (e.g., 95 percent) as a proxy for deductions of domestic parents attributable to these exempt dividends (such as headquarters expenses). Under both world-wide and territorial systems, countries typically have CFC rules (which subject passive and other mobile income to current taxation, sometimes only if such income is earned in low-tax countries) and tax foreign sourced interest, royalties, and branch income earned by the parent corporation.⁷³ Most developed countries now have some version of a dividend exemption. This has led some to argue that the United States should replace its world-wide tax system with a territorial tax system. As discussed, below, territorial systems have problems of their own and certainly do not represent a panacea for the problems in the taxation of multinational companies.

Furthermore, because of deferral, the U.S. tax system, while nominally world-wide, actually is a hybrid tax system, as are the tax systems of territorial countries due to their CFC rules. The U.S. taxes passive and highly mobile income (Subpart F income) immediately, at the full U.S. tax rate, as would occur under a "pure" world-wide tax system. In contrast, U.S. tax due on active foreign earnings can be deferred, possibly indefinitely, by leaving those earnings overseas. Deferral reduces the present value of the tax, because of the time value of money. Indeed, because of cross crediting of foreign tax credits and difficulties in separating passive from active income, in some cases the U.S. tax system is more generous to taxpayers than would be a territorial system. However, securing favorable tax treatment requires that companies engage in elaborate and expensive tax planning schemes. To some extent, at least, it also requires that investment funds be left outside the United States, though effective repatriation without U.S. tax can be realized via loans and restructuring, within limits. Thus, the low direct tax burden can require that companies incur substantial indirect costs. This has led Edward Kleinbard to conclude that the U.S. tax system is really an ersatz territorial system, one with high nontax costs and without the anti-abuse rules that a thoughtful territorial system would impose.⁷⁴

The Unintended Consequences of Deferral

Deferral allows U.S. MNCs to pay lower tax rates on foreign earned income than they would under a pure world-wide system and has the unintended consequence of discouraging repatriation of foreign earned income. Deferral allows companies to earn low tax foreign income indefinitely and thus receive the benefit of the time value of money as well as access to low taxed earnings for reinvestment abroad. U.S. companies can choose what income to repatriate such that the credits against U.S. tax for foreign taxes paid on the repatriated income can offset much of the U.S. tax liability. For these reasons, the actual "residual" U.S. tax collected – that is, the U.S. tax less foreign tax credits collected on these overseas earnings - is low. Further, deferral can have the unintended consequence of discouraging repatriation of low taxed foreign earned income, because unless there are excess high tax credits available from a high tax repatriation, a large residual U.S. tax could be due. Therefore, deferral imposes an implicit burden on U.S. MNCs in the form of additional planning designed to avoid U.S. tax. That burden is difficult to measure, and costs are likely to vary across firms. The costs matter because

⁷³ Interest and royalties are generally only subject to foreign withholding taxes because they are deductible against income taxes, and branch income is typically subject to both foreign income tax and branch profits taxes (which are a proxy for dividend withholding tax).

⁷⁴ For example, see Kleinbard, 2014.

they generate inefficiencies in the sense that one could design a system with the same revenues, but without these costs.

The broader economic effects of the unrepatriated income are likely to be small, however, because that income is generally held in dollar-denominated assets, deposited at U.S. banks, and actively invested in productive uses by the financial system. A common misconception is that income reported as “permanently reinvested abroad” must be physically held or invested outside of the U.S. Instead, that is a tax reporting convention intended to differentiate income that is immediately subject to U.S. tax from that which is deferred from tax; while there are limitations on how those funds may be used by the corporation, in general those assets are held for investment at U.S. financial institutions, and thus contribute to investment and capital formation in the United States, even if the earnings are not “repatriated” by the MNC.

The amount of tax collected on overseas earnings of U.S. MNCs is relatively low when compared to current foreign earnings. As a result, there are some reasons to question the extent to which the residual U.S. tax imposes a direct tax burden. One reason for a relatively small effect is that in many cases the foreign tax credit reduces the U.S. residual tax to a fraction of the full U.S. rate. For example, repatriations from higher tax countries may face only a modest residual U.S. tax, because the foreign tax credit may be large. The repatriated income is taxed at the top U.S. tax rate but only the residual, the difference between the U.S. and foreign tax rates, is collected. In addition, because of the ability to “cross credit” – that is, the ability to use excess foreign tax credits from high tax countries to offset residual tax on repatriated income from low tax countries, even repatriations from low tax countries may face no more than a small residual U.S. tax. While it may seem odd that cross-crediting is possible given the high U.S. statutory corporate rate, taxpayers can artificially increase apparent (but not actual) foreign taxes on certain streams of foreign-source income by separating taxes from the underlying income (known as “splitters”) and, particularly in the oil and gas industry, by claiming foreign tax credits for resource rents, which can be very large. Moreover, the residual tax collected varies across sectors with the pharmaceutical and tech sectors facing high residual taxes because their earnings are in low-tax countries while the oil and gas sector faces little residual U.S. tax because U.S. law allows oil & gas royalties to be credited as income taxes.

A second reason is deferral itself. For foreign subsidiaries of U.S.-resident firms, U.S. tax need not be paid as earnings accrue, and instead the tax payment is in a sense voluntary and tax may be paid long after the income is earned. If the foreign tax rate is lower than the U.S. tax rate, then more income is available to invest and grow overseas. Given equal gross yields, it is more profitable to invest in the low-tax country since the after tax yield is higher. To the extent that foreign investment is financed by deferred foreign source earnings, the tax eventually paid on repatriation may impose no investment disincentive. This tax capitalization effect arises because the tax on repatriated dividends reduces the after-tax cost of the investment by the same proportion that it reduces the after-tax return.⁷⁵

Empirically, it appears that U.S. multinationals pay only modest residual U.S. taxes. For example, using 2010 data, U.S. corporations paid approximately \$27 billion of residual tax (ignoring audit adjustments and effects on loss carryforwards), while positive foreign earnings and profits reported

⁷⁵ It is analogous to the perhaps more familiar “new view” or “tax capitalization view” of dividend taxes. See Auerbach, 1979; Bradford, 1981; and Hartman, 1985.

on the informational returns of U.S. corporations in the same year were approximately \$930 billion.⁷⁶ Total foreign income net of expenses reported on U.S. tax returns includes dividends, interest, royalties, and other types of repatriated foreign income, and was approximately \$470 billion in 2010.⁷⁷ The income measures suggest that much of the foreign earned income is deferred with only a modest residual U.S. tax rate paid on the income that is repatriated. Further, most residual tax paid appears to arise from the taxation of foreign source royalties or interest, which are generally deductible abroad and therefore carry few foreign tax credits, rather than from foreign dividends. U.S. residual taxation of royalties should arguably be higher under the current income tax because royalties are properly considered to be export income from a domestic-sourced service rather than foreign-source income. Treating them as foreign-source income is reasonable to the extent that this allows the crediting of foreign withholding taxes (which may be justifiable because royalties can be used to strip income), but they should be taxed separately so that foreign income tax credits cannot shield them from U.S. tax. According to U.S. Treasury International Tax Model estimates, if the voluntary (non-Subpart F) dividends, which are taxable on the margin, were eliminated from the U.S. tax base, 2010 U.S. residual taxes only would have fallen by about \$2 billion. In addition, estimates of the U.S. residual tax on income earned in low-tax countries, where the foreign tax credit would be low, are small - on the order of 2 or 3 percent of income.⁷⁸ Of course, such calculations may exaggerate the low U.S. residual tax burden because they assume that U.S. tax is never paid, rather than deferred which reduces its present value.

U.S. GAAP (book) accounting for undistributed active foreign income also influences the repatriation decision and may add to the economic burden of the tax on repatriated earnings. Generally, U.S. corporations include all foreign earnings, including undistributed earnings, and all taxes (including U.S. tax that will be owed when the earnings are repatriated) on such income for book accounting. However, if a U.S. corporation can show that foreign source earnings will be reinvested abroad indefinitely, then it can avoid creating a reserve for and reporting U.S. taxes that eventually would be paid on those earnings (APB, 1972; FASB, 1987; FASB, 1992; Dilworth 2009). For book purposes, the corporation appears more profitable because it reports the foreign earnings without reporting or reserving for the residual U.S. tax on such earnings.⁷⁹ Some argue that this GAAP treatment may have an independent effect discouraging a company from repatriating earnings.⁸⁰

In spite of the seemingly low direct repatriation tax burden, the repatriation tax may impose a larger “implicit” burden on corporations. To take advantage of the deferral regime, while retaining flexibility in the use of foreign source profits, U.S. corporations incur tax-motivated legal and other

⁷⁶ Note that these foreign earnings are not the foreign income base on which U.S. tax is imposed because many of these earnings are not immediately repatriated to the United States (because tax is deferred), and also because other foreign income components of the U.S. tax base, such as royalties, are deductible abroad.

⁷⁷ This income is the OTA estimate of the total taxable income reported on Form 1118 and Form 1120.

⁷⁸ In these locations, the burden of actual payments was 2 percent to 3 percent of affiliate income. See (Grubert and Mutti, 2001).

⁷⁹ It is questionable whether corporations may report foreign income without reserving for U.S. taxes on such income where it is likely that such earnings will be distributed to shareholders. See (FASB, 1987).

⁸⁰ Graham, Hanlon and Shevlin (2011) analyzed responses to a survey from nearly 600 executives of multinational corporations regarding the effect of financial accounting rules on investment location and profit repatriation decisions. Forty-four percent of respondents stated that deferral of the financial accounting expense is important in their decisions about reinvesting foreign income outside the United States.

costs that represent real resource costs and that distort investment decisions. The implicit burden also potentially includes the value of investment opportunities that are foregone because companies are unwilling to repatriate the income and pay the U.S. tax, though in today's environment, MNCs with large stocks of foreign earnings are likely to have ample cash and/or the ability to borrow at low interest rates in the United States.⁸¹ When added to the tax that U.S. subsidiaries pay to foreign governments, the indirect burden, the tax planning cost, can impose costs that foreign competitors do not face. This burden represents an efficiency cost. It is a pure loss to the economy because it represents resources spent in securing a transfer from one party (the government) to another party (the corporation).

Some have interpreted the large response of corporations to the 2004 repatriation tax holiday, which gave corporations a one-year window when they could repatriate and pay a maximum tax of 5.25 percent (under which approximately \$300 billion was remitted) as suggesting substantial implicit costs associated with repatriation tax avoidance and explicit costs associated with tax liabilities related to future repatriations.⁸² Without the high costs of repatriation, the holiday would have had little effect. However, the substantial repatriations suggest that these costs are significant and discourage repatriation. Redmiles (2008) showed that the average actual tax cost of repatriations for companies that took advantage of the 2004 repatriation tax holiday was around 3.6 percent. Given that the incentive was an 85 percent dividends received deduction, this corresponds to an average foreign tax rate on the remittances of 11 percent. This suggests that the holiday primarily benefited earnings locked in low tax countries. Altshuler and Grubert (2013) calculated that the marginal cost of deferring repatriation for profitable high tech firms was very low immediately following the repatriation tax holiday, but gradually built up with the stock of un-repatriated profits, reaching 7 percent in 2015, 10 years after the repatriation tax holiday.

Corporate Taxation in a Global Economy

Taxes affect the location and scale of an investment and the location of profits. To illustrate the importance of taxation, consider the decisions that a U.S. MNC must make when it enters a new market abroad.⁸³ Most importantly, it must decide where to produce, which will depend on both operating costs and tax costs in each potential location. For example, a corporation can produce a product in the United States and export to foreign markets, or it can produce the product abroad. In making this decision it will consider the after-tax income that it would expect to receive from producing in each location. If a domestic or foreign corporation produces in the United States, its net income will be subject to U.S. tax. If it produces abroad, its net income will be taxed by the host country and for U.S. corporations, the net income may also be subject to residual tax when repatriated to the United States.

⁸¹ U.S. corporations have a number of techniques that they can use to avoid the repatriation tax on dividends while still getting cash into the hands of the parent. For example, MNCs can engage in triangular strategies in which a low-tax subsidiary effectively borrows tax credits from a high-tax sister corporation. See Altshuler and Grubert, 2003; IRS Notice 2006-85; and Treas. Reg. § 1.367(a)-3.

⁸² The tax capitalization effects suggests that some caution is warranted in interpreting the effects of the tax repatriation holiday. The temporarily low tax rate may induce increased repatriation even though the permanent tax rate on repatriations imposes no investment disincentive.

⁸³ For a more detailed discussion of the effect of taxes on a MNC's investment decisions, see Devereux and Griffith, 1999 and Auerbach, Devereux and Simpson, 2007.

Repatriations Holidays vs. Permanent Reductions in the Tax Cost of Repatriation

U.S. multinational corporations (MNCs) have as much as \$2.8 trillion of accumulated unrepatriated earnings—a pool of cash that is sometimes eyed as a source of tax revenue and/or investment capital in a reform plan or in a “repatriation holiday.” Plans that tap into these earnings are often viewed as having a dual benefit: 1) they “bring home” a pool of capital that is “trapped” abroad, increasing funds available for domestic investment, and 2) they raise tax revenues. The first claim is often not true, because unrepatriated funds are generally held in dollar denominated assets or invested in the financial system, and thus are already available for domestic investment. The second claim is unlikely to be true outside of tax reforms that permanently reduce tax considerations from repatriation planning.

Internationally integrated capital markets are one reason for caution in terms of counting on these benefits. Just because the money has not been deemed repatriated by the U.S. multinational that earned it does not mean that it is unavailable for investment in the U.S. If such funds are invested directly by the companies overseas, then they free up other funds for investment in the U.S. If such funds flow into banks, then they are available to fund other investments, including those in the U.S. A large part of unrepatriated earnings are thus already explicitly or implicitly available for investment in the U.S. Further, the large cash balances held by many MNCs suggest that these firms have a large supply of internal funds readily available for investment which they are not using, a fact that argues against the idea that a repatriation holiday will increase investment.

Consequences of Temporary Repatriation Holidays

Permanently reducing the tax cost of repatriation could reduce the implicit costs of deferral, increase U.S. investment, and possibly raise tax revenue, if explicit tax costs are substituted for the implicit costs of deferral that U.S. MNCs are currently incurring. However, a temporary repatriation tax holiday is not well aligned with these goals as it creates perverse incentives. Evidence suggests¹ that the qualifying dividends in the 2004 repatriation holiday were not generally used to increase investment or employment by participating firms. Most of the repatriated funds were used to make payments to shareholders in the form of share repurchases and dividend payments. The repatriations were highly concentrated, with roughly half of the total enjoyed by only 15 corporations. The repatriation tax holiday was widely promoted as a vehicle for job creation, but instead the top 15 repatriating corporations cut more than 20,000 jobs (Repatriating Offshore Funds, 2011).

Moreover, the number of tax motivated transactions increased rather than decreased as a result of the temporary repatriation holiday. Dividend payments from foreign subsidiaries were delayed prior to the holiday period in anticipation of that holiday, MNC parents injected equity (stock purchases) in their foreign subsidiaries prior to the holiday, and after the holiday period MNCs increased the level of earnings kept overseas above their pre-holiday level. As a result, the first holiday is unlikely to have resulted in a large net repatriation of earnings and may have resulted in a net outflow of funds. If so, there would have been no net stimulus from the first holiday.

Not only did the 2004 holiday fail to offer macroeconomic or tax planning benefits, it is estimated to have cut tax revenue by \$3.3 billion over 10 years (Repatriating Offshore Funds, 2011). While tax collections went up in 2004, revenue losses from postponed prior repatriations and, importantly, from reduced future repatriations, more than offset the temporary influx of revenue.

Furthermore, the increase in unrepatriated earnings since the 2004 holiday suggests that firms might be planning for the possibility of another holiday. This would increase the tax cost of another holiday. It also has increased planning costs and may do so permanently, if firms come to anticipate periodic repatriation holidays and hold and manage larger unrepatriated balances in the interim, so as to take maximum advantage of the holidays.

¹ See Blouin and Krull, 2009; Clausing, 2005; Clemons and Kinney, 2008; Dharmapala, Foley, and Forbes, 2011.

Taxes and investment decisions

The appropriate measure of the influence of taxes on investment decision goes beyond the statutory rate. Indeed, four tax rate measures are commonly used to evaluate the effect of taxes on the investment and business incentives of multinational corporations. The first tax rate measure is a country's top statutory tax rate, the tax rate that is specified by law. A low statutory corporate tax rate could attract more investment either from domestic or foreign corporations, because a lower tax rate increases the after-tax income for equity investors. To the extent that a company repatriates income and pays a residual U.S. tax, the high U.S. corporate tax rate also can reduce the company's ability to compete in foreign markets with foreign companies that possibly face lower tax burdens. Similarly, the statutory rate is a good measure of the incentive to shift income out of a country, such as through interest stripping, and to repatriate income from a CFC, since it measures the change in tax associated with these financial shifts.

In addition to the statutory corporate tax rate, other features of a country's tax system can affect investment incentives. These features include the provisions that define the tax base, such as accelerated depreciation deductions, as well as tax credits that lower the private cost of an investment. Because of these provisions, the statutory corporate tax rate is at best an incomplete measure of the burden a country's tax system places on real investment.

The effect of the base defining and tax credit provisions typically is to lower the "effective" tax burden below that implied by the statutory tax rate. These features, along with the statutory tax rate, can be summarized in the effective marginal tax rate (EMTR), the second tax rate used to measure investment incentives.⁸⁴ As explained more completely below, an effective marginal tax rate is an indicator of the incentive to expand or contract the scale of an investment in a country, conditional on deciding to invest in the country at all. The lower the effective marginal tax rate, the greater is the incentive to expand the scale of an investment, e.g., the size of a factory or an office complex.

The third tax rate used to measure investment incentives is the effective average tax rate (EATR). This is a variation of the effective marginal tax rate and is computed as a combination of the statutory tax rate and the normally calculated effective marginal tax rate (Devereux and Griffith, 1998). This measure is relevant when a business is deciding whether to invest in one country rather than another in the empirically important case in which the investments are mutually exclusive and earn positive economic profits (profits in excess of the opportunity cost of the investment). These returns may result from patents, brand names, knowhow and market power, which are typically mobile across borders.⁸⁵

The effective marginal and effective average tax rate are simplified, hypothetical, measures, that ignore numerous tax exemptions (e.g., for pass-through corporations), deductions, credits, and avoidance and evasion behavior. They also typically attempt to measure only source taxes, and often assume only equity financing, ignoring the effective corporate tax exemption for debt finance. These measures frequently also only reflect domestic taxes on domestic-source income.

⁸⁴ See Bilicka, Devereux and Fuest, 2011.

⁸⁵ See De Mooij and Ederveen, 2008.

The fourth tax rate is backward looking unlike the prior ones and is an average (effective) tax rate (ATR). This measure computes actual average tax rates paid by publicly-traded companies, computed as the ratio of a measure of taxes paid (or accrued) to a measure of income as reported on financial statements.⁸⁶ This measure's use of actual taxes paid makes it in a sense more realistic than the prior two measures but can be hard to interpret since it can include tax provisions from multiple years. In addition, because it is backward looking, determined by tax rules, decisions, and economic events that occurred in the past, it is not necessarily helpful as an indication of the effect of taxes on a new investment, one whose returns will accrue in the future. It is also very different in scope, as it reflects residence taxes on foreign source income as well as foreign and domestic taxes on foreign and domestic source income, respectively.

Profit Shifting and Income Stripping

In addition to deciding where to locate investment, corporations also have some discretion over where they locate the taxable income associated with their investments, for example, through shifting intangible ownership by intra-company transactions as well as the location of intra-group debt. The location of taxable income is influenced by differences in statutory tax rates. A high statutory corporate tax rate can create an incentive for businesses to shift income earned from investment in that jurisdiction to another, lower-tax jurisdiction. However, the ability of U.S. firms to defer U.S. tax on foreign source income is important in determining the gain from shifting profits from a high-tax to a low-tax jurisdiction. Without deferral of U.S. tax, shifting profits from a high-tax country (possibly the United States) to a low-tax country would not change the total tax bill paid by a U.S. resident multinational. If U.S. tax were imposed immediately on the worldwide income of the U.S. MNCs, then any apparent tax savings for U.S. based companies from profit shifting would be counteracted by higher tax paid to the United States.⁸⁷ With deferral, U.S. tax is postponed, which reduces its present value, and so provides an incentive to shift profits.⁸⁸

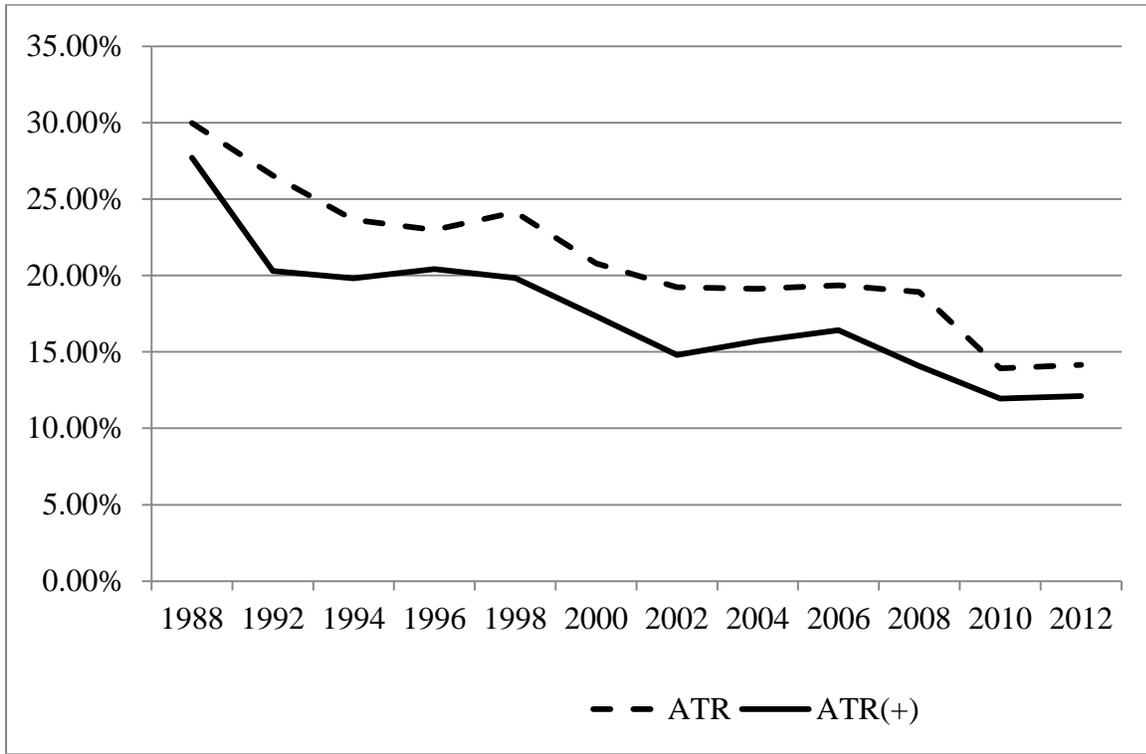
One indicator that U.S. MNCs are engaging in profit shifting is the declining trend in average (effective) tax rates (ATRs) paid by U.S. MNCs' CFCs. These tax rates are actual taxes paid over income of U.S. MNCs' CFCs. The dashed line in the graph below shows the ATR time series for all firms whereas the solid line plots the ATR for firms with positive earnings and profits (E&P) only. Firms with positive E&P pay 2 to 5 percentage point lower ATRs throughout the sample period. The ATR for firms with positive E&P declines from close to 28 percent in 1988 to 12 percent in 2012, despite the U.S. statutory corporate income tax rate holding relatively steady throughout the sample period. The decline could also be explained by increasing foreign share plus reduced foreign rates, both of which have occurred.

⁸⁶ For example, see Lee and Swenson, 2009 and Markle and Shackelford, 2011.

⁸⁷ This is not strictly true. Shifting profit out of countries whose tax rate is higher than the U.S. rate would still reduce a firm's taxes.

⁸⁸ If the United States had a territorial tax system, under which a country does not tax the foreign source income of its resident multinational companies, incentives to shift profits would be even greater, because there would be no U.S. residual tax.

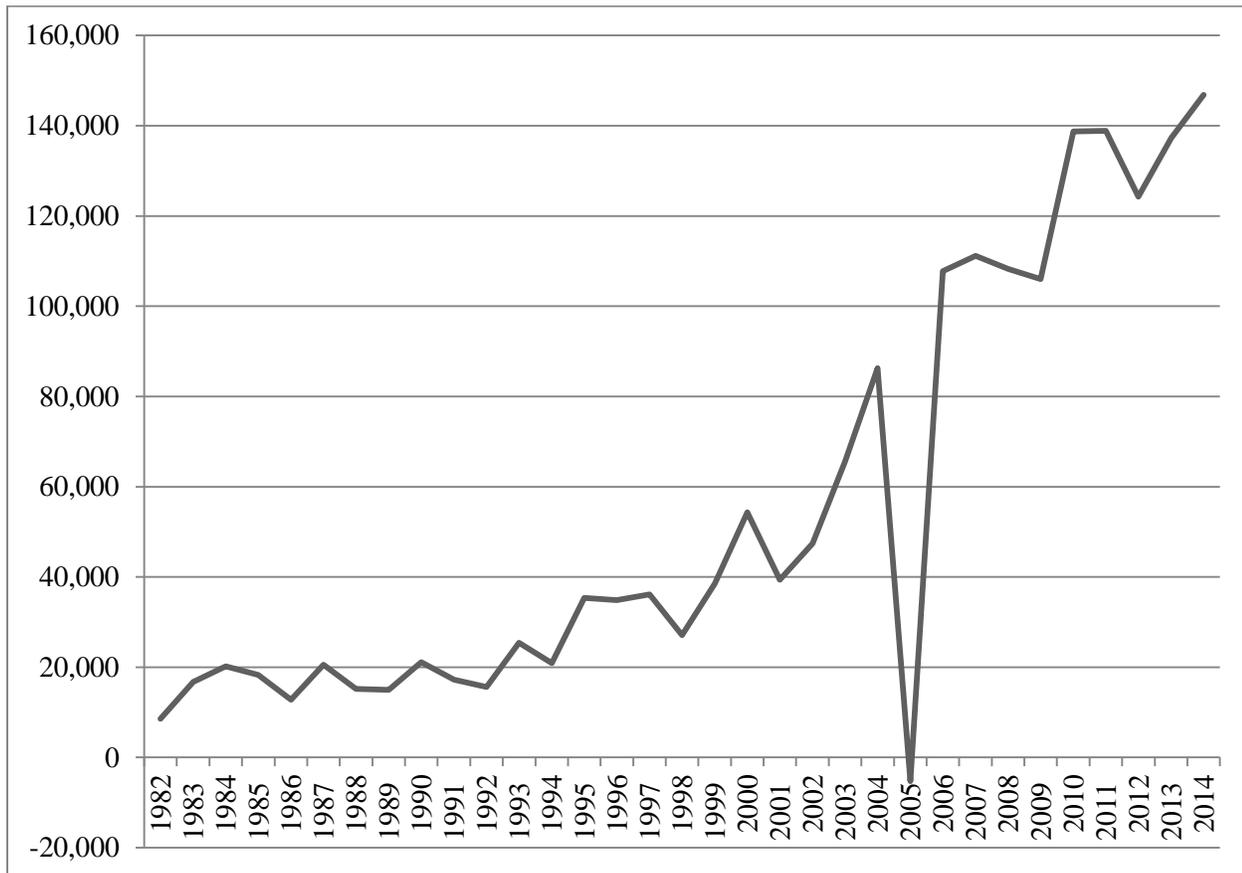
Figure 2.1 U.S. Controlled Foreign Corporation of U.S. Multinational Companies Average (Effective) Tax Rates



Source: Bureau of Economic Analysis

This trend coincides with the growing trend of U.S. multinationals to defer tax on large amounts of income in low- and no-tax jurisdictions as shown in the graph below. U.S. MNCs have invested in tax planning that has enabled them to turn tax into another profit center in the firm (Desai, 2012). Note the dip in re-invested earnings coinciding with the 2005 repatriation holiday and the sharp buildup in reinvested earnings since.

Figure 2.2 Real Reinvestment of Earnings in Millions of 1982-84 USD



Source: Internal Revenue Service: Statistics of Income Division

One common way to move, or “strip” earnings to a low-tax jurisdiction is for a company in a high-tax jurisdiction to borrow from a related foreign company in a low-tax jurisdiction, and pay interest that is tax deductible in the high-tax jurisdiction but taxed at a low rate in the low-tax jurisdiction. While U.S. MNCs are taxed currently on interest earned by related foreign companies as a result of Subpart F rules, interest stripping can be used between related foreign companies by U.S. MNCs. Similarly, foreign MNCs can make loans to U.S. related companies in order to strip income from the United States. Recent U.S. tax regulations attempt to limit some of this activity by foreign MNCs.

An extreme way for a U.S. based multinational to shift profits out of the U.S. tax base is for the company to expatriate or invert by changing its tax residence from the United States to another country. Activities in the United States are still taxed currently by the United States, but since other countries have territorial tax systems, there is little or no tax on repatriation of profits to the foreign MNC. Inversion transactions are explained in more detail below.

Transfer prices (which are the prices one part of a company charges another on intercompany transactions) also can be manipulated to shift profits. For example, subsidiaries in low-tax rate jurisdictions can charge artificially high prices for the items that they sell to subsidiaries in high-tax rate jurisdictions, so that the income from the eventual sale to a third party is reported in the low-tax

jurisdictions. U.S. and most developed countries have laws that require that transfer prices should be “arms-length”, i.e., based on the prices that would be observed on comparable sales between unrelated parties. In practice, companies may manipulate transfer prices in ways that allow them to shift profit out of high-tax jurisdictions (Kleinbard, 2011). As a result, the potential tax savings from transactions between related parties, especially with regard to transfers of intangible assets from high-tax jurisdictions such as the United States to affiliates in low-taxed jurisdictions, puts significant pressure on the enforcement and effective application of such rules.

Indeed, the empirical evidence is consistent with income shifting behavior of multinational groups. For example, the pre-tax profitability of CFCs is negatively correlated with local country statutory tax rates, taking into account real economic factors such as financial structure, capital employed, and other non-transfer pricing operational aspects of multinational groups.⁸⁹ There also are estimates of the revenue cost to the U.S. fisc of profit shifting, and these are very large, perhaps as much as \$100 billion per year (Clausing, 2016; Gravelle, 2016).

Table 2.1 shows profits of U.S. corporations reported in select, small countries with very low tax rates as a percentage of GDP. In a number of cases, the amount of profits far exceeds the country’s actual output, suggesting the degree to which companies are using the countries to shelter profits that may have been earned elsewhere. The large ratios of U.S. foreign company profits relative to GDP in many tax havens is due to income stripping and profit shifting, greatly enabled by the U.S. check-the-box regulations, which allow certain business entities to choose their tax classification for U.S. tax purposes (i.e., whether to be considered a corporation, a partnership, or a disregarded entity). MNCs take advantage of the check-the-box rules to create hybrid entities, which are considered corporations in one foreign jurisdiction, but not in another. This enables U.S. MNCs to not just shift profits from the U.S. but also from countries with higher tax rates to those with very low tax rates.

Table 2.1 Select Small Countries: U.S. Foreign Company Profits Relative to GDP, 2010

Bahamas	104
Bermuda	1,578
British Virgin Islands	1,009
Cayman Islands	1,430
Cyprus	13
Ireland	38
Luxembourg	103
Netherlands	15
Netherlands Antilles	25

Source: The Economic Report of the President, tbl. 5-1(2015).

⁸⁹ See, for example, Grubert and Mutti, 1991; Hines and Rice, 1994; Altshuler and Grubert, 2005; Grubert, 2003; McDonald, 2008. In addition, for a useful summary of the literature, see De Mooij and Ederveen, 2003 and Gravelle, 2009.

There is a worldwide concern over profit shifting and tax base erosion, and a widespread conviction that tax planning has become increasingly sophisticated and firms are ever more eager to reduce or eliminate tax on their income, often by using perfectly legal strategies. For example, in addition to estimates of the loss of U.S. tax revenue from profit shifting mentioned above, there have been numerous highly publicized examples of companies engaging in complex but legal tax strategies that reduce and in some cases eliminate all taxes on their income. Such cases include large and well-known U.S.-based MNCs. This problem is the subject of an ongoing OECD project that is attempting to find solutions to the problems created by base erosion and profit shifting (OECD, 2015).

Modern, tax planning strategies can involve complicated chains of ownership that exploit differences in tax systems between countries. So-called hybrid entities or instruments can be important in such strategies and can create stateless income, income that is not taxed anywhere. The adjacent box discusses hybrids in a bit more detail.

Taxes and the Location of Intangibles

Intangible assets such as patents and trademarks are an important source of income for U.S. multinational corporations. Much international tax planning centers around shifting developed and developing intangibles overseas via transfer prices in order to reduce taxes. Existing U.S. tax law gives firms a strong tax incentive to try to shift developed intangibles, or their income flow, out of the United States. The U.S. tax rules have allowed taxpayers to fully deduct (expense) qualified research spending since 1954 (Code section 174). Ignoring losses, to the extent that the income earned by the intangible is taxed at the U.S. tax rate, expensing leads to a zero effective tax rate on the normal return. Excess returns would be subject to full taxation.⁹⁰ However, if the U.S. multinational can shift the future income from the intangible overseas, and have it taxed at a lower rate (if taxed at all), then the investment is subsidized because both its normal and excess returns are taxed at a lower rate. The tax credit that the United States allows for R&E expenditures further adds to the tax subsidy.

One way to shift the income out of the United States is to license the intangible to foreign subsidiaries, who then pay an understated royalty to the U.S. parent. The royalty is deductible from taxable income in the foreign jurisdiction. In theory, it is includable in taxable income by the U.S. parent. Any inclusion, however, will be reduced to the extent that the royalty is understated. Understatement is made possible by the inherent challenges in pricing intellectual property due to asymmetric information, which raises hurdles for the tax authorities in proving its true value.

Indeed, the royalty need not be understated to result in little U.S. tax being collected on the income. For example, royalty income can be shielded from current U.S. tax by excess foreign tax credits arising from highly taxed dividends. In addition, even if the foreign subsidiary retains a significant portion of the return on the intangible, rather than paying that return back to the U.S. parent as a royalty, there is an incentive to exploit the intangible in the foreign country if that country has a relatively low tax rate.

⁹⁰ It is not clear however, that the tax on the excess return imposes a burden on the firm. One reason is that the tax implies that the government will share in the riskiness of the return. A second is that a tax on pure profits does not discourage the activity that generates the profits.

Hybrid Arrangements Overview

Cross-border hybrid arrangements, such as hybrid entities and hybrid instruments are a legal tax-avoidance technique that exploits inconsistencies in tax treatment across jurisdictions. For instance, a hybrid instrument might be treated as indebtedness for U.S. tax purposes but is treated as equity for foreign tax purposes. Taxpayers currently use a variety of cross-border hybrid arrangements to claim deductions in the United States without corresponding inclusions in the payee jurisdiction or to claim multiple deductions for the same payment in different jurisdictions.

Hybrid Entities

To prevent base erosion and income shifting, the U.S. taxes passive and other highly mobile income, known as Subpart F income, as the income is earned by certain foreign affiliates, i.e. subpart F income does not get the benefit of deferral. The U.S. check-the-box regulations allow certain business entities to choose their classification for U.S. tax purposes, i.e., to choose whether or not they are considered corporations subject to the separate entity level tax, as opposed to partnerships subject to no separate entity tax. MNCs take advantage of check-the-box rules to create hybrid entities, which are considered corporations in one taxing jurisdiction, but not in another.

Check-the-box undermines the Subpart F rules. For example, suppose that a U.S. parent injects equity into a tax haven affiliate, which then re-lends the funds to an affiliate in a high tax jurisdiction. The interest payments made by the high tax affiliate would be deductible in the high-tax jurisdiction if the high-tax country affiliate is viewed as a corporation there. The interest income might be subject to tax at a very low tax rate in the tax haven jurisdiction, or it might not be subject to tax at all (depending on whether the tax haven considers it to be a tax resident under its rules). In any event, under Subpart F the interest payment to the low-tax country affiliate generally should be taxed currently as income to the U.S. parent. However by checking the box, the distinction between the tax haven affiliate and the affiliate in the high-tax country can be disregarded by the IRS. The IRS would consider the two affiliates as a single entity, so the interest payment from one to the other would be ignored as an intercompany flow, and so it would be shielded from current U.S. tax.

In addition to check-the-box, U.S. MNCs get the benefit of the “look-through” exception, which exempts from current taxation dividends, interest, rents, and royalties received by one CFC from a related CFC to the extent attributable or properly allocable to income of the related CFC that is neither subpart F income nor income treated as effectively connected with the conduct of a trade or business in the United States. This exception can in some cases serve a function similar to the check-the-box rules.

Hybrid Instruments

Hybrid instruments are financial instruments with both debt and equity characteristics, leading to potential inconsistencies in their treatment across jurisdictions. For example, although many jurisdictions treat perpetual debt as debt, the U.S. classifies it as equity, because of the equity-like attributes of perpetual investment. Thus, if a foreign entity issues perpetual debt to a U.S. holder, the interest payments would be deductible in the foreign jurisdiction while the same payments are treated as dividends in the U.S. and could be offset by the foreign tax credit, even though they bore no foreign tax (Krahmal, 2005).

Tax Revenue Consequences of Hybrid Arrangements

The proliferation of hybrid arrangements following the implementation of the check-the-box rules in 1997 and financial innovation have made it easier to shift income from high-tax to low-tax foreign countries without offsetting increases in U.S. taxes. While some observers consider this a positive from the U.S. perspective, U.S. MNCs can now operate in developed, high tax foreign countries while paying low taxes there, creating an incentive to invest there rather than in the U.S., thus reducing the U.S. tax base.

Another method for income stripping through intangibles is for an entity in a tax haven to engage in a cost sharing agreement with the U.S. parent. Typically, the tax haven affiliate pays a favorable “buy in” charge for all the previous stages of development and thereafter shares in the costs of developing the intangible further in exchange for the right to exploit the intangible abroad. Then, the tax haven affiliate can license the intangible to high-tax affiliates, which pay deductible royalty payments to the tax haven affiliate. Normally, royalty payments are considered Subpart F income and are subject to immediate U.S. tax. However, due to the proliferation of hybrid entities under the U.S. check-the-box regime, the royalties paid to the tax haven affiliate can avoid Subpart F treatment thereby indefinitely deferring U.S. tax. Strategies such as these create incentives to shift the income from intangibles, such as a patent for a new computer chip, to a low-tax jurisdiction abroad to avoid paying the higher U.S. tax rate.⁹¹

Exploiting intangibles abroad, rather than in the United States, can be facilitated when U.S. multinationals have real investments abroad. This is an issue of some concern, particularly given the newly introduced OECD base erosion and profit shifting (BEPS) *nexus approach* to intangible property (IP) taxation, linking the creation of IP with its taxation. This increases the attractiveness of investment in low-tax countries. Even if part of the return on intangibles is paid as deductible royalties, foreign subsidiaries tend to retain a significant portion of the return, which means that a low-tax jurisdiction is a favorable potential location given deferral.

The EATR and EMTR calculations do not take into account the complexities of the taxation of international income that allow for shifting income from intangible assets. Adjusting for income shifting can substantially reduce the apparent tax burden on the foreign source income of U.S. multinationals, but at the cost of extensive tax planning. One study incorporates critical elements of income shifting using intangibles into hypothetical simulations of the effective tax rate, assuming a statutory U.S. corporate tax rate of 30 percent but otherwise retaining all features of current U.S. law (Altshuler and Grubert, 2013). The study considered discrete investments into two foreign countries, one with a 5 percent tax rate and the other with a 25 percent tax rate. There is also a tax haven to which income can be shifted. The investment in the low-tax country can exploit a parent developed intangible yielding a large excess return. The investment in the high-tax country just earns a normal return. The parameters in the simulations, such as the cost of shifting, are calibrated using data on profitability in high- and low-tax countries. The simulations show that in a post-check-the-box world, after shifting of intangibles, the effective tax rate on investments by a hypothetical U.S. multinational in the low-tax country is -24 percent instead of the 5 percent statutory rate; and that, after stripping, the effective tax rate on investments in the high-tax country is 13 percent instead of the 25 percent statutory rate. The activities in each country correspond to the typical behavior of U.S. companies in such countries.

Taxes, Capital Ownership, and Residence: Inversions

One extreme way for a U.S. based multinational to shift profits out of the U.S. tax base is for the company to expatriate by changing its tax residence from the U.S. to another country. For historical reasons, these transactions are called inversions because they used to be accomplished by establishing a paper foreign subsidiary corporation that acquires the U.S. parent: thus, the parent subsidiary-relationship was switched or inverted. This sort of paper transaction is no longer allowed under U.S. tax law, which now generally requires that the U.S. company acquire a foreign company with a valuation at

⁹¹ Some of the empirical studies are discussed below.

least one-fourth that of the U.S. company for the IRS to respect the change in tax residence.⁹² Over the past few years, an increase in actual and proposed inversions designed to get around U.S. tax law restrictions has raised concerns in the tax policy community about the potential erosion of the U.S. tax base should many large corporations move out of the United States for tax purposes.

Expatriating or inverting offers three tax benefits for MNCs (Gravelle and Marples, 2014). First, it facilitates stripping earnings out of the United States, e.g., by inter-company borrowing among related foreign subsidiaries and cost sharing agreements that move the income from U.S.-developed intangibles outside of the United States. (It does not, however, directly lower taxes on income from business operated in the United States. Such businesses still would be subject to U.S. tax, even if owned by a foreign parent.) Second, it can reduce or eliminate U.S. tax on future foreign earnings. Third, it can reduce or eliminate U.S. tax on foreign earnings that are unrepatriated at the time of the merger.

Seida and Wempe (2004) provide evidence that earnings stripping is the primary motivation for inversions. They compare inverted companies before and after inversion transactions. Post-inversion, companies' U.S. debt and interest payments rose so significantly that their U.S. taxable income was effectively eliminated, and this was the primary reason that their worldwide effective tax rates fell so significantly. An updated study by Bloomberg, using the same methodology as Seida and Wempe (2004), is discussed in Mider (2014) and finds similar results. Recent section 385 regulations have made interest stripping post-inversion more difficult in an effort to protect the U.S. tax base.

In addition to potentially eroding the U.S. tax base, expatriations may impose other costs on the U.S. economy. For example, as a result of the merger, a company's headquarters may move overseas. This loss of headquarters jobs and of a U.S. identity for the company may reduce employment and, eventually, investment and research in the United States.

The U.S. Tax System in International Comparison

Territorial Tax Systems

Most other countries have territorial tax systems that subject foreign earnings to reduced residual tax under certain conditions. Instead of deferring tax until foreign income is repatriated, under a territorial tax system most if not all of the foreign income is exempt from tax in the home country and thus effectively not taxed by the home country currently or when repatriated. Many countries with territorial systems have CFC rules, some of which only extend the dividend exemption to countries with corporate tax systems or effective rates above a certain threshold. Nevertheless, territorial tax systems in general have proven vulnerable to base erosion, because of the strong incentive to shift income out of the home country in order to obtain low or no tax elsewhere, and then repatriate the money tax-free.

⁹² The American Jobs Creation Act of 2004 (AJCA 2004) enacted Section 7874 of the IRC, which was designed to reduce tax avoidance through "inversion" (i.e., expatriation). In particular, Section 7874 disregards or penalizes certain "inversions" if the continuity of interest between the original and the new corporation is too high. Because inversions of U.S. companies resulting from mergers with foreign companies continued to occur after the enactment of Section 7874, the U.S. Treasury and the IRS have expanded the scope of Section 7874 in several regulatory notices since 2009.

Table 2.2: OECD Countries with Territorial Tax Systems

Country	Top Corporate Income Tax Rate, 2015	Year that Territorial was first in effect	Exemption percentage	Countries of foreign affiliates eligible for participation exemption
Australia	30.00%	1991	100%	All countries
Austria	25.00%	1972	100%	All countries
Belgium	33.00%	1962	95%	All countries with tax similar to Belgian corporate income tax
Canada	15.00%	1952	100%	Treaty countries and countries with which Canada has signed a tax information exchange agreement
Czech Republic	19.00%	2004	100%	EU member countries, treaty countries, and countries with a corporate income tax of at least 12%
Denmark	22.00%	1992	100%	All countries
Estonia	20.00%	2005	100%	All countries with a corporate tax of at least 7%
Finland	20.00%	1920	100%	EU member countries and treaty countries
France	34.43%	1979	95%	All non "black list" countries
Germany	15.83%	2001	95%	All countries
Greece	29.00%	2011	100%	EU member countries only
Hungary	19.00%	1992	100%	All countries
Iceland	20.00%	1998	100%	Countries with corporate tax rate at least as high as the general rate in any member state of the OECD, EFTA, or the EU
Italy	27.50%	1990	95%	All non "black list" countries
Japan	23.40%	2009	95%	All countries
Luxembourg	22.47%	1968	100%	All countries with an effective corporate tax rate of at least 10.5%
Netherlands	25.00%	1914	100%	All countries
New Zealand	28.00%	1891	100%	All countries
Norway	25.00%	2004	97%	All non "black list" countries
Poland	19.00%	2004	100%	EU member countries and Switzerland
Portugal	28.00%	1989	100%	All countries, excluding tax havens
Slovakia	22.00%	2004	100%	All countries
Slovenia	17.00%	2004	95%	EU member countries and all non-"black list" countries
Spain	25.00%	2000	100%	All countries with corporate income taxes similar to Spain other than tax havens
Sweden	22.00%	2003	100%	EU member countries and countries with entities comparable to a Swedish LLC
Switzerland	8.50%	1940	95%	All countries
Turkey	20.00%	2006	100%	All countries with an effective corporate tax rate of at least 15%
United Kingdom	20.00%	2009	100%	All countries

Source: OECD Tax Database and PWC.

Income earned domestically is still taxed currently under a territorial system. Like income from CFCs, foreign branch income would typically be exempt, though there is some variation given the U.K. allows branch losses to offset domestic income. Table 2.2 lists many of our major trading partners, their top corporate income tax rate and some details about their territorial tax systems. In addition to taxing foreign income differently, the top corporate income tax rates in column 1 shows that domestic income is taxed at a lower statutory rate in most other countries than in the United States.

International Comparisons of Tax Rate Measures

The discussion below compares the four tax rates on domestic investment for the United States and its major trading partners. In recent years, the statutory U.S. corporate income tax rate has become higher than the tax rates imposed by many of its trading partners. This is illustrated in the first column of Table 2.3, which compares the 2014 statutory corporate tax rate in the United States to the GDP-weighted average rate in other G-7 countries, including sub-national corporate taxes where relevant. For 2014, the U.S. statutory tax rate of 39.1 percent is 8.6 percentage points higher than the non-U.S. weighted-average statutory rate in other G-7 countries (30.5 percent) and more than 4 percentage points higher than the statutory corporate income tax rate in Japan, which has the next highest statutory tax rate.⁹³

While there is widespread agreement that the U.S. statutory rate is high by world standards, the extent of the difference sometimes is overplayed. One issue is that tax rates should be weighted by the size of the country's economy (Gravelle, 2014b), which we have addressed in Table 2.3. Another issue is the U.S. domestic production activities deduction (discussed elsewhere) that is equivalent to a tax rate cut of over 3 percentage points for qualifying business income. Accounting for this lowers the U.S. statutory corporate rate by an additional 1 percentage point or so on average, according to some estimates by the Office of Tax Analysis and Gravelle (2014b). Nonetheless, while these adjustments reduce the extent to which the U.S. statutory tax rate exceeds that of our major trading partners, they do not eliminate the difference. Adjusting for the relative size of our trading partners and including the domestic production deduction leaves the U.S. statutory tax rate over 5 percentage points higher than those of our major trading partners.

Although corporate statutory tax rates are important, international comparisons of tax systems based solely on statutory rates provide an incomplete picture of differences in countries' tax systems. Other features of the tax system, such as tax depreciation and other deductions and credits, also can be important determinants of the tax cost of investing.⁹⁴

Two other measures, EMTR and the EATR take into account several important features that affect the tax base – the treatment of depreciation, the availability of investment tax credits, and the treatment of different sources of financing. These effective tax rates are simple measures that focus on

⁹³ The U.S. corporate tax rate does not reflect the domestic production activities deduction, which effectively provides a lower rate for corporations with qualifying activities. This deduction is discussed in more detail below.

⁹⁴ In addition some countries negotiate low tax rates with individual taxpayers. Information about these deals is generally not available though there have been some leaks providing details, e.g. <http://www.icij.org/project/luxembourg-leaks>.

key aspects of the tax system that largely determine the differences between business tax incentives across countries.⁹⁵

EATRs modify the EMTR calculation to account for investments that earn above-normal returns. These returns occur when firms earn pure profits, for example on unique intangible assets such as patents and trademarks. Investment incentives such as accelerated depreciation, do not affect the tax on the portion of the return that is attributable to pure profits. In contrast, assuming that the firm is choosing among discrete, mutually exclusive investments,⁹⁶ the statutory tax rate does reduce the investment's after-tax return, and so can influence where a business locates its activities that generate above normal returns.⁹⁷ The EATR has the property that, as the rate of pure economic profit increases, the EATR approaches the statutory tax rate. As the rate of pure profits decreases, the EATR approaches the EMTR.

To the extent that the investment under consideration is a mix of assets earning pure profits and assets earning a normal return, then the EATR may be relevant for measuring investment incentives. Because such investments may be typical for a multinational corporation, the EATR can be an appropriate measure of the tax incentives that affect firms' decisions on where to locate investments.⁹⁸ In some analyses, the EATR is considered to be a good indicator of the location of the large, lumpy investment that includes above normal returns (e.g., a combination of a trademark and a production plant), while the effective marginal tax rate is considered to be a good measure of the scale of the physical investment, e.g., of how big to make the plant, assuming that it will be built in the a particular location.

Table 2.3 compares the overall EMTR and EATR for the United States to those of the other G-7 countries. The Treasury Department computed EMTRs and EATRs for this purpose using a methodology developed by Michael P. Devereux and Rachel Griffith.⁹⁹

⁹⁵ Because effective tax rates are based on a hypothetical investment, they may not accurately reflect actual effective tax rates. For example, these measures do not take into account tax planning, imperfect loss offsets, differences in tax enforcement among countries, and past history that can affect taxes paid, e.g., because of loss carryovers. For a detailed discussion of the limitations of effective tax rates, see OECD, 2000.

⁹⁶ If there were only a single investment location choice, taxing the above normal returns would create no disincentive, because choices that maximize pre-tax profits also maximize after-tax profit, regardless of the tax rate.

⁹⁷ All else equal, the firm would choose to invest in the country with the lowest statutory tax rate because doing so would allow the firm to maximize its share of the above-normal return. The intuition is that the pure profit is a return above that needed to call forth the investment funds, and consequently the government splits this excess return with the taxpayer according to the tax rate, regardless of investment incentives such as tax credits and accelerated depreciation. Investment incentives (like partial expensing) can be thought of as reducing the private cost of the investment, reducing the part of the investment on which the time value of money (i.e., the normal return, the opportunity cost of funds) must be earned. The pure profit piece is over and above this and is earned regardless of the fraction of the investment's cost that is paid by the private investor. The private investor gets the same after-tax excess return regardless of whether he has to pay 100 percent of the investment's cost or only pay a fraction of the investment's cost.

⁹⁸ Others question the relevance of this measure, however, because the source of the profit is not explicitly considered. If the source of the apparent profit is a risk premium, then it is not clear that taxes would impose any burden on it because the disincentive effect of the tax on the expected returns is offset by the tax's reduction in the variance in the return (reduction in the risk borne by the investor), see Gravelle, 2011.

⁹⁹ See Devereux and Griffith, 2003.

Column 1 of Table 2.3 shows the statutory corporate tax rate in each of the G-7 countries, taking into account subnational taxes where those are relevant. Reflecting the importance of depreciation as a component of the EMTR, Columns 2 and 3 of Table 2.3 show the present value (PV) of depreciation allowances for machinery and industrial buildings for the G-7 countries. In the United States, depreciation allowances for industrial buildings are less generous than those granted by other G-7 countries, with the PV of depreciation exceeding only that of the United Kingdom. However, the PV of depreciation for machinery in the United States is among the highest in the G-7 countries and exceeds the G-7 average (excluding the United States) by over 5 percentage points.

Columns 4 and 5 of Table 2.3 show overall EMTRs and EATRs.¹⁰⁰ As calculated, the EMTRs and EATRs reflect only the effect of corporate-level taxes on the incentive to invest.¹⁰¹ They exclude any taxes paid by shareholders on interest income, dividends, or capital gains realizations.¹⁰² The calculations also assume that new investment is financed using a mix of retained earnings, new equity, and debt. The United States ranks third after Japan and France among G-7 countries in terms of effective marginal tax rates in 2014. The U.S. EMTR is 3.2 percentage points above the G-7 average tax rate (excluding the United States). This gap between the overall U.S. EMTR and the G-7 average reflects in part the high U.S. statutory tax rate and the slow U.S. depreciation allowances for buildings. The relative generosity of U.S. tax depreciation allowances for equipment and the deductibility of business interest in the United States at the high U.S. statutory tax rate (which, because of inflation and accelerated depreciation, subsidizes a new debt-financed investment)¹⁰³ help to hold down the U.S. EMTR.

The U.S. EATR¹⁰⁴ is higher than the other G-7 countries; it is also around 6.7 percentage points above the G-7 average excluding the United States. The United States has the highest EATR among the

¹⁰⁰ These overall averages reflect EMTRs and EATRs on equipment, structures, and inventories.

¹⁰¹ The EMTRs and EATRs take into account statutory corporate income tax rates but do not include other taxes paid by corporations such as real estate taxes, personal property taxes, and net wealth taxes. If real estate taxes, personal property taxes, and net wealth taxes are included in the calculation of the effective marginal corporate tax rates, the United States compares less favorably to other G-7 countries. This is because U.S. corporations are subject to not only state and local taxes on real property but also state and local taxes on personal property (machinery and inventories). The 2014 EMTR for the United States with state and local real and personal property taxes included is 37.0 percent. The G-7 average (excluding the United States) with effective real estate and net wealth taxes included for all other G-7 countries is 28.7 percent, almost 8.3 percentage points lower than the U.S. EMTR. Only Japan (40.3 percent) has a higher EMTR than does the United States if effective real estate and net wealth taxes are included. Some may argue for exclusion of these taxes given they are not controlled by the Federal government.

The G-7 EMTRs published in Table 1 of the 2012 *President's Framework for Business Tax Reform* gives a 2011 EMTR for the United States of 29.2 percent. This 2011 U.S. EMTR included state and local taxes on real property but *not* on personal property. The 2014 U.S. EMTR without state and local personal property taxes but with state and local real property taxes would be 29.5 percent.

¹⁰² EMTRs at the corporate level exclude investor level taxes on interest income, dividend income, and capital gains realizations for qualified and nonqualified shareholders. Average EMTRs are calculated as the difference between an average cost of capital (across type of asset and type of finance) and an after-tax real rate of return. Devereux, et al. (2008) use weights of 65 percent for equity and 35 percent for debt. Average EATRs are calculated by first taking an unweighted average of the EATRs by type of asset and then a weighted average of the EATRs by type of finance.

¹⁰³ This effect is explained in Mackie (2002) and Kleinbard (2011).

¹⁰⁴ A pre-tax rate of rate of return of 20 percent is assumed when calculating EATRs for Table 2. Assuming a 20-percent pre-tax rate of return is typical for effective average tax rate calculations. EATRs (and rankings among countries) are sensitive to changes in the assumed pre-tax rate of return. This is because EATRs converge to the statutory income tax rate as the pre-tax rate of return rises. For a discussion of this, see Devereux, Griffith, and Klemm, 2002.

Table 2.3 G-7 Statutory and Effective Corporate Tax Rates (in Percent), 2014

	Statutory Corporate Tax Rate ^c	PV of Depreciation Allowances ^c		Overall Effective Tax Rates (Corporate Level)	
		Machinery	Industrial Buildings	EMTR ^b	EATR ^b
Canada ^d	26.3	78.2	57.2	16.0	23.2
France	34.4	83.6	52.6	24.0	31.0
Germany	30.2	74.4	38.0	21.2	27.3
Italy ^e	30.9	71.9	44.7	6.9	24.0
Japan	34.6	76.5	34.3	26.6	31.9
United Kingdom	21.0	71.7	0.0	20.0	20.7
United States	39.1	81.1	33.6	23.9	34.1
G-7 Average ^a	34.8	78.5	35.0	22.3	30.8
Average excluding the U.S.	30.5	76.0	36.4	20.7	27.4

Source: U.S. Department of the Treasury, Office of Tax Analysis.

Notes: The effective statutory corporate tax rates include top statutory corporate income tax rates, surcharges, and local profits tax rates (nominal). The EMTR and EATR do not include effective real estate tax rates, personal property tax rates, or net wealth tax rates. We use the same real rate of return (0.05), inflation rate (0.02), and economic depreciation rates for all countries. As a result, any differences in EMTR and EATR reflect differences in tax regimes. See Spengel et al (2014). PV = present discounted value; EMTR = effective marginal tax rates; EATR = effective average tax rates.

a. The G-7 Average is calculated using 2012 gross domestic product (in current U.S. dollars) as weights.

b. The overall effective marginal tax rate is calculated as the difference between an average cost of capital (across type of asset and type of finance) and an after-tax real rate of return. In calculating an average cost of capital across type of finance, Devereux, et al. (2009) use weights of 65 percent for retained earnings and new equity combined and 35 percent for debt.

c. Effective statutory corporate tax rates and the PV of depreciation are obtained using tax parameters from Section A of Bartholmeß, et al. (2008). The tax parameters used to calculate the effective statutory corporate tax rates are supplemented with data from the OECD Tax Database. The tax parameters used to calculate the PV of depreciation are supplemented with data from the PricewaterhouseCoopers Worldwide Tax Summaries and the International Bureau of Fiscal Documentation online.

d. EMTR and EATR for machinery do not reflect the 50-percent straight-line depreciation for property placed in service after March 18, 2007 and before 2016.

e. Italy introduced a notional interest deduction in December 2011 as part of an Allowance for Corporate Equity (ACE) tax system. The notional interest deduction can substantially reduce the effective marginal tax rate by allowing firms to deduct from taxable profits an amount equal to equity times a notional interest rate. In Italy, the notional interest rate is set on an annual basis. The notional interest deduction is intended to help equalize the tax treatment of debt and equity.

G-7 countries in part because the EATR gives a relatively heavy weight to the disincentive effects of the high U.S. corporate statutory tax rate.

The EMTR and EATR analysis suggests that the U.S. tax system offers investment incentives for buildings and machinery that are less generous than those typically offered by other G-7 countries. This is especially true for EATRs, and less so for EMTRs, where the difference between the U.S. EMTR and the G-7 average is smaller and the U.S. EMTR is lower than that for Japan. These results are approximately consistent with other reported calculations of EMTRs across countries, such as those reported in Gravelle (2014b).

However, the United States allows a production activities deduction that operates similarly to a reduced tax rate. Including the benefit of the production activities deduction would reduce the U.S. EMTR by a bit over 2 percentage points, roughly consistent with the effect reported in Gravelle (2014b), bringing it to within 1 percentage point of the G-7 weighted average for countries other than the United States. It would also reduce the U.S. EATR by about 3 percentage points.¹⁰⁵

An important point to note is that none of the three tax rate measures discussed includes all of the features of a country's tax system. Rather, these measures focus on a few particularly salient tax parameters, and so exclude some features of the tax system that might be relevant, such as targeted tax credits and preferences. They do not consider whether the firm has unused tax attributes, such as losses or credits, which might be carried over. Further, these measures, as traditionally calculated, do not include the effects of tax planning, compliance and enforcement.

In addition some countries, such as Luxembourg, have exemptions, very low (often negotiable) rates for certain types of income, and/or lack earnings stripping rules (which allows earnings that otherwise would be taxed to be stripped out to a true tax haven). These countries thus attract subsidiaries owned by corporations in other countries as platforms to shift income from non-haven countries. Numerous investigations by governments such as the United States, United Kingdom, and France; the European Union; the OECD and G-20; nonprofit organizations; and the press have identified hundreds of corporations that benefit from such schemes. Typically, sales into European countries are made from low-tax countries such as Ireland or Luxembourg, or, when sales have to be local, royalties are paid to corporations in the Netherlands, where they are not taxed. These practices result in very large amounts of income taxed at very low rates being recorded in these countries, which lower their tax rate measures based on actual collections, but do not affect their calculated effective tax rates.

Some studies attempt to address these issues by calculating an actual average tax rate paid by publicly-traded companies, computed as the ratio of a measure of taxes paid (or accrued) to a measure of income as reported on financial statements.¹⁰⁶ This has the advantage that it can include all of the detailed features of a tax system. However, it also suffers from weaknesses of its own. For example, it is limited to publicly-traded corporations, does not capture timing effects, such as accelerated depreciation, and often depends on accounting measures of income that can differ across countries. Effective tax rates calculated from tax return data would address some of those concerns, but comparable data are not available across countries. In addition, in both cases the average tax rate measures are "backward-looking" because current income and tax payments reflect the past history of investment decisions and tax policy, which may not be relevant when evaluating incentives to undertake a new investment. Nonetheless, these measures are commonly reported and in some cases appear to be related to multinationals' investment location decisions, and so are discussed below (Devereux and Griffith, 1998).

¹⁰⁵ The extent to which investment responds to changes in effective marginal and average tax rates is an empirical issue. Empirical studies on the effect of taxation on the location of investment find that it is quite sensitive to variations in effective marginal and average tax rates among locations. For example, De Mooij and Ederveen (2008) evaluate the empirical literature and find that a one percentage point reduction in the EATR led to a 5.6 percent increase in inward flows of FDI and a one percentage point reduction in the EMTR led to a 4 percent increase in inward flows of FDI. For a review of the literature, see Gordon and Hines (2002).

¹⁰⁶ For example, see Lee and Swenson, 2009 and Markle and Shackelford, 2009.

Table 2.4 compares the average (effective) tax rate for the U.S. with average of those for other G-7 countries. The average (effective) tax rates are calculated based on the total income taxes as reported on financial statements, including local, national and foreign taxes, paid on pretax worldwide income by large MNCs incorporated in each respective country. Both current taxes and the change in net deferred tax liabilities are included. Therefore, the tax rates in Table 2.4 reflect the tax rate of the home country, as well as the tax rates of the foreign jurisdictions where the MNCs choose to operate, the treatment of foreign income by the home tax jurisdiction and the extent to which the MNCs engage in profit shifting.

Table 2.4 Average (Effective) Tax Rates in G-7 Countries (in Percent), 2006-09

Canada	21.6
France	23.1
Germany	27.9
Italy	29.1
Japan	38.8
United Kingdom	23.6
United States	27.7
GDP-weighted G-7 Average excluding the United States	29.2

Source: Pwc (2011).

Notes: GDP = gross domestic product. The G-7 countries include Canada, France, Germany, Italy, Japan, United Kingdom, and United States. Table 1 of the PwC study gives average effective tax rates for 2006-2009 by country of incorporation. They are calculated using company financial statement data. Effective tax rates are defined as total income taxes divided by pretax income. Total income taxes are the sum of all taxes imposed by local (or state or provincial), national, and foreign governments. They include current taxes and the change in net deferred tax liabilities. Pretax income is worldwide net income before income taxes, minority interest, and extraordinary items. Weighted-average effective tax rates are calculated for each country by summing total income taxes and pretax income across all companies headquartered in the country.

The U.S. tax system's average tax rate is about the same as the non-U.S. G-7 weighted average. Similar calculations by others also suggest that the U.S. average tax rate is close to that imposed by other large industrial countries,¹⁰⁷ although in some of these calculations the U.S. rate is slightly higher than the average for other countries. None of these calculations reflect recent statutory tax rate cuts in several foreign countries. While statutory tax rate cuts could lower the average tax rate, some were financed by base broadening measures, which would tend to push the average tax rate in the other direction.

Of course, tax differences only matter if companies respond to them by altering their behavior. The extent to which investment responds to changes in effective marginal and average tax rates is an empirical issue. Empirical studies on the effect of taxation on the location of investment find that it is sensitive to variations in effective marginal and average tax rates among locations. For example, Grubert finds that income derived from R&D-based intangibles accounts for about half of the income shifted from high-tax to low-tax countries. U.S. parent companies that are R&D intensive respond to the opportunities for income shifting by investing in countries either with very high or very low statutory tax rates.¹⁰⁸ Furthermore, Grubert (2012) presents evidence that the challenges of pricing intellectual

¹⁰⁷ See those cited in Gravelle, 2014b.

¹⁰⁸ See Grubert, 2003.

property create greater opportunities for income shifting, with firms engaged in R&D being more sensitive to U.S.-foreign tax differentials. He estimates that the check-the-box rules enacted in 1997, which facilitated the shifting of income from high-tax to low-tax foreign countries, contribute about 1 to 2 percentage points of the approximate 5 percentage point decline in foreign effective tax rates.¹⁰⁹

While the U.S. average tax rates are in line with those of other major developed countries, the ability to shift income related to R&D has prompted some countries to offer a targeted response. Instead of lowering tax rates for income related to all activities, many countries' tax authorities have implemented Patent Boxes as a way to lower the tax rate on highly mobile income and as an additional tool aimed at stimulating research and innovation activities. This potentially limits revenue loss while stimulating recognition of this income in their country.

Patent Boxes

A Patent Box provides a reduced tax rate for income derived from intellectual property (IP), such as, but not always limited to, patents. The stated goal of patent boxes is to encourage research and development domestically though in some cases an objective is to encourage companies to shift intellectual property income to the jurisdiction. This income is highly mobile and governments are concerned that unless they provide preferential tax treatment for such income, companies will shift this activity and income to lower tax jurisdictions. The United States does not offer a Patent Box, although there have been several proposals to implement one.¹¹⁰ Evidence as to the ability of patent boxes to achieve their stated goals is mixed particularly given differences in design.¹¹¹

There are several important design challenges that must be faced, if not overcome, in any attempt to implement a Patent Box.¹¹² One is the issue of self-developed vs. purchased intangible assets. Some Patent Box regimes allow acquired as well as self-developed IP to qualify for preferential treatment. This is seemingly inconsistent with the goal of stimulating new research and economic growth in the domestic economy. Although in theory Patent Box regimes can limit eligibility to domestically developed IP, European countries with Patent Box regimes do not limit eligibility within the EU because of European Union non-discrimination rules. A second issue is appropriately matching IP income with IP expenses. Patent Box regimes can differ in the deductibility of IP expenses against regularly taxed income versus IP income. In some cases, IP-related expenses are deductible against regularly taxed non-IP income, whereas IP income is taxed at the preferential Patent Box rate, resulting in an asymmetry between IP income and IP expenses and a significant, possibly unintended, tax advantage for firms with IP. In theory, this issue can be resolved by designing the Patent Box rules in a way that allocates IP expenses to IP income. In practice, there nonetheless can be problems in enforcing allocation rules and adjudicating disputes between taxpayers and the government regarding the interpretation of such rules. A third design issue arises with respect to the treatment of past IP expenses that have resulted in deductions prior to the introduction of the Patent Box regime. If income from this old IP is to be

¹⁰⁹ See Grubert, 2012 and Altshuler and Grubert, 2013.

¹¹⁰ Gravelle (2016) provides a summary of some of the more recent Patent Box proposals.

¹¹¹ Evaluation of Patent Boxes is difficult given the differences in design as well as changes over time in requirements. See Griffith et al., 2014.

¹¹² Evers et al. (2014) and the OECD Report on Harmful Tax Practices (2015) summarize Patent Box regimes in European and OECD countries.

included in the Patent Box regime, then these expenses should be recaptured in order to align the value of their deduction with the lower, preferential, tax rate imposed on the associated income in the new Patent Box.¹¹³ Some Patent Box regimes do not seek to recapture those past deductions, which combined with the low Patent Box rate on IP income results in a potentially undesirably generous tax treatment for projects straddling the pre and post-Patent Box period. Other Patent Box regimes require the capitalization of past IP-related expense when opting into the Patent Box rate. Finally, there is the issue of geographic scope. Patent Boxes offered by other countries generally apply with respect to intangible income from foreign and domestic sales. However, the relatively large size of the U.S. market suggests that the revenue cost of providing a preferential rate for intangible income with respect to U.S. sales, in addition to foreign sales, would be very high. In light of the substantial revenue cost, it could be difficult to have a meaningfully lower tax rate on IP income if income from both foreign and domestic sales qualified. If the Patent Box were to be restricted to foreign sales, though, it would be necessary to develop rules to determine whether intangible income relates to sales that ultimately occur in the United States or abroad. Such rules would be complicated and likely to lead to disputes between taxpayers and the IRS.

Overall Assessment

It is common to use simple tax rate measures to assess the U.S. tax system. For example, the U.S. statutory tax rate is higher than those of our major trading partners. But the actual situation is more complicated and the comparison less clear cut. Measured by the EMTR or the EATR, the U.S. also seems to have a higher tax burden. However, once adjustment is made for the U.S. production activities deductions, the U.S. EMTR and EATR are much closer to those of our major trading partners. When the comparison is based on the average (effective) tax rate, the U.S. is very much in line with our major trading partners. Thus, it is not clear that investment in the U.S. is seriously discouraged relative to investment in other countries by the tax system. It also is not clear that U.S. resident multinationals face much higher tax costs on overseas investment than do their foreign competitors. The direct burden of the U.S. tax on repatriated earnings appears to be low. Indeed, while the U.S. nominally taxes worldwide income, in practice profit shifting, deferral, the use of hybrid entities and check-the-box rules, and cross crediting can give tax burdens that can be closer, if not below, those imposed by a territorial tax system. For example, the JCT has estimated that switching to a “tough” territorial tax system would raise revenue compared to the current U.S. “world-wide” tax system.¹¹⁴

Nonetheless, the U.S. system for taxing multinational corporations has serious problems. The current system encourages U.S. and foreign companies to strip income out of the U.S. and into lower tax jurisdictions. The recent concern over inversions is an example of this. It may also encourage shifting real investments as a way to legitimize additional profit shifting. Estimates suggest that profit shifting out of the U.S. tax base is a very large problem. While tax planning and profit shifting reduce U.S. taxes, and so offset to some degree adverse incentive effects from the U.S. tax system, they do so at a high cost for the U.S. Treasury and for U.S. firms. Securing these lower tax burdens requires companies to engage in substantial, expensive tax planning.

¹¹³ Tax credits received on such expenditures also would have to be considered.

¹¹⁴ See “The President’s Economic Recovery Advisory Board,” 2010.

Reforming our international tax system requires balancing competing demands. Any tax system that attempts to tax corporate income based on the geographic source of its corporations' profits involves a tradeoff between incentives (and costs) of shifting profits and activity between domestic and foreign jurisdictions and the incentives to locate the residence of the corporation in the United States or elsewhere. Equal treatment of earnings regardless of source (worldwide) eliminates incentives for U.S. firms to shift profits or activities, but may impose higher rates on income in foreign jurisdictions than foreign competitors face and provides incentives for multinational firms to locate outside the U.S., either by moving (inverting) or by starting businesses elsewhere. But applying a lower tax rate or even zero rate on foreign activity increases incentives for profit shifting and for locating profitable activities and investments outside the United States, in order to avoid tax. Such a system would require complicated rules to differentiate the geographic source of profit within a business and to put fingers in the dike to keep profits from moving from high taxed to low taxed jurisdictions. Because this tradeoff is unavoidable in a source-based income tax system, the goal of reform within the constraints of an income tax is to find the appropriate balance between tradeoffs.

Concern about economic growth has led some to suggest moving the corporate income tax (or all business taxes) towards a consumption tax. This entails accelerating depreciation, in the extreme allowing expensing, and limiting interest expense deductions.¹¹⁵ Such a change potentially encourages growth enhancing business investment, reduces the distortions in investment financing against equity, in some assets over others because of variations in assets lives, and in the choice of the business form. Estimates of the extreme case where a subtraction method value-added tax (VAT) replaces the corporate income tax and taxes on pass-through income suggest increases in GDP of 2.0 to 2.5 percent.¹¹⁶

Replacing business income taxes with a VAT would raise a number of issues, including objections to increasing the tax on labor income in order to pay for lower taxes on businesses. (A VAT does not allow a deduction for wages.) An alternative to a VAT would replace the corporate tax (and possibly taxes on pass-through businesses) with a cash flow tax, which would allow a deduction for wages. However, there has been concern about the size of a cash flow tax rate that would be needed to maintain revenue neutrality with the current tax system. While this remains an open issue, some rough calculations based on national income accounts suggested that a cash flow rate in the neighborhood of 26 to 29 percent might be revenue neutral (McClelland, Patel, and Power, 2016). That rate is not far removed from the 28 percent corporate rate that could likely be achieved from a more conventional revenue-neutral, base broadening, rate cutting corporate tax reform.

Policymakers need to be aware of the trade-offs in revenue-neutral reforms of the business tax system. Source-based income tax system reforms that lower tax rates by broadening the tax base result in limited rate reduction and growth effects. A destination based tax, in which the tax is applied based on the location of consumption or purchases, eliminates the incentives to shift profits or income-producing activities to avoid the tax. Destination-based taxes, such as the VAT, are widely used typically in conjunction with a corporate income tax. Similarly, the cash flow tax has been proposed as a replacement for business- or corporate-income taxes (Auerbach, 2010; Office of Tax Analysis, 1978).

¹¹⁵ Allowing interest deductions with accelerated depreciation can result in negative EMTRs which can also be distortionary.

¹¹⁶“Approaches to Improve the Competitiveness of the U.S. Business Tax system for the 21st Century,” (2007) analyses replacing the corporate income tax as well as income taxes collected from pass-through entities with a subtraction method VAT while keeping and conforming the investor-level individual income taxes.

While the problems with the current business tax system are well known, agreement on the appropriate reforms has yet to be reached.

References

- Altig, David; Auerbach, Alan; Kotlikoff, Laurence; Smetters, Kent and Jan Walliser. 2001. "Simulating Fundamental Tax Reform in the United States." *American Economic Review* 91: 574-595.
- Altshuler, Rosanne and Harry Grubert. 2003. "Repatriation Taxes, Repatriation Strategies and Multinational Financial Policy." *Journal of Public Economics*, Vol. 87(1): 73-107.
- Altshuler, Rosanne and Harry Grubert. 2005. "The Three Parties in the Race to the Bottom: Host Countries, Home Countries, and Multinational Companies." *Center for Economic Studies and Ifo Institute* (no. 1613).
- Altshuler, Rosanne and Harry Grubert. 2013. "Fixing the System: An Analysis of Alternative Proposals for the Reform of International Tax." *National Tax Journal*, Vol. 66(3): 671-712.
- Atkinson, Anthony B. and Joseph E. Stiglitz. 1976. "The Design of Tax Structure: Direct Versus Indirect Taxation." *Journal of Public Economics* 6: 55-75.
- Auerbach, Alan J. 1979. "The Optimal taxation of Heterogeneous Capital." *The Quarterly Journal of Economics* Vol. 93(4): 589-612.
- Auerbach, Alan J. and Laurence Kotlikoff. 1987. *Dynamic Fiscal Policy*. Cambridge: Cambridge University Press.
- Auerbach, Alan. 1996. "Tax Reform, Capital Allocation, Efficiency, and Growth." in *Economic Effects of Fundamental Tax Reform*, ed. Henry J. Aaron and William Gale. Washington, D.C.: Brookings Institution,.
- Auerbach, Alan. 2002. "Taxation and Corporate Financial Policy." in *Handbook Of Public Economics 3*, ed. Alan Auerbach and Martin Feldstein, 1251-1292. Amsterdam, The Netherlands: Elsevier Science.
- Auerbach, Alan J.; Devereux, Michael P.; and Helen Simpson. 2008. "Taxing Corporate Income." Oxford University Centre for Business Taxation Working Paper 07/05.
- Auerbach, Alan J. 2010. "A Modern Corporate Tax." *The Center for American Progress and the Hamilton Project*.
- Auerbach, Alan J. 2012. "The Mirrlees Review: A US perspective." *National Tax Journal* 65: 685-708.
- Ballentine, J. Gregory. 1978. "The Incidence of a Corporation Income Tax in a Growing Economy." *Journal of Political Economy* 86: 863-875.
- Bartholmeß, Alexandra; Dreßler, Daniel; Elschner, Christina; Endres, Dieter; Evers, Lisa; Evers, Maria Theresia; Heckemeyer Jost Henrich; Nicolay, Katharina; Richter, Katharina; Spengel, Christopher, and Uwe Scheuering. 2012. "Project for the EU Commission, Effective Tax Levels Using the Devereux/Griffith Methodology: 2012 Report." *Center for European Economic Research*.

Berkovec, James and Don Fullerton. 1992. "A General Equilibrium Model of Housing, Taxes, and Portfolio Choice." *Journal of Political Economy* 100: 390-42.

Bilicka, Katarzyna; Devereux, Michael; and Clemens Fuest. 2011. "G20 Corporate Tax Ranking." *Oxford University Centre for Business Taxation*.

Blouin, Jennifer and Linda Kull. 2009. "Bringing It Home: A Study Of The Incentives Surrounding The Repatriation Of Foreign Earnings Under The American Jobs Creation Act Of 2004." *Journal of Accounting Research*, Vol. 47(4): 1027-1059.

Bradford, David F. 1981. "The Incidence and Allocation Effects of a Tax on Corporate Distributions." *Journal of Public Economics* Vol. 15(1): 1-22.

Carroll, Robert; Diamond, John; Johnson, Craig and James Mackie III. 2006. "A Summary of the Dynamic Analysis of the Tax Reform Options Prepared for the President's Advisory Panel on Federal Tax Reform." *Office of Tax Analysis, U.S. Department of the Treasury*.

Chamley, Christophe. 1986. "Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives." *Econometrica* 54: 607-622.

Clausing, Kimberly A. 2005. "Tax Holidays (and other escapes) in the American Jobs Creation Act." *National Tax Journal* Vol. 58(3): 331-346.

Clausing, Kimberly A. 2016. "The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond." *Washington Center for Equitable Growth Working Paper*.

Clemons, Roy, and Michael R. Kinney. 2008. "An Analysis of the Tax Holiday for Repatriation Under the Jobs Act." *Tax Notes*, August 25: 759-768.

Collins, Jullie H. and Douglas A. Shackelford. 2003. "Do US Multinationals Face different tax burdens than other companies?" In *Tax Policy and the Economy Volume 17*, edited by James M. Poterba, 141-168. Cambridge: MIT Press.

CBO. 2011. "Reducing the Deficit: Spending and Revenue Options." *Congressional Budget Office*.

CBO. 2014. "Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options." *Congressional Budget Office*.

Contos, George; Guyton, John; Langetieg, Patrick; Lerman, Allen H. and Susan Nelson. 2012. "Taxpayer Compliance Costs for Corporations and Partnerships: A New Look." Paper presented at the 2012 Research Conference of the Internal Revenue Service and the Urban-Brookings Tax Policy Center, Washington, DC..

Cooper, Michael; McClelland, John; Pearce, James; Prisinzano, Richard; Sullivan, Joseph; Yagan, Danny; Zidar, Owen and Eric Zwick. 2015. "Businesses in the United States: Who Owns It and How

Much Tax Do They Pay?” *Office of Tax Analysis Working Paper (104)*, U.S. Department of the Treasury.

Council of Economic Advisers. 2015. *The Economic Report of the President Transmitted to Congress*. Washington DC: Table: 5-1.

Cronin, Julie-Anne; Lin, Emily Y.; Power, Laura and Michael Cooper. 2012. “Distributing the Corporate Income Tax: Revised U.S. Treasury Methodology.” *Office of Tax Analysis Technical Paper (5)*, U.S. Department of the Treasury.

De Mooij, Ruud A. and Sjef Ederveen. 2003. “Taxation and Foreign Direct Investment: a Synthesis of Empirical Work.” *International Tax and Public Finance* Vol. 10(6): 673-693.

De Mooij, Ruud A. and Sjef Ederveen. 2008. “Corporate Tax Elasticities: A Reader’s Guide to Empirical Findings.” *Oxford Review of Economic Policy*, Vol. 24(4).

De Mooij, Ruud A. 2011. “The Tax Elasticity of Corporate Debt: A Synthesis of Size and Variations.” *IMF Working Paper 11/95*.

De Mooij, Ruud A. 2012. “Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions.” *Fiscal Studies* 33: 489-512.

DeBacker, Jason and Richard Prisinzano. 2015. “The Rise of Partnerships.” *Tax Notes* 147: 1565.

Desai, Mihir A. 2006. “Taxing Corporate Capital Gains.” *Tax Notes* 110: 1079-1092.

Desai, Mihir A. 2012. “A Better Way to Tax US Businesses.” *Harvard Business Review*, July-August.

Devereux, Michael P. and Griffith, Rachel. 1998. “Taxes and the location of production: Evidence from a panel of US multinationals.” *Journal of Public Economics*, Vol. 68(3): 335-367.

Devereux, Michael P. and Griffith, Rachel. 1999. “The Taxation of Discrete Investment Choices.” *The Institute for Fiscal Studies Working Paper Series*, No. W98/16.

Devereux, Michael P; Griffith, Rachel; and Alexander Klemm. 2002. “Corporate Income Tax Reforms and International Tax Competition.” *Economic Policy*, Vol 17(35): 449-495.

Devereux, Michael P. and Rachel Griffith. 2003. “Evaluating Tax Policy for Location Decisions.” *International Tax and Public Finance* Vol. 10: 107-126.

Devereux, Michael P.; Lockwood, Ben and Michela Redoano. 2008. “Do countries compete over corporate tax rates?” *Journal of Public Economics*, Vol. 92(5-6): 1210-1235.

Dharmapala, Dhammika; Foley, C. Fritz; and Kristin J. Forbes. 2011. “Watch what I do, not what I say: The Unintended Consequences of the Homeland Investment Act.” *The Journal of Finance*, Vol. 66(3): 753-787.

- Dilworth, Robert H. 2009. "Tax Reform: International Tax Issues and Some Proposals." *International Tax Journal* Vol. 35(1): 5.
- FASB. 1972. "Statement No. 23: *Accounting For Income Taxes – Special Areas.*" *Financial Accounting Standards Board*.
- FASB. 1987. "Statement No. 94: Consolidation Of All Majority-Owned Subsidiaries." *Financial Accounting Standards Board*.
- FASB. 1992. "Statement No. 109: Accounting For Income Taxes, Statement Of Financial Accounting Standards." *Financial Accounting Standards Board*.
- Feld, Lars; Heckemeyer, Jost and Michael Overesch. 2013. "Capital Structure Choice and Company Taxation: A Meta-Study." *Journal of Banking and Finance* 37: 2850-2866.
- Feldstein, Martin S. and Joel Slemrod. 1980. "Personal Taxation, Portfolio choice, and the Effect of the Corporate Income Tax." *Journal of Political Economy* 88: 854-866.
- Frerick, Austin and Laura Power. 2016. "Have Excess Returns to Corporations Been Increasing Over Time?" *National Tax Journal* Vol. 69(4): 831-846.
- Fullerton, Don; Gillette, Robert and James Mackie. 1987. "Investment Incentives under the Tax Reform Act of 1986," in *Compendium of Tax Research 1987*, ed. C. Eugene Steuerle and Thomas S. Neubig, 131-171. Washington, D.C.: U.S. Department of the Treasury.
- Gale, William and Samuel Brown. 2013. "Small Business, Innovation, and Tax Policy: A Review." *National Tax Journal*. Vol. 66(4): 871-892.
- Galper, Harvey, and Kaufman, Michael. 1978. "Simplification and Comprehensive Tax Reform." *Office of Tax Analysis Working Paper (34)*, U.S. Department of the Treasury.
- Goodspeed, Timothy; Grubert, Harry; and Deborah Swenson. 1993. "Explaining the low taxable income of foreign-controlled companies in the United States." In *Studies in International Taxation*, edited by Alberto Giovannini, R. Glen Hubbard, and Joel Slemrod, 237-276. Chicago: University of Chicago Press.
- Gordon, Roger H. and James R. Jr. Hines. 2002. "International Taxation." *National Bureau of Economic Research Working Paper 8854*.
- Graham, John. 2003. "Taxes and Corporate Finance: A Review." *The Review of Financial Studies* 16: 1075-1129.
- Graham, John R.; Hanlon, Michelle; and Terry Shevlin. 2011. "Real Effects of Accounting Rules: Evidence from Multinational Firms' Investment Location and Profit Repatriation decisions." *Journal of Accounting Research*, Vol. 49(1): 137-185.

- Gravelle, Jane. 1994. *The Economic Effects Of Taxing Capital Income*. Cambridge, MA: The MIT Press.
- Gravelle, Jane. 2009. "Tax Havens: International Tax Avoidance and Evasion." *National Tax Journal* Vol. 62(4): 727-753.
- Gravelle, Jane G. and Thomas L. Hungerford. 2011. "Corporate Tax Reform: Issues for Congress," *Congressional Research Service* (RL34229).
- Gravelle, Jane. 2014a. "Corporate Tax Reform: Issues for Congress." *Congressional Research Service* (RL34229).
- Gravelle, Jane. 2014b. "International Corporate Tax Rate Comparisons and Policy Implications." *Congressional Research Service* (R41743).
- Gravelle, Jane and Donald J. Marples. 2014. "Corporate Expatriation, Inversions, and Mergers: Tax Issues." *Congressional Research Services* (R43568).
- Gravelle, Jane. 2015. "Tax Havens: International Tax Avoidance and Evasion." *Congressional Research Service* (R40623).
- Gravelle, Jane. 2016. "A Patent/Innovation Box as a Tax Incentive for Domestic Research and Development." *Congressional Research Service* (R44522).
- Griffith, Rachel, Helen Miller, and Martin O'Connell. 2014. "Ownership of intellectual property and corporate taxation." *Journal of Public Economics*, Vol. 112: 12-23.
- Grubert, Harry. 1998. "Another look at the low taxable income of foreign-controlled companies in the United States." *Proceedings Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association 91: 157-175*.
- Grubert, Harry. 2003. "Intangible Income, Intercompany Transactions, Income Shifting and the Choice of Location." *National Tax Journal*, Vol. 56(1): 221-242.
- Grubert, Harry. 2012. "Foreign Taxes and the Growing Share of US Multinational Company Income Abroad: Profits, not Sales are being Globalized." *National Tax Journal* Vol. 65(2): 247-282.
- Grubert, Harry and John Mutti. 1991. "Taxes, Tariffs and Transfer Pricing in Multinational Corporation Decision Making." *The Review of Economics and Statistics*, Vol. 73(2): 285-293.
- Grubert, Harry and John Mutti. 2001. *Taxing International Business Income: Dividend Exemption versus the Current System*. American Enterprise Institute for Public Policy Research.
- Hall, Bronwyn H.; Mairesse, Jacques and Pierre Mohnen. 2010. "Measuring the Returns to R&D," in *Handbook of the Economics of Innovation 2*, ed. Bronwyn H. Hall and Nathan Rosenberg, 1033-82. Amsterdam, The Netherlands: Elsevier.

- Halperin, Daniel. 2010. "Mitigating the Potential Inequity of Reducing Corporate Rates." *Tax Notes* 126: 641-658.
- Harberger, Arnold. 1962. "The Incidence of the Corporate Income Tax." *Journal of Political Economy* 70: 215-240.
- Hartman, David G. 1985. "Tax Policy and Foreign Direct Investment." *Journal of Public Economics* Vol. 26(1): 107-121.
- Hines, James R. Jr., and Eric M. Rice. 1994. "Fiscal Paradise: Foreign Tax Havens and American Business." *Quarterly Journal of Economics*, Vol. 109(1): 149-182.
- Hulten, Charles R. and Frank C. Wykoff. 1981 "The Measurement of Economic Depreciation," in *Depreciation, Inflation, and the Taxation Of Capital Income*, ed. Charles R. Hulten, 81-125. Washington, DC: The Urban Institute.
- Initiative on Global Markets. 2012. "IGM Economic Experts Panel: Taxing Capital and Labor," *Chicago Booth*.
- The International Consortium of Investigative Journalists. 2016. "*Luxembourg Leaks: Global Companies' Secrets Exposed*."
- IRS. 2016. "Databook 2015." *Internal Revenue Service*.
- Keightley, Mark P. and Molly F. Sherlock. 2012. "The Corporate Income Tax System: Overview and Options for Reform." *Congressional Research Service* (R42726).
- Joint Committee on Taxation. 2014. *Macroeconomic Analysis of the "Tax Reform Act of 2014,"* (JCX-22-14), February 26, 2104.
- Joint Committee on Taxation. 2017. *List of Expiring Tax Provisions 2016-2026* (JCX-1-17), January 4, 2017.
- Judd, Kenneth L. 1985. "Redistributive Taxation in a Simple Perfect Foresight Model." *Journal of Public Economics* 28: 59-83.
- Khimm, Suzy; Klein, Ezra and Brad Plumer. 2012. "Experts React to Obama's Corporate Tax Proposal." *The Washington Post*, February 22.
- Kleinbard, Edward D.; Plesko, George A. and Corey M. Goodman. 2006. "Is It Time to Liquidate LIFO?" *Tax Notes* 113: 237-253.
- Kleinbard, Edward D. 2011. "The Lessons of Stateless Income." *Tax Law Review*, Vol. 65: 99-172.
- Kleinbard, Edward D. 2014. "'Competitiveness' has nothing to do with it." *Tax Notes* 144: 1055-1068.

- Kleinbard, Edward D. 2015. "Reimagining Capital Income Taxation," *Oxford University Centre for Business Taxation Working Paper*.
- Knittel, Matthew; Nelson, Susan; DeBacker, Jason; Kitchen, John; Pearce, James and Richard Prisinzano. 2011. "Methodology to Identify Small Businesses and Their Owners," *Office of Tax Analysis Technical Paper (4)*, U.S. Department of the Treasury.
- Krahmal, Andrey. 2005. "International Hybrid Instruments: Jurisdiction Dependent Characterization." *Houston Business and Tax Law Journal*, 5: 1.
- Lee, Namryoung and Charles Swenson. 2009. "Is It a Level Playing Field? An Analysis of Effective Tax Rates." *Tax Notes International* 54: 685-693.
- Looney, Stephen. And Ronald Levitt. 2015. "Compensation Reclassification Risks for C and S Corporations." *Journal of Taxation*. Vol. 122: 196-212.
- Lyon, Andrew B. 1990. "Investment Incentives under the Alternative Minimum Tax." *National Tax Journal* 43: 451-465.
- Lyon, Andrew B. 1997. *Cracking the Code*. Washington, D.C.: The Brookings Institution.
- Mackie, James B. III. 2011. "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*, Vol. 55(2): 293-337.
- Markle, Kevin S. and Douglas A. Shackelford. 2011. "Cross-country Comparisons of Corporate Income Taxes." *National Bureau of Economic Research Working Paper: 16829*.
- McClelland, John, Elena Patel, and Laura Power. 2016. "Where's the Cash? What Would a U.S. Cash Flow Tax Look Like." Presentation at the National Tax Association's Spring Symposium, May 2016.
- McDonald, Michael. 2008. "Income Shifting from Transfer Pricing: Further Evidence from Tax Return Data." *Office of Tax Analysis Technical Paper (2)*, U.S. Department of the Treasury.
- Mider, Zachary R. 2014. "'Unpatriotic Loophole' Targeted by Obama Costs \$2 Billion." *Bloomberg*, December 2.
- Mirrlees, James and Stuart Adam. 2011. *Tax by Design: The Mirrlees Review*. Vol. 2. Oxford University Press.
- Nelson, Susan C. 2016. "Paying Themselves: S Corporation Owners and Trends in S Corporation Income, 1980-2013." *Office of Tax Analysis Working Paper (107)*, U.S. Department of the Treasury.
- OECD. 2000. "Tax Burdens: Alternative Measures." *OECD Tax Policy Studies*, No. 2.

- OECD. 2015. "OECD/G20 Base Erosion and Profit Shifting Project: Explanatory Statement." *OECD*.
- Office of Tax Analysis. 2016. "Gaps between the Net Investment Income Tax Base and the Employment Tax Base." *U.S. Department of the Treasury*.
- Office of Tax Analysis. 2016. "Research and Experimentation (R&E) Credit." *U.S. Department of the Treasury*
- Office of Tax Analysis. 2016. "Tax Expenditures, Fiscal Year 2018." *U.S. Department of the Treasury*.
- Office of Tax Policy. 2000. "Report to the Congress on Depreciation Recovery Periods and Methods." *U.S. Department of the Treasury*.
- Office of Tax Policy. 2007. "Approaches to Improve the Competitiveness of the U.S. Business Tax system for the 21st Century." *U.S. Department of the Treasury*.
- OECD, 2015. "Action 5: 2015 Final Report. Countering Harmful Tax Practices More Effectively, Taking into Account Transparency and Substance." *Organisation for Economic Co-operation and Development*,
- OMB. 2016. "Analytical Perspectives Budget of the U.S. Government, FY 2017, Tax Expenditures." *Office of Management and Budget*.
- Ozanne, Larry and Paul Burnham. 2006. "Computing Effective Tax Rates on Capital Income." *Congressional Budget Office Background Paper*.
- Patel, Elena and John McClelland. 2017. "What Would a Cash Flow Tax Look Like For U.S. Companies? Lessons from a Historical Panel," *Office of Tax Analysis Working Paper (116)*, U.S. Department of the Treasury.
- Pillow, Roger, John Schmalz, and Samuel Starr. 1997. "Simplified Entity Classification Under the Final Check-the-Box Regulations." *Journal of Taxation*. Vol. 86(4): 197-208.
- The President's Economic Recovery Advisory Board. 2010. "Report on Tax Reform Options: Simplification, Compliance, and Corporate Taxation."
- PwC. 2011. "Global Effective Tax Rates." *PwC*.
- PwC. 2016. "PwC Worldwide Tax Summaries." *PwC*.
- Redmiles, Melissa. 2008. "The One-Time Received Dividend Deduction." *Statistics of Income Bulletin*.
- Romer, Christina D. 2012. "Do Manufacturers Need Special Treatment?" *The New York Times*, February 4.

- Rosenthal, Steven M. and Lydia S. Austin. 2016. "The Dwindling Taxable Share of U.S. Corporate Stock." *Tax Notes* 151: 923-934.
- Sandford, Cedric and John Hasseldine. 1992. "The Compliance Costs of Business Taxes in New Zealand." *Institute of Policy Studies*.
- Seida, Jim A., and William F. Wempe. 2004. "Effective Tax Rate Changes and Earnings Stripping Following Corporate Inversion." *National Tax Journal*, Vol. 57(4): 805-828.
- Sinai, Todd and Joel Waldfogel. 2005. "Do Low-Income Housing Subsidies Increase the Occupied Housing Stock?" *Journal of Public Economics* 89: 2137-2164.
- Skinner, Jonathan. 1996. "The Dynamic Efficiency Cost of not Taxing Housing," *Journal of Public Economics* 59: 397-417.
- Slivinski, Stephen. 2008. "House Bias: The Economic Consequences Of Subsidizing Homeownership." *Federal Reserve Bank of Richmond, Econ Focus, Fall*: 12-15.
- Spengel, Christoph; Endres, Dieter; Finke, Katharina; and Jost Heckemeyer. 2014. "Effective tax levels using the DEVEREUX/GRIFFITH Methodology." *Center for European Economic Research*.
- U.S. Congress. Senate. Committee on Finance. 2008. *Tax: Fundamental in Advance of Reform* (statement of Jason Furman, Director of The Hamilton Project). 110th Congress.
- U.S. Congress. Senate. Committee on Finance, Subcommittee on Energy, Natural Resources, and Infrastructure. 2009. *Oil and Gas Tax Provisions: A Consideration of the President's FY 2010 Budget Proposal* (statement of Alan B. Krueger, Assistant Secretary for Economic Policy and Chief Economist, U.S. Department of the Treasury). 112th Congress.
- U.S. Congress. Senate. Committee on Homeland Security and Governmental Affairs. Permanent Subcommittee on Investigations. 2011. *Repatriating Offshore Funds: 2004 Tax Windfall for Select Multinationals*. 112th Congress.
- U.S. Department of Commerce. 2003. "Fixed Assets and Consumer Durable Goods in the United States, 1925-1997." *Bureau of Economic Analysis*.
- U.S. Department of Commerce. 2016. "Table 6.1. U.S. International Financial Transactions for Direct." *Bureau of Economic Analysis*.
- U.S. Department of Commerce. 2017. "Table 1.15. Price, Costs, and Profit per Unit of Real Gross Value Added of Non-financial Domestic Corporate Business." and "Table 2.1. Personal Income and Its Disposition." *Bureau of Economic Analysis*.
- U.S. Department of the Treasury and the White House. 2012. "The President's Framework for Business Tax Reform."

U.S. Department of the Treasury and the White House. 2016. “The President’s Framework for Business Tax Reform: An Update.”

U.S. Department of the Treasury. “SOI Tax Stats – Controlled Foreign Corporations: Table 1 1988-2012.” *Internal Revenue Service: Statistics of Income Division*.

Viard, Alan D. 2006. “Why LIFO Repeal is Not the Way to Go.” *Tax Notes* 113: 574-6.

Viard, Alan, and Amy Roden. 2009. “Big Business: The Other Engine of Economic Growth.” *AEI Tax Policy Outlook*. No. 1.