
International Implications of U.S. Business Tax Reform

Andrew B. Lyon
University of Maryland

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Abstract

This paper examines the effects of recent tax law changes in the United States and the potential for fundamental tax reform to alter the incentives facing businesses in their real and financial behaviour. After first providing an overview of the tax system of the United States, the paper examines the changes enacted as part of the 1986 *Tax Reform Act* affecting business taxation at both the domestic and international level. These tax changes are shown to affect locational choices for real investment, the reported location of profits resulting from the use of transfer prices, and the financial choices of multinational corporations in their use of debt. Despite predictions that the U.S. tax changes would result in a significant increase in the excess foreign tax credits of U.S. multinationals, nearly contemporaneous reductions in the statutory tax rate in other countries has minimized the effects of the U.S. tax rate reduction.

The paper considers three different proposed reforms of the U.S. tax system that would replace the income tax with a tax based on consumption. The proposals (a retail sales tax, the Hall-Rabushka flat tax, and the USA personal expenditure tax), by exempting from taxation the marginal return to new investment, would make the United States a very attractive location for multinational corporations relative to current law. Further, the generally low statutory tax rate applying to business rents under these proposals would give strong incentives for corporations to engage in aggressive transfer pricing to relocate earnings to the United States.

Although the motivation for U.S. tax reform today, as in 1986, is largely independent of international concerns, the proposed consumption-tax reforms may make the United States a more attractive location for multinational corporations than currently. If the United States does adopt such reforms, other industrialized countries will face many pressures to adopt similar reforms.

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1. Introduction

The 1994 Congressional elections, which shifted control of Congress to the Republican party for the first time in over 40 years, and the 1996 Presidential campaign have reawakened interest in substantial reform of the U.S. federal income tax system. At the same time, growing bipartisan concern over the federal deficit has led President Clinton and the Congress to propose changes to current policy that would balance the federal budget by 2002. Even if such legislation were enacted, however, the United States faces significant deficits beginning about 2010 as the baby-boom generation approaches retirement. The Congressional Budget Office (1996) has estimated that under current policies, the federal deficit will increase from about 2 percent of gross domestic product (GDP) in 1995 to 3 percent in 2005. As the baby-boom generation enters its retirement years, increases in federal spending for social security retirement benefits and Medicare health spending on the elderly will cause the deficit to increase dramatically. Without other changes in government policies, the deficit is predicted by CBO to increase to 5 percent of GDP in 2010, 11 percent in 2020, and 37 percent in 2030. Clearly, such large deficits are not sustainable. Interest payments alone by 2030 would comprise 31 percent of GDP.

Government policy in the next 10 years is unlikely to be static. The pressures of these large future deficits may significantly change the structure of U.S. taxation, and bring about large changes in the funding of retirement and health programs. Much of the current debate about changes in the structure of U.S. taxation, however, such as proposals for a replacement of the current U.S. income tax system with a value-added tax or a flat-rate tax system, appear to be motivated for reasons unrelated to the future U.S. fiscal imbalance. Concern for a simpler and more efficient tax system continues, despite the many changes brought about by the 1986 *Tax Reform Act*. Reform efforts have largely focussed on "revenue-neutral" changes, or even a switch to a new tax base that might entail a revenue loss for the federal government. Recognition of these large future fiscal imbalances, however, increases the possibility that a new tax may *supplement* rather than replace the current tax system. While the focus of this paper is on tax structure, it should be noted that if the U.S. government fails to address its long-run budget problems, the effects of the ensuing deficits would have far greater international implications than any revenue-neutral change in U.S. tax structure.

This paper examines the current U.S. taxes on business and leading proposals for reform. The next section provides a summary of the broad framework of the U.S. tax system. Section 3 points out the declining role of corporate taxes in this framework. Section 4 outlines the important changes made to corporate taxation by the *Tax Reform Act* of 1986. The effect of these changes on corporations, and in particular on multinational corporations, is examined in Section 5. Section 6 examines the three leading consumption tax proposals in the United States, and considers the international implications of their adoption. The final section offers some concluding remarks.

2. A Brief Overview of the U.S. Tax System

Tax and spending power is shared between the federal government and state and local governments. The federal government collects approximately 65 percent of all revenues, with state and local governments collecting the remainder. Matching and unconditional grants from the federal government to state and local governments have historically provided about 20 percent of state and local resources. Congress is currently in the process of reconsidering the form in which many of these grants to local governments are provided.

Federal, state, and local revenues in the United States totalled \$2.27 trillion in 1995, or 31 percent of GDP. Governmental expenditures in 1995 totalled \$2.34 trillion, resulting in a combined governmental deficit of \$67.6 billion. The federal government deficit of \$162.6 billion in 1995, or 2.2 percent of GDP, was offset by a \$95-billion surplus of state and local governments.¹

The tax systems of the three levels of government are quite different. At the federal level, personal taxes and social insurance taxes comprise over 80 percent of all federal revenues. Figure 1 shows the contributions made by the different revenue sources in 1995 to federal receipts.

The federal personal income tax consists of five explicit statutory tax rates ranging between 15 percent and 39.6 percent. Two special features – a phase-out of personal exemptions and a limitation on itemized deductions – increase the effective marginal tax rate of higher-income taxpayers from 1 to 4 percentage points. As a result, the effective marginal tax rate on incomes in excess of \$200,000 is about 40 to 41 percent.² In 1992, 72 percent of taxable returns were in the 15 percent tax bracket. These taxpayers accounted for one third of taxable income.³

Federal social insurance taxes are primarily collected from a 15.3-percent payroll tax, which finances the social security retirement and disability programs (Old Age, Survivors and Disability Insurance, or OASDI) and a portion of the Medicare hospital insurance program (HI) for persons aged 65 and older. The OASDI payroll tax rate is 6.2 percent levied on a fixed-dollar amount of employee wages. Tax is paid by both the employee and employer (resulting in a 12.4 percent combined rate). In 1995, the first \$61,200 in wages were subject to the OASDI tax. The wage base is indexed annually for the growth in wages. The HI tax is 1.45 percent of all employee wages, collected from both the employee and the employer (resulting in a 2.9 percent combined rate). The employer's portion of both the OASDI tax and the HI tax is deductible from the taxable income of the employer.

Corporate income taxes in 1995 represented 10.9 percent of federal tax receipts. The corporate income tax rate schedule is graduated with primary rates of 15 percent, 25 percent, 34 percent and 35 percent. The 34-percent tax rate begins with taxable income in excess of \$75,000. The

¹ Aggregate data on revenues used in this paper are from the National Income and Product Accounts computer data file of April 2, 1996. These data reflect the revisions to the calculation of GDP and its components discussed in the *Survey of Current Business*, January 1996.

² For a recent survey of individual marginal tax rates under both the income tax system and implicit tax rates from welfare assistance program, see Lyon (1995).

³ Table 3.4, Internal Revenue Service (1995).

35-percent tax rate, enacted in 1993, applies to incomes in excess of \$10 million. Two additional marginal tax rates of 39 percent and 38 percent apply for narrow income intervals. The intent of these higher marginal tax rates is to take away the benefit of the lower marginal tax rates, so that the average tax rate is equal to the marginal tax rate for high-income corporations. Since 1986, a strengthened minimum tax has affected from 20 to 30 percent of the largest U.S. corporations. Corporations affected by the minimum tax face a lower statutory tax rate (20 percent) on a broader definition of income. For most activities, minimum tax firms face different incentives than firms paying regular income tax.

The importance of corporate tax revenues has decreased significantly since the 1950s. Auerbach and Poterba (1987) show that between 1959 and 1985, the real dollar value of corporate taxes declined by about one third. They attribute much of this reduction to declining rates of corporate profitability, although legislative changes also had a role. Given the decline in the real value of corporate taxes while other federal tax sources (notably social security payroll taxes) were expanding, the share of federal receipts accounted for by corporate taxes has shrunk greatly. Figure 2 shows that corporate tax revenues declined from more than 20 percent of federal revenues in the early 1960s to a low of 5 percent in 1982, and then increased to about 10 percent since 1993. The recent trends in revenues and their causes will be examined in the next section.

At the federal level in 1995, indirect taxes, principally excise taxes and custom fees, accounted for 6.2 percent of federal revenues. The primary excise taxes are those on gasoline (accounting for 40 percent of excise receipts in 1994), alcohol (14 percent), tobacco, diesel fuel, and air transportation (each accounting for 10 percent of excise receipts in 1994).

State and local tax systems rely primarily on indirect taxes for their revenues. As shown in Figure 3, sales taxes accounted for 30 percent of revenues in 1995, and property taxes accounted for 27 percent. Personal taxes and social insurance taxes accounted for 23 percent and 9 percent of revenues, respectively. Corporate income taxes accounted for only 4 percent of revenues.

3. The Declining Importance of Corporate Tax Revenues

As shown earlier in Figure 2, corporate tax revenues have declined in importance as a revenue source for the federal government over the past several decades. The decline is a function of legislated changes, changes in corporate behaviour, and overall economic changes.

Changes in Corporate Profitability and Leverage

Auerbach and Poterba (1987) describe changes in corporate profitability between the early 1960s and the early 1980s. They calculate that from 1961 to 1965, the average corporate profit rate (measured relative to tangible assets) was 10.96 percent, then it declined to 4.91 percent by the early 1980s. Auerbach and Poterba do not attempt to explain the reasons for the decline in corporate profits over this period.

In a follow-up paper, Poterba (1992) considers the extent to which changes in leverage may help explain changes in corporate profits. Part of the decline in measured profitability over this period is the result of an increase in the share of operating income paid out in interest. Interest is

subtracted before the computation of corporate profit in the national income accounts, as well as for measuring corporate taxable income. Interest income is generally taxed at higher effective personal rates than equity income, however, due to the ability to defer capital gains taxes (and avoid them on death). Therefore, some of the decline in corporate tax payments is likely to be offset by an increase in personal tax payments. For non-financial corporations, interest payments in the 1960s were 10 percent of operating income, the sum of profits and interest income, then they increased to 23 percent in the 1970s, and to 34 percent in the 1980s. This trend appears to have reversed since 1990. In the past three years, interest payments have averaged 22 percent of corporate operating income, about the same as they were in the 1970s.

Poterba suggests that incentives for corporate leverage may be strongly affected by the rate of personal and corporate taxation. Poterba follows the model of Miller (1977) to examine the relative after-tax advantage to personal investors holding debt relative to equity. Using the top marginal tax rate for individuals and the statutory corporate tax rate, the theory does appear to explain the direction of changes in leverage through 1990, when Poterba's data ended. New data made available since Poterba's study was published are also consistent with the Miller model. The increases in personal tax rates in the 1993 Act have reduced the advantages to debt finance, since the new higher marginal tax brackets of 36 percent and 39.6 percent do not apply to capital gains. As predicted under the Miller theory, the use of debt has declined in the past several years. Table 1 updates Poterba's calculations through 1995 to examine the changes in the incentives to corporate leverage.⁴

The shifts in the use of leverage over time, however, are not sufficient to account for the entire decline in corporate profit rates since the early 1960s. Table 2 presents summary information on the profits of domestic non-financial corporations as a share of GDP, before and after subtraction of interest payments. Operating income, the sum of corporate profits and interest payments, decreased from 9.1 percent of GDP in the 1960s to less than 7 percent in the 1980s. Between 1991 and 1995, operating income was 6.2 percent of GDP. The annual data are graphed in Figure 4. Other factors, therefore, must be sought to explain the decline in corporate pre-tax profits rates and profits as a share of GDP. Possible explanations for these declines are not considered here, but are assumed to be due to non-tax factors.

Effective Rates of Corporate Taxation

A declining effective tax rate on corporate profits also plays an important role in the decline in the importance of corporate tax revenues. The marginal effective corporate tax rate measures the share of pre-tax income expected to be paid in corporate taxes on new investment financed with equity. It reflects the investment incentives in place at the time the investment is made, such as accelerated depreciation and the investment tax credit, in addition to the statutory corporate tax rate. While declining overall since the 1950s, the marginal effective corporate tax rate has varied

⁴ The tax rates used in Poterba's calculations ignore two effects of the 1986 Act that would reduce the incentive for debt finance: the alternative minimum tax, which provides a 20 percent statutory tax rate for affected corporations, and rules regarding the apportionment of interest deductions to foreign-source income. The incentives provided by these provisions are discussed in sections IV and V.

substantially over this period. The variation in effective rates reflects both legislated changes in tax rules over this period, and changing economic conditions, such as inflation and interest rates, which affect the real value of future depreciation allowances.

Figure 5 shows that the marginal effective corporate tax rate declined from 63 percent of real income in 1953 to 37 percent by 1965.⁵ This decline reflects the implementation of accelerated rates of depreciation in 1954 and the investment tax credit added in 1962. By 1975, effective rates of tax exceeded 50 percent as inflation rates increased from about 1 to 2 percent in the early 1960s, to over 10 percent by 1974. The high rates of inflation more than erased the benefit of shortened tax lives for depreciation added in 1971. Between 1981 and 1985, effective tax rates fell from about 50 percent to 38 percent as a result of the further shortening of tax lives in 1981 and as inflation began to decline. Since 1986, effective tax rates on equity-financed investment have been about one third of corporate real income.⁶

Also shown in Figure 5 is the statutory tax rate used in calculating the effective tax rates that applied to corporate taxable income. In contrast to the large changes in effective tax rates on real income over this period, the statutory tax rate has varied relatively little. Between 1953 and 1986, the statutory corporate tax rate ranged from 52 percent to 46 percent. The *Tax Reform Act* of 1986 lowered the corporate tax rate to 34 percent. Most recently, the 1993 Act increased it to 35 percent for firms with more than \$10 million in income.

The contrast between the relative stability of statutory tax rates and the wide fluctuations in effective tax rates over this time period makes clear that the way in which a tax system measures taxable income is of fundamental importance. The next section examines the trends set in place in corporate taxation by the *Tax Reform Act* of 1986.

4. Corporate Taxation since the *Tax Reform Act* of 1986

Since the founding of the corporate income tax system in 1909, numerous industry-specific provisions were enacted that caused taxable income to deviate from the theoretical, economic measure of income. Economic income is a comprehensive measure of income that accounts for the costs of earning income, and appropriately recognizes the timing of income earned and of costs incurred. Allowable business deductions from economic income reflect only the portion of current expenditures without lasting value. Special industry provisions allowed under the tax code included rapid write-offs for the intangible costs of developing mines and oil and gas wells, and percentage depletion. A wide range of other special provisions for industries ranging from

⁵ The series on corporate marginal effective tax rates for equity-financed investment was provided by Jane Gravelle. They are based on the same assumptions as presented in Gravelle (1994), Table B.1, p. 294, except that they exclude any personal-level taxes on corporate income.

⁶ The decline in effective tax rates since 1986 in Figure 5 is partly a result of further reductions in inflation and interest rates modelled by Gravelle. The marginal effective tax-rate calculations do not consider the effects of the alternative minimum tax or changes in certain other accounting rules that increased revenue collections under the 1986 Act. Fullerton and Lyon (1987) find that the 1986 Act increased corporate effective tax rates slightly when inflation and interest rates are held constant.

agriculture to insurance to shipping were included in the original corporate income tax, or adopted thereafter.

In addition to special industry provisions, other tax provisions with wide application across industries resulted in further deviations from economic income. The investment tax credit, first offered in 1962 as an investment stimulus, was available to any business making purchases of equipment. As inflation increased the cost of replacing equipment in the 1970s, more rapid deductions for depreciation were also provided, with the greatest acceleration provided in 1981. By 1981, the cost of nearly all equipment and structures could be recovered over periods no greater than five and 15 years, respectively. Rapid depreciation deductions and investment tax credits might be desirable components of a tax system designed to tax economic income in a high-inflation environment but, as inflation moderated, the combination of the investment tax credit and accelerated depreciation essentially exempted from taxation the income earned from new investments in equipment.

In the pre-1986 tax environment, income earned by different businesses, and from different sources within any business, was subject to a wide variety of effective tax rates due to differences in deductions, credits and exclusions for these activities. Industries that were equipment-intensive faced rates of taxation close to zero due to generous depreciation allowances and the investment tax credit, while industries more dependent on structures, inventories and land faced effective tax rates close to the 46 percent corporate statutory tax rate. Special industry provisions caused a further round of resource reallocation. Reforms, initially proposed by the Treasury Department in 1984, were intended to "level the playing field" by taxing the income from different activities more uniformly. The legislation culminating in the 1986 Act, while not quite as radical as the original Treasury proposal, still brought about tremendous reform of the type sought by the 1984 plan. The 1986 Act contained numerous changes broadening the individual and corporate tax bases while lowering statutory tax rates. A General Accounting Office report found that more special tax provisions were eliminated by the 1986 Act than in all the years since the establishment of the income tax, although, as indicated by the title of the report, not all special industry provisions were eliminated.⁷ Many favourable tax provisions that were not eliminated were scaled back. The 1986 Act was estimated at the time of its enactment to increase annual corporate income tax revenues by about \$25 billion, a 25- to 30-percent increase.

The 1986 Act generally sought to bring the definition of taxable income closer to a measure of economic income. Among the most significant features affecting corporations were the following:

- 1) repeal of the investment tax credit;
- 2) reduction in the top statutory corporate tax rate from 46 percent to 34 percent;
- 3) longer depreciation lives for equipment;
- 4) strengthened minimum tax;

⁷ General Accounting Office, *Tax Expenditures Deserve More Scrutiny*, GAO/GGD/AIMD-94-122 (June 1994), pp. 16, 25.

- 5) narrowing of incentives for research and development;
- 6) restrictions on foreign tax credits and sourcing of income and expenses; and
- 7) various accounting changes.

1) Repeal of the Investment Tax Credit

Under the pre-1986 tax law, investment in equipment was eligible for a credit against income tax up to 10 percent. The credit was reduced to 6 percent for property depreciated over three years (mostly automobiles and special tools). The credit was faulted for favouring investment in shorter-lived equipment over longer-lived equipment since, except for three-year property, its value was not tied to the asset's lifetime. The credit also favoured investment in equipment over buildings, since real property was not eligible for the credit.

One argument made on behalf of the investment tax credit is that, unlike a general tax rate reduction, it encourages investment without conferring windfall gains to existing assets (only limited amounts of used assets were eligible for the credit). The investment tax credit then can be a less expensive way of lowering the cost of capital for corporations than a general tax rate reduction. In 1993, President Clinton proposed a temporary incremental investment tax credit, which would have applied to investment in excess of a base amount determined by the firm's historic annual investment. While theoretically an incremental credit is more efficient, since less tax revenue would be lost on investment that would have been undertaken anyway, many tax lawyers believed the potential to abuse an incremental credit was great. By establishing new firms and through leasing assets, existing firms might be able to make the credit effectively apply to all new investment.⁸

Finally, although the argument for a level playing field ultimately carried the day during the debate of the 1986 Act, some economists have argued that investment in equipment has spillover benefits for the economy that do not exist for investment in buildings. If this spillover benefit does, in fact, exist, then it would be efficient to tax investment in equipment at lower rates than investment in buildings.⁹

⁸ For an analysis on the efficiency of a permanent incremental investment tax credit relative to one applying to all investment see Meyer, Prakken and Varvares (1993). Inefficiencies potentially resulting from a permanent incremental investment tax credit include the bunching of investment in particular periods and shifts in the allocation of production across firms to maximize use of the credit.

⁹ A study by J. Bradford DeLong and Lawrence H. Summers makes the argument that investment in equipment, perhaps by speeding the diffusion of new technologies, is more beneficial than investment in structures. See DeLong and Summers (1991). A study critical of their empirical findings is Auerbach, Hassett and Oliner (1994).

2) *Reduction in the top statutory corporate tax rate from 46 percent to 34 percent*

The cost of lowering corporate statutory rates in the 1986 Act was almost identical to the revenue gain from repeal of the investment tax credit. As mentioned above, a rate reduction increases the return from existing assets as well as from new investments. It also applies to income earned from all sources, not just equipment. The reduction in statutory corporate tax rates was not sufficient to offset the increase in the cost of capital for equipment from the loss of the investment tax credit. Investments such as buildings, inventory, and land that were not eligible for the investment tax credit under the old law, however, were made more attractive from the reduction in statutory rates.

One form of investment that is not affected by changes in the statutory tax rate is investment in intangible assets, such as the creation of goodwill through advertising or know-how from research and development expenditures. Investments in intangibles are expensed for tax purposes, and thus are effectively untaxed if financed through equity, and bear a negative tax rate if debt financed. Fullerton and Lyon (1987) show that depending on the extent of intangible capital in the economy, it is theoretically ambiguous whether raising the cost of capital for investment in equipment, while not changing the cost of capital for intangible investment, is efficiency enhancing. The 1986 Act, however, by lowering the cost of capital for other forms of tangible investment, reduced the disparity not only between these types of tangible investment and equipment, but also between these tangible assets and intangible ones. Fullerton and Lyon conclude that the lower statutory tax rates were essential to the efficiency gains in the allocation of capital from the 1986 Act.

The reduction in statutory tax rates also was likely to change the real and financial incentives of multinational corporations (MNCs), which are generally liable for taxes in multiple countries. Some of the MNCs' taxes may be credited against other taxes, and they also have the opportunity to restructure transactions to change their tax consequences. As a result, MNCs can be affected by rate changes differently than entirely domestic firms. Effects of the changes in statutory tax rates on the incentives of MNCs will be addressed in Section 5.

3) *Longer depreciation lives for equipment*

Depreciation lives were lengthened by the 1986 Act for equipment to more closely reflect their useful lives. Although lives were lengthened, the method used to recover property became more accelerated, increasing from a 150-percent to 200-percent declining balance for most equipment. For regular tax purposes, equipment is generally recovered over three, five, seven, or 10 years, using the 200-percent declining balance method switching to straight line. Certain public utility property is recovered over 15 and 20 years under the regular tax using the 150-percent declining balance method switching to straight line.

Under the pre-1986 law, the combination of accelerated depreciation over short lives and the investment tax credit resulted in effective tax rates close to zero for most equity-financed equipment. Based on the top corporate marginal tax rate of 34 percent in effect until 1993, Lyon (1997) calculates the marginal effective tax rate on equity-financed equipment to be 27 percent. At the 35-percent current top statutory tax rate, the marginal effective tax rate on equipment is 28 percent.

Depreciation lives for structures were also lengthened by the 1986 Act, and real property was required to be recovered using the straight-line method. The 1986 Act set recovery periods for residential rental property and non-residential structures of 27.5 and 31.5 years, respectively. The 1993 Act further increased the depreciation period for non-residential structures to 39 years. Depreciation of commercial structures is slightly less accelerated than estimates of economic depreciation of Hulten and Wykoff (1981).

4) *Strengthened minimum tax*

Although a minimum tax on corporations existed since 1969, the 1986 Act greatly changed its structure. About 20 percent of the increase in tax revenues from corporations was estimated to come from the new alternative minimum tax (AMT).¹⁰ Data indicate that since 1987, more than 20 percent of the largest corporations have paid AMT each year.¹¹ Taking into consideration other firms that are constrained at the margin by the rules of the minimum tax, from 30 to 40 percent of corporate assets are held each year by firms facing the AMT. Among MNCs, Lyon and Silverstein (1995) report that in 1990 more than half of all foreign-source income was earned by corporations subject to the AMT.

The AMT generally taxes a broader measure of income than the regular tax, but at a lower statutory rate. Firms are required to calculate their tax liabilities with and without the AMT, and pay the larger amount. AMT payments are creditable in the future against regular tax, but may not reduce a firm's regular tax payment below the amount due under the AMT. Depreciation deductions for equipment are greatly scaled back under the AMT. Equipment is recovered over time periods as much as twice as long as under the regular tax, and using a slower declining balance rate. All equipment is recovered using the 150-percent declining balance rate with a switch to straight line. Between 1987 and 1993, depreciation for equipment was further restricted by reference to depreciation used for the firm's financial statements and methods required under earnings and profits calculations.

The AMT statutory tax rate is 20 percent. The effect of the lower statutory tax rate but slower depreciation allowances on effective tax rates requires an explicit calculation. The effect of the AMT also differs depending on the source of finance. Since interest is deducted at a lower statutory tax rate under the AMT, debt-financed investment is made relatively worse off than equity-financed investment. Lyon (1997) estimates that during the 1987-93 period, a firm subject to the AMT for five years would have faced an increase in the cost of capital net of depreciation

¹⁰ Joint Committee on Taxation (1987).

¹¹ General Accounting Office (1995) and Lyon (1997).

of 8.5 percent for an equity-financed investment and 13.0 percent for a debt-financed investment. Table 3 provides a comparison of the cost of capital net of depreciation for various assets under the regular tax, a five-year period of AMT, and a five-year period of loss status.¹²

One feature of the AMT is that foreign tax credits and net operating losses may not together reduce a firm's tax liability by more than 90 percent. As a result, firms with large amounts of foreign income pay a 2-percent U.S. tax on foreign dividends (10 percent of the 20 percent statutory tax rate) when the average foreign tax rate on these dividends exceeds 20 percent. In 1990, Lyon and Silverstein (1995) find that just over half of the foreign-source dividends received by AMT corporations were subject to this 2-percent tax.

5) Narrowing of incentives for research and development

A significant incentive for research and development (R&D) activities is that costs of salaries and other nondepreciable items may be immediately deducted from income. Beginning in 1981, a 25-percent credit for incremental R&D expenditures was also provided. The 1986 Act reduced the credit to 20 percent, required that one half of the credit be included in income (reducing the effective value of the credit to 16.6 percent), and restricted the activities qualifying for the credit.

The incremental credit originally was tied to a moving average of the firm's historic level of R&D activities. The 1989 Act tied the base against which incremental expenditures were measured to the firm's fixed 1984-88 R&D level. The base is adjusted for growth in the firm's sales over time, but not by the amount of R&D undertaken by the firm since 1988. This corrects a defect in the original incremental credit, which eventually caused a firm to be penalized for increasing its R&D expenditures. One continuing shortcoming of the present incremental credit is that firms may have an incentive to bunch R&D investment into short periods to qualify a larger fraction of it for the incremental credit. The large cost of adjustment thought to exist for R&D investments may limit the amount of shifting that actually takes place. The 1989 Act also increased the amount of the credit included in income to 100 percent (reducing the effective value of the credit to 13 percent for a firm in the current top 35 percent tax bracket). The R&D credit cannot be claimed by firms on the AMT, but may be carried forward for up to 15 years.¹³

Since 1986, the R&D credit has been enacted with an automatic sunset provision, requiring periodic re-enactment. The automatic sunset provision, while helpful in the sense of requiring frequent reevaluation of ongoing provisions, has in the case of the R&D credit largely been used to avoid the full revenue cost of a permanent credit. Tax legislation in the past decade has been under a constraint that any revenue-losing provision be offset by revenue-increasing provisions of equal magnitude over annual, five-year, and, most recently, seven-year periods. Less offsetting revenue is needed for a temporary one-year extension of the R&D credit than a permanent extension. After a one-year lapse in the R&D credit, legislation enacted in 1996 extended the credit through May 31, 1997. This legislation also created a new elective alternative credit for

¹² The methodology for these calculations is provided in Lyon (1990) and Lyon (1997).

¹³ For an analysis of the effectiveness of the R&D credit, see Hall (1993) and General Accounting Office (1996).

firms whose R&D does not exceed their historic base. These firms may claim a credit for their R&D in excess of one percent of sales. The credit rate under this alternative method is limited to 2.75 percent. Firms adopting the alternative credit must use this method in future years as well.

Another important feature for the R&D activity of MNCs is the fact that firms can allocate some of the cost of R&D conducted for their worldwide activities against their U.S. income. An economic accounting of R&D activity would apportion domestically conducted R&D to the revenues attributable to it, whether earned domestically or abroad. Since 1977, regulations and tax laws have allowed firms to disproportionately apportion domestically conducted R&D to U.S. income. The benefit of these provisions is that for firms that have excess foreign tax credits, apportioning deductions from foreign-source income to domestic income effectively leaves U.S. tax on foreign income unchanged while reducing U.S. tax on domestic income.¹⁴

From 1981 to 1986, 100 percent of domestically conducted R&D could be allocated to domestic-source income. The 1986 Act reduced this amount to 50 percent, with the remaining 50 percent to be apportioned between domestic and foreign-source income on the basis of sales or gross income. The 1988 Act temporarily increased the percentage that could be apportioned domestically to 64 percent.¹⁵ The 1993 Act temporarily reduced this percentage to 50 percent. The most recent regulations provide that 50 percent of domestically conducted R&D may be allocated domestically if the remaining amount is allocated on the basis of sales, and 25 percent may be allocated domestically if the remaining amount is allocated on the basis of gross income. Hines (1993) uses variations in the foreign tax credit position of U.S. multinationals using financial information of firms between 1984 and 1989 to evaluate the effect of these provisions on firm R&D.

6) *Restrictions on foreign tax credits and sourcing of income and expenses*

The 1986 Act made several changes to the treatment of foreign income that were designed to reduce the ability of firms with excess tax credits to shelter earnings on other income. The 1986 Act and further legislation in 1993 also reduced the ability of firms to defer U.S. tax on foreign income of a passive nature. Finally, legislation and regulations have sought to restrict the ability of companies operating in the United States to use transfer pricing to divert profits to subsidiaries in low-tax countries.

Grubert and Mutti (1987) list 16 foreign provisions directly altered by the 1986 Act.¹⁶ The two most significant changes, both in terms of revenues and in their general applicability, are interest allocation rules and the creation of separate limitations for crediting foreign taxes on different

¹⁴ Royalties earned from the licensing of R&D are allocated to foreign-source income. Together with the disproportionate apportionment of R&D expenses to domestic-source income, this results in a mismatch of deductions and income that benefits firms with excess foreign tax credits.

¹⁵ See Hufbauer (1992) for a summary of the R&D allocation and apportionment rules in effect from 1977 to 1991.

¹⁶ See Joint Committee on Taxation (1987) for a detailed explanation of these provisions. There are notable differences in the revenue assigned to the different provisions by the Joint Committee on Taxation and those shown by Grubert and Mutti (1987).

types of foreign income.¹⁷ (Also see the discussion on R&D apportionment rules above.) Discussion of the overall effect of the 1986 legislation on incentives of multinationals is provided in Section 5.

The interest allocation rules of the 1986 Act assume that debt used by an MNC is largely fungible in its uses domestically and abroad. The legislation reduced the ability of a U.S. parent to allocate interest deductions against U.S. income by changing the assignment of debt wholly within its domestic affiliates. The reassignment of interest deductions from domestic to foreign source is inconsequential for firms that owe U.S. tax on their foreign income, but results in an increase in U.S. tax for firms with excess foreign tax credits. The rules require that a corporation's combined U.S. debt be apportioned between domestic and foreign sources on the basis of asset values. (The legislation treats foreign-incurred debt asymmetrically, resulting in an over apportionment of foreign-incurred debt to foreign sources.) Altshuler and Mintz (1995) and Froot and Hines (1995) show the incentives these rules have for an MNC in an excess credit position to reduce its use of debt and, for a given level of consolidated debt, to increase the use of debt abroad and to reduce it domestically. Altshuler and Mintz also demonstrate the effect these rules have on increasing the cost of capital for foreign and domestic investments of U.S. MNCs.

The 1986 Act created separate limitations for the calculation of foreign tax credits arising from certain types of income. Income is grouped into nine separate baskets, with a foreign tax credit being calculated for each type of income. The existence of these separate baskets reduces the ability to use excess credits arising from certain highly taxed foreign activities to offset the U.S. tax owed on lightly taxed foreign activities. Different baskets exist for interest income subject to high withholding taxes; financial services income; shipping income; dividends from a foreign corporation in which the parent has an ownership share between 10 and 50 percent; passive income; dividends from various foreign sales corporations; and income from "general" activities.

The 1986 Act also made a change in the manner in which the foreign tax credit was calculated. Under prior law, dividends from foreign subsidiaries were assumed to be made first from current earnings. Foreign taxes deemed paid on these dividends were calculated on the basis of the firm's current taxes first. As a result, a corporation had an incentive to receive dividend payments from its foreign subsidiaries in years in which the subsidiary's effective tax rate was higher than average, and defer them when the subsidiary's tax rate was below average. Notable cases where significant variation in a subsidiary's effective tax rates might occur include a subsidiary benefiting from a temporary tax holiday, and subsidiaries operating in countries, such as Canada, where depreciation deductions could be deferred at the election of the taxpayer. This method of timing dividend repatriations (the so-called "rhythm method") effectively increased the period over which lightly taxed earnings could be deferred from taxation in the United States. The Act required that taxes and earnings of foreign subsidiaries be accumulated over time, largely eliminating the ability to take advantage of temporary changes in a subsidiary's tax rate.

¹⁷ The 1986 and 1993 acts also further restricted the ability to defer U.S. taxes on passive earnings, and restricted the benefit of the possessions tax credit (affecting mostly Puerto Rican subsidiaries).

Through legislation and regulations, Internal Revenue Service (IRS) authority to adjust income arising through intracompany transactions has increased. In the past two years, the IRS issued final transfer pricing regulations covering a variety of activities. The 1993 Act also increased penalties for substantial misvaluation of transactions. The regulations, while complex, generally require a company to determine transfer prices contemporaneously and document how prices were determined. The documentation should show that the methods used resulted in the most reliable measures of an arm's-length result between unrelated parties. To alleviate the possibility that a taxpayer will later be challenged on its use of transfer prices by the IRS, corporations are making greater use of negotiating advanced pricing agreements with the IRS.¹⁸

7) *Various accounting changes*

Accounting changes in the *Tax Reform Act* of 1986 were responsible for one half of the total increase in taxes placed on corporations.¹⁹ Fullerton et al. (1987) argue that many of these accounting changes did not directly change investment incentives. They suggest that only two provisions – uniform capitalization of inventories and changes in accounting for long-term contracts – can accurately be modelled as affecting investment incentives. Further, Fullerton et al. note that revenue estimates for the changes in the accounting for long-term contracts included significant one-time revenue gains, overstating the permanent effect of this change on incentives. Modelling of these provisions slightly increases the effective tax rate on investment in inventory, with insignificant changes to other assets. Grubert and Mutti (1987) present estimates of changes to U.S. capital stock relative to the rest of the world based on the long-run revenue effect of several of the accounting changes (including the alternative minimum tax). Their estimates suggest that these provisions should not be ignored in comparisons of the desirability to invest abroad relative to domestically.

One important feature of these accounting changes, as well as the alternative minimum tax, that should not be overlooked is the significant increase in complexity associated with these provisions. Slemrod and Blumenthal (1993) find that the AMT and the uniform capitalization of inventory rules are the two provisions of the 1986 Act most cited by corporations as increasing compliance costs. It is well understood that the costs of taxpayer compliance are much like taxes themselves in terms of incentives. In an international context, compliance costs are potentially more disadvantageous to taxpayers than actual tax payments. Compliance costs associated with paying foreign taxes are not creditable! A country desiring to be attractive to multinational investment would be well served by creating a tax system that is easy to comply with.

¹⁸ See Bonfiglio (1995) and Carlson et al. (1996) for a discussion of the recently issued regulations.

¹⁹ The 1993 Act provides that the cost of acquiring intangible assets, such as goodwill, customer lists and trademarks, can be amortized over 15 years. Previously, the Internal Revenue Service held that these costs were generally not deductible.

5. Effects of Enacted Tax Changes on Multinational Corporations

The 1986 Act had the potential to greatly change the behaviour of MNCs operating in the United States. A large number of papers have addressed various aspects of the 1986 tax changes on multinational operations. (See Hines [1996a] for an encompassing survey of empirical studies examining the responses of MNCs to taxes.) The most important effects of the 1986 Act on the behaviour of multinationals are examined here.

Statutory Tax Rate Reductions

Slemrod (1990, 1995) suggests that the most important change affecting U.S. multinational outward foreign direct investment (FDI) was the change in the top corporate statutory tax rate from 46 percent to 34 percent (35 percent since 1993). For a U.S. multinational operating in high-tax countries (rates in excess of 46 percent), the lower U.S. tax rate would have no effect on the firm's overall tax liability. Firms operating in low-tax countries (rates below 46 percent) would receive a reduction in the U.S. tax owed on their foreign earnings. Goodspeed and Frisch (1989) estimated that 32 percent of manufacturing firms were in an excess-credit position before 1986. A static projection of the statutory tax rate reduction was estimated to increase the percentage of manufacturing firms in an excess-credit position to 82 percent. The creation of the new separate limitation baskets would further increase the percentage of firms in an excess-credit position under the static projection.

For a firm in an excess-credit position (i.e. a firm facing an average foreign tax rate in excess of the U.S. rate), the foreign tax rate on income determines the marginal rate of tax paid by the firm. Shifting profitable operations for such a firm from higher-taxed to lower-taxed countries directly reduces the firm's overall tax liability.

Of course, even before the 1986 Act, a firm likely had an incentive to lower its average foreign tax rate below 46 percent. While U.S. tax would be owed when earnings from these low-taxed foreign operations were repatriated, by deferring repatriation, the firm could benefit from the lower foreign tax rate. This deferral benefit, however, is smaller than the outright elimination of tax liability.

As a result, the 1986 Act gives U.S. firms a much greater incentive to seek out countries with rates of taxation below 46 percent than before. The largest reductions in overall tax liability would accrue to firms operating in countries with an average tax rate of 34 percent or less.

In addition to changes in real investment, Grubert and Mutti (1987) note that firms with excess tax credits also would have increased incentives to shift the reporting of taxable income from foreign locations to the United States. Multinational firms with operations in different countries routinely must use non-market prices to account for the transfer of real goods, services, and intangibles among affiliates. Given the complex interactions among these affiliates, including the method of finance, the frequent absence of market prices for the type of transactions conducted, and the absence of a definitive theoretical correct way to account for cost savings that arise through economies of scale and other intracompany transactions, the parent corporation may have some flexibility, both legal and illegal, in reporting the location of earnings and deductions. A

high-tax country may find that its tax base would contract through the use of transfer pricing by MNCs, even with no apparent changes in real investment. The lower 34-percent tax rate in the United States would expand the number of countries that would be susceptible to loss of their tax base through transfer pricing. Using financial statement data, Harris et al. (1993) find evidence that U.S. multinationals are able to shift income from high-tax countries to the United States and from the United States to low-tax countries.

Contemporaneous with the 1986 Act, a number of countries, including Canada, adopted similar changes that resulted in lower statutory tax rates for corporations. (See Bossons [1987], Tanzi [1987], and Whalley [1990] for a discussion of the forces leading to reform in these other countries.) Grubert et al. (1996) report that these tax rate reductions by other countries were a significant factor in preventing an increase in the percentage of firms in an excess-credit position. They find that the percentage of firms in an excess-credit position in 1992 is almost the same as in 1984. Further, they report that the foreign rate of taxation on income repatriated as dividends fell by 10.4 percentage points, with the largest reductions occurring in countries with rates of taxation above 40 percent in 1984. The decline in the average tax rate on foreign dividend income is almost identical to the 12 percentage point reduction in U.S. statutory tax rates.

Changes in the Cost of Capital

In addition to the changes in statutory tax rates and in the allocation and apportionment of deductions, changes in the traditionally measured Hall-Jorgenson cost of capital for real investment may also have affected locational decisions of both U.S. and foreign-owned MNCs. The 1986 Act increased the effective rate of taxation on equipment investment by repealing the investment tax credit. In contrast, foreign investment by U.S. multinationals never benefited from the investment tax credit or other domestic provisions for accelerated depreciation. Similarly, as shown by Lyon and Silverstein (1995), the newly enacted alternative minimum tax increased effective tax rates on equipment investment in the United States, but left unchanged or even decreased effective tax rates on investment abroad. The effect of both of these changes was to increase the effective rate of taxation of domestic equipment relative to equipment abroad. Although the effect of these changes on overall investment by U.S. MNCs is difficult to discern, Harris (1993a, 1993b) reports that those that tended to be equipment-intensive expanded investment in their foreign locations.

Scholes and Wolfson (1991, 1992) suggest that the 1986 Act may have been responsible for an increase in U.S. investment by foreign-owned MNCs. Prior to the 1986 Act, tax advantages in the form of the investment tax credit and accelerated depreciation for equipment resulted in a reduction in U.S. taxes. Scholes and Wolfson argue that these provisions were less important to foreign-owned firms from countries that would impose home-country taxes upon repatriation of income from the U.S. operation. Further, they note that the domestic incentives for investment in equipment likely reduced its pre-tax return below that of other forms of investment. For foreign-owned MNCs from high-tax home countries operating on the residence principle, the reduction in pre-tax returns was more of a disincentive to U.S. investment than an explicit tax on a higher pre-tax return. An explicit tax is creditable, whereas an implicit tax in the form of a lower pre-tax return is comparable to a less advantageous deduction. The 1986 Act undid the tax advantage to equipment, replacing implicit taxes with explicit taxes. As a result, Scholes and

Wolfson argue, investment in the United States by foreign-owned MNCs from residence-based countries was relatively more advantageous after 1986. The Scholes-Wolfson hypothesis requires that the ability to defer tax from home country taxes was not an important factor for these foreign-owned firms. Further, it assumes that foreign firms could not take advantage of the low U.S. rate of taxation to offset high taxes paid in other foreign locations. In either of these alternative cases, foreign-owned firms would be affected by the investment tax credit and accelerated depreciation in a manner similar to domestic firms. Additionally, the Scholes-Wolfson hypothesis is not relevant to firms from countries that do not tax foreign-source income. Scholes and Wolfson (1992) present evidence on foreign acquisitions of U.S. companies after the 1986 Act to support their hypothesis. Other studies more closely examining these acquisitions come to mixed results.²⁰

Allocation and Apportionment Rules

Grubert et al. (1996) find some changes in the form in which income is repatriated after 1986, with an increase in the share of royalty income and a decrease in dividends. Since royalty payments are generally not subject to foreign tax or are taxed at low rates, this change in behaviour is consistent with minimizing overall tax liability on the part of multinationals given the lower U.S. statutory tax rate. In contrast, firms might have had a decreased incentive to perform R&D domestically rather than abroad, given the changes in the R&D allocation rules in 1986. This would have been expected to reduce royalty payments from foreign subsidiaries if foreign R&D substituted for technology licensed from the United States. Hines (1995) finds evidence that licensed technology by foreign subsidiaries is a substitute for their own R&D.

Altshuler and Mintz (1995) and Froot and Hines (1995) find evidence that firms also increased the use of debt by foreign subsidiaries. This change is consistent with the incentives provided by the change in interest allocation rules, but such a change might also be expected in response to a larger reduction in U.S. statutory tax rates than in foreign tax rates.

Incentives for Export Earnings

Two provisions of the tax code favour domestic production for export. First, 50 percent of export earnings may be allocated to foreign-source income (the 50-50 method). The allocation of these earnings to foreign-source income allows a firm that is in an excess credit position to utilize additional foreign-tax credits. A firm with excess foreign tax credits thus avoids current U.S. taxation on this income.²¹ The estimated revenue loss from this provision in 1996 is \$1.4 billion.²² (By comparison, the estimated advantage from deferral of foreign-source income of U.S. subsidiaries is \$1.8 billion in 1996.) The value of this export incentive would be expected

²⁰ In particular, Auerbach and Hassett (1993) find the acquisitions do not appear to conform to the Scholes-Wolfson hypothesis. See Hines (1996a) for a discussion of other studies examining this relationship.

²¹ Because foreign tax credits may be carried forward for up to five years, the increased use of foreign tax credits may cause the firm to be subject to U.S. taxation on its foreign income in the future. At least by deferring U.S. taxation on this income the firm benefits, and the income is completely exempted from U.S. taxation if the firm would be continually in an excess credit position.

²² Analytical Perspectives, Budget of the United States Government, Fiscal Year 1997, p. 65.

to increase as a result of the statutory rate reduction in the 1986 Act, which made it more likely that firms would be in an excess credit position.

A separate incentive for export is the foreign sales corporation provision, under which 15 percent of the combined export income of the special export corporation and its parent is exempt from taxation. Further, 25 percent of the taxable income may be allocated to foreign-source income. As a result, use of a foreign sales corporation may result in a maximum exemption of 40 percent of export income from taxation. Use of foreign sales corporations is estimated to result in a revenue loss of \$1.6 billion in 1996. The benefit of the foreign sales corporation was reduced slightly by the statutory rate reduction of the 1986 Act for firms without excess credits. Hufbauer (1992) estimates that the combination of the 50-50 method and the foreign sales corporations may induce an amount of exports approximating 7 percent of total U.S. merchandise exports.

6. International Implications of Fundamental Tax Reform in the United States

The potential concern that Canada and other countries might have over major tax reform undertaken by the United States is understandable. The U.S. economy represents nearly one quarter of world production, one fifth of international trade, and more than one quarter of inward and outward FDI. U.S.-Canadian linkages are even stronger. Recent research has suggested significant behavioural response by corporations in response to tax changes. The potential exists for structural changes in business taxation to lead to changes in the flow of labour, capital and goods, and cause other reductions in the tax base of other countries.²³

Three significant changes to the U.S. federal tax system have recently been proposed: a retail sales tax proposed by Senator Richard Lugar and others; the Hall-Rabushka flat tax promoted by House Majority Leader Richard Armey; and the USA (Unlimited Savings Allowance) tax promoted by Senators Sam Nunn and Pete Domenici. All of these taxes are variants of consumption taxes, with some subtle and not-so-subtle differences amongst them. The following analysis considers the effects of these proposals on three locational choices of businesses: (i) tangible investment in plant and equipment, (ii) taxable income reporting (i.e effects on transfer pricing and financial transactions), (iii) export activity, and (iv) R&D activity. The analysis has benefited by two papers directly addressing the international effects of a switch to consumption taxation by Grubert and Newlon (1995) and Hines (1996b).²⁴ The specific mechanisms addressed affecting these activities are:

- 1) changes in the cost of capital;
- 2) changes in the statutory tax rate and tax base; and
- 3) changes in allocation and apportionment rules and treatment of export income.

²³ See Tanzi (1995) on this general theme.

²⁴ Other helpful papers include Auerbach (1996), Avi-Yonah (1995, 1996), Feldstein and Krugman (1990), McLure (1992), McLure and Zodrow (1995), and Musgrave (1992).

It should be noted that while this analysis points to important considerations of these proposed reforms, an analysis of their overall effect remains speculative. For example, despite analysis by many others suggesting that domestic interest rates would fall given the introduction of a consumption tax, Feldstein (1995) shows how even in a closed economy it is quite possible for interest rates to rise. Differences in effects such as these can significantly change investment and trade flows.

Since more detailed discussions of the tax proposals exist, only a brief outline of the proposals is provided here.²⁵ Each of the three plans would replace all other federal income taxes on corporations and individuals. Senator Lugar's sales tax plan calls for a 17-percent sales tax on final domestic sales to consumers. The tax is equivalent to a value-added tax with a rebate on exports and tax on imports.

The flat tax combines a 17-percent business-level cash-flow tax (excluding financial transactions) with a 17-percent individual tax on wage income.²⁶ Individuals would be given a generous personal exemption, but no other deductions would be permitted. The business tax is designed as an origin-based tax, with no rebate for exports and no tax imposed on imports. Foreign-source income of U.S. corporations and individuals would be exempt from tax.

The USA tax combines an 11-percent value-added tax at the business level with a graduated individual-level personal expenditure tax. Unlike the flat tax, the business-level USA tax includes wages in the tax base. However, the 7.65-percent payroll tax for social security paid by the employer would be allowed as a tax credit against the USA tax, effectively making nearly 70 percent of labour costs deductible. The business tax is a destination-based tax, exempting tax on exports and imposing a tax on imports. The personal expenditure tax would consist of graduated marginal tax rates up to 40 percent. It would allow a credit for social security payroll taxes that would phase out for high-income taxpayers. In addition to a personal exemption, individuals would continue to be allowed a deduction for charitable contributions and mortgage interest. Unlike current law, these two deductions would not be limited to itemizing taxpayers (about 30 percent of taxpayers presently).

²⁵ See Hall and Rabushka (1983, 1995) for details of the flat tax and Alliance USA (1995) for the USA tax plan. Joint Committee on Taxation (1996) also discusses these proposals in the context of their effect on international activities.

²⁶ The Treasury Department has estimated that a revenue-neutral flat tax would require a tax rate of approximately 21 percent (U.S. Treasury [1996]). Some proponents of the flat tax desire expenditure cuts rather than tax increases to achieve revenue neutrality, so it is not clear what tax rate would eventually emerge. Any transition relief for existing assets would require additional tax rate increases or expenditure cuts.

1) Changes in the Cost of Capital

All three consumption tax proposals are similar in exempting from taxation the marginal return to capital at both the business and personal levels.²⁷ For equity-financed investment, the absence of tax on the marginal return to investment in plant and equipment reduces the cost of capital to business, and lowers the required pre-tax return to individuals. This is a powerful incentive to business investment, and should increase individual saving. Efficiency gains are generated by improving the allocation of investment across diverse types of assets (equipment, structures and intangible investments), between the corporate and non-corporate sectors, and by improving the allocation of consumption over time.

The absence of taxation on the marginal return to business investment would make the United States attractive for domestic businesses and for U.S.- and foreign-based MNCs.

For U.S. MNCs, income earned from foreign subsidiaries would be exempt from U.S. taxation, but since non-creditable taxes would be paid on this income to the foreign host country, the United States would be a more desirable location. The loss of the ability to credit foreign taxes would give U.S. MNCs operating in high-tax foreign countries the greatest incentive to relocate to low-tax foreign countries or to the United States.

Foreign-based MNCs from countries that assess tax on worldwide income would continue to owe income tax in their home countries (and thus the reduction in U.S. tax is in part a shift between U.S. and foreign treasuries), but would have the option of deferring taxation by continuing to keep such profits in the United States or using such profits to offset excess tax credits from profit earned in high-tax countries. The greater the possibility of deferring home country tax, the more advantageous would be the U.S. location.

Relative to the current U.S. income tax, MNCs from countries taxing on a territorial basis would find the new U.S. tax more advantageous for locating in the United States. Avi-Yonah (1996) suggests that territorial countries might respond to a U.S. tax change by attempting to tax U.S.-source income of resident multinationals and residence-based countries would enact strict anti-deferral rules of U.S.-source income. If such policies of foreign governments were successful, the relocation of business to the United States could be prevented. As Grubert and Newlon (1996) note, the ability for such policies to succeed (and thus be enacted) is suspect, since a multinational also has the possibility of changing its country of incorporation through mergers and other actions. Musgrave (1992), in disapproving of an attempt by the United States to unilaterally adopt consumption taxation, suggests that a more likely scenario is for other countries to follow the U.S. example and abandon taxation of capital income.

²⁷ The mechanisms differ by either exempting the yield from taxation (the sales tax and personal-level flat tax) or by providing for the expensing of savings and investment but taxing the returns (the business-level flat tax and both levels of the USA tax). As a result, the taxation of the return to inframarginal investment and rents differs. A cost of capital analysis of the investment decision ignores the taxation of inframarginal (supernormal) returns. Grubert and Newlon (1995) explain how the treatment of inframarginal returns differs under the origin and destination principle for foreign-source earnings. Under the flat tax (an origin-based tax) there is an incentive to shift rent-earning activities to locations with low statutory tax rates.

2) *Changes in the Statutory Tax Rate and Tax Base*

A common feature of the three consumption tax proposals is that not only do they exempt the marginal return to capital income, but they impose a low statutory tax rate on pure rents. Under the sales tax, there is no separate business-level tax, so that rents are taxed only as they relate to the value of domestic consumption. Under the flat tax, rents are taxed at the business level at 17 percent and under the USA tax at 11 percent.

The low statutory tax rate on business income under these proposals would create incentives for MNCs to shift the reporting of income on internal transactions from high-tax countries to the United States. Where the multinational was consistent in its reporting of income to foreign authorities and to the United States, the United States would only benefit from the taxation of these shifted income amounts under the flat tax, since export earnings are exempt under the sales tax and the USA tax. Under all three taxes, however, transfer-pricing incentives might encourage firms to expand their real U.S. production activities, since presumably the larger the U.S. activity of the MNC, the easier it is to conceal its profit shifting from other locations. If increased enforcement by foreign countries of transfer pricing is not successful, foreign countries will face strong incentives to lower their statutory tax rates to prevent loss of their tax base.

The flat tax remains susceptible to U.S. transfer-pricing concerns in dealings with subsidiaries in low-tax countries. Since foreign-source earnings are exempt from taxation, but export earnings are not, there is an incentive to understate export prices to subsidiaries in low-tax countries (and similarly, to overstate import prices from subsidiaries in low-tax countries). The same incentive exists today, of course, either to benefit from deferral of tax on foreign earnings or to create lightly taxed foreign-source income to offset excess credits. Given the much lower tax rate under the flat tax than under the current income tax, however, the United States would likely find itself the beneficiary of aggressive transfer pricing by MNCs more often than the victim.

In addition, changes in the U.S. tax base give multinationals an incentive to change their financial structures under all three taxes. Interest payments on debt in the United States would not be deductible, but if this debt were assigned to operations in other countries, the firm's foreign tax payment could be reduced. Other countries would need to further refine their thin-capitalization rules to prevent loss of tax base.

In most cases, these financial changes would be a matter of indifference to U.S. tax authorities. McLure and Zodrow (1995) note, however, that the origin-based flat tax is not immune to certain financial transactions. Under this tax, export receipts of U.S. businesses are subject to tax, but receipts of interest income are not. U.S. exporters would have an incentive to engage in instalment sales with an artificially low export price and an above-market rate of interest. U.S. importers would have an incentive to deduct an above-market sales price financed by a below-market nondeductible loan. Foreign businesses are likely to be indifferent to such a relabelling. From this perspective, a destination-based consumption tax seems preferable (at least from the U.S. perspective).

3) Changes in Allocation and Apportionment Rules and Treatment of Export Income

The most significant apportionment change relative to the current income tax is that foreign-source earnings would no longer be taxable under the consumption tax proposals. While in isolation such a change would favour relocation abroad, the exemption of tax on the marginal return to capital and the low U.S. statutory tax rate would in most cases seem to favour U.S. production, as noted above.

The consumption tax proposals differ in their treatment of export earnings. Such earnings would be exempt under the sales tax and destination-principle USA tax, but be taxed under the flat tax. It is well understood by economists, however, that a uniform destination-principle consumption tax and a uniform origin-principle consumption tax have the same consequences on trade. In practice, the value-added consumption taxes typically result in non-uniform taxes across consumption items, so that there may be an effect on trade.²⁸ It is assumed that the proposed consumption taxes are uniform, so that the trade distinctions among the plans are not of importance.

Under the current income tax, there are some incentives for U.S. firms to export rather than produce for domestic consumption (the 15-percent exemption of income earned under the foreign sales corporation rules), but the larger incentives exist for firms that also produce abroad and have excess foreign tax credits that can be absorbed by relabelling one half of export income as foreign-source income (the 50-50 rule). The consumption taxes are neutral in their effects on whether to produce for domestic or foreign consumption. In this sense, export incentives are reduced under the consumption tax. However, more importantly, the consumption tax favours domestic production relative to foreign production (given that foreign taxes are not creditable), whereas the income tax favours foreign production in low-tax countries when tax on these earnings can be deferred. Given the greater domestic production that should occur under these consumption taxes, an increase in exports would be expected.

Under current law, as discussed in Sections 4 and 5, current allocation and apportionment rules slightly subsidize domestic R&D for the creation of intangible capital used abroad. One half of domestic R&D is allocated domestically, and the remainder can be allocated on the basis of foreign and domestic sales. At the same time, all foreign royalty income may be allocated to foreign-source income, despite the fact that no foreign tax may actually be paid on this income. For a firm with excess foreign tax credits, these incentives may encourage the performance of domestic R&D, which will generate know-how to be licensed abroad in exchange for royalty payments.

Under the consumption taxes, foreign-source income is exempt from taxation, so there is no incentive to generate royalty income to offset excess foreign tax credits. Grubert and Newlon (1995) show how the locational choice of an existing intangible is not distorted under a consumption tax. This effect removes the distortion that presently exists for excess-credit firms

²⁸ See Hamilton and Whalley (1986) and Feldstein and Krugman (1990).

to locate domestically created intangible assets abroad. At the same time, it may remove an incentive to perform R&D domestically, since there is no incentive to earn royalty income. The flat tax and the USA tax, however, also allow 100 percent of domestically conducted R&D to be deducted against domestic receipts. This shift creates a greater incentive to perform R&D at home, relative to the current apportionment rules. The effects of these two changes then go in different directions. Finally, the consumption taxes also remove the incremental credit for research and development, which also reduces incentives for R&D.

My evaluation of the many effects of these changes on R&D activity is that the allocation and apportionment changes cause the consumption tax to be neutral with respect to locational decisions, whereas I interpret the current effects of the income tax to slightly favour domestically conducted R&D.²⁹ As a result, there may be some reduction in R&D activity directed to foreign markets, unless these activities are complementary to the other production activities of the firm. Further relocation of R&D activity might be expected in response to the elimination of the R&D credit.

The economics literature has generally favoured subsidies for R&D activity because it is thought to confer spillover benefits that are greater than those from other investment activities. As noted by Jaffe (1995), however, this literature has generally not distinguished between the spillover effects arising from the creation of new technology and those arising from its use. If where the technology is applied matters as much as where it is developed, the substitution of domestic R&D with imported technology may not be a concern. Obviously, more research must go into this question before trying to tailor tax policy to possibly mistaken beliefs.

7. Conclusions

In the past decade, the economics literature has increasingly focussed on the international ramifications of tax provisions. The substantial changes in tax rates brought about by the 1986 Act, as well as changes in the tax base, have created an interesting "natural experiment" in which to view corporate responses. The many empirical studies that have focussed on the 1986 changes largely confirm the importance of tax rules in the behaviour of multinational corporations.

The incentives of MNCs to profit maximize lead to fairly easy-to-predict responses to changes in tax systems. A more difficult question is how other countries will respond to a unilateral change in the tax structure of another country. The many changes in tax structure of other countries contemporaneous with the *U.S. Tax Reform Act*, even if not caused by that act, are consistent with what many have predicted would be necessary to prevent significant shifts in FDI and flight of financial capital. It is interesting that by 1992, U.S. corporations appear to have faced a spread between U.S. and foreign tax rates quite comparable to what they faced in 1984.

²⁹ Hines (1993) also notes there is likely a net subsidy to domestic R&D performed for foreign markets.

Although the U.S. motivation for tax reform today, as in 1986, is largely independent of international concerns, a concern for international competitiveness may lead to a tax structure that makes the United States a more attractive location for MNCs, relative to current law. If the United States goes all the way toward replacing the current income tax structure with consumption-based taxes, other industrialized countries will face many incentives to adopt a similar tax structure.

TABLE 1
Tax Incentives for Corporate Leverage

Year	After-Tax Return on Debt	After-Tax Return on Equity	Equity Less Debt Differential
1975	.30	.315	.015
1980	.30	.332	.032
1985	.50	.392	-.108
1990	.72	.545	-.175
1995	.60	.497	-.103

Source: Data for 1975 to 1990 are taken directly from Poterba (1992), p. 49. His description of the table follows: "The first column is equal to $(1-m^*)$, where m^* is the marginal federal tax rate on interest income received by the highest-income individual investors. The second column reports $(1-\tau_{corp})(1-.5m^*-.5\tau_{cg})$, where τ_{corp} denotes the corporate tax rate and τ_{cg} the effective capital gains tax rate, defined as .25 times the statutory capital gains tax rate facing realized gains for top-bracket households. The .25 factor reflects the reduction in the effective tax rate as a result of deferral and basis step-up at death." Data for 1995 assume a top personal tax rate of .40 and a corporate tax rate of .35, reflecting the changes made by the 1993 Act.

TABLE 2
Corporate Profits and Operating Income

Years	(Profits+Interest)/ GDP	Interest/GDP	Profits/GDP	Interest/ (Profits+Interest)
1960-69	.091	.009	.082	.10
1970-79	.073	.016	.056	.23
1980-85	.067	.023	.045	.34
1986-90	.070	.024	.045	.35
1991-95	.062	.017	.046	.27

Source: National Income and Product Accounts, April 2, 1996. Data are for domestic non-financial corporations.

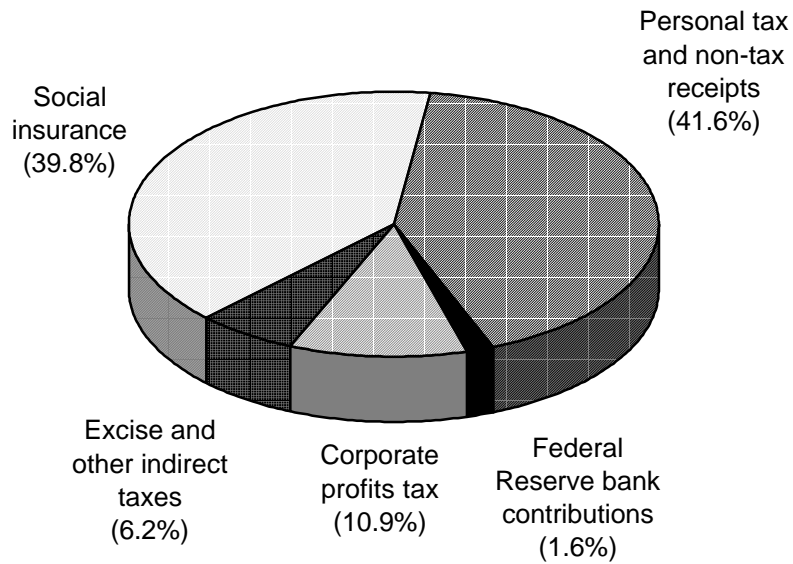
TABLE 3
Cost of Capital for Domestic Investment

Asset	Permanent Regular Tax	Equity Finance		All Debt Finance		One Third Debt Finance	
		Five-Year AMT	Five-Year Loss	Five-Year AMT	Five-Year Loss	Five-Year AMT	Five-Year Loss
Equipment	6.83	7.41	7.18	7.72	7.94	7.51	7.42
Structures	7.74	7.66	7.52	7.83	7.93	7.72	7.65
Intangible Capital	5.00	6.05	7.42	6.39	8.44	6.16	7.75
Inventory	7.58	7.54	7.43	7.65	7.69	7.58	7.51
Land	7.58	7.51	7.43	7.62	7.69	7.55	7.51
Total Capital	7.11	7.37	7.38	7.58	7.92	7.44	7.55

Note: The cost of capital net of depreciation is shown in percent under the tax law parameters in effect before 1993. The calculations assume a 5-percent after-tax real return and an inflation rate of 3.8 percent. For firms permanently on the regular tax, the cost of capital is the same under equity or debt finance. The cost of capital for total capital is a weighted combination of the cost of capital for equipment, structures, intangible capital, inventory and land.

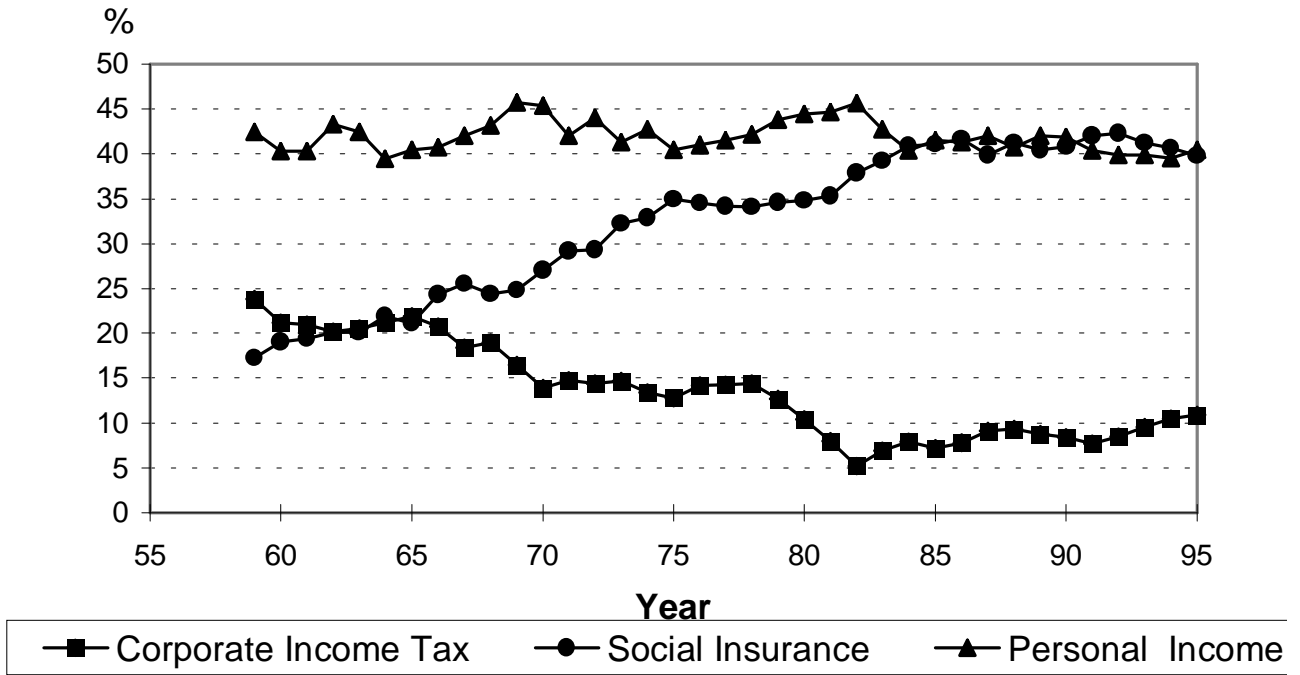
Source: Lyon (1997).

FIGURE 1
Federal Revenue Sources, 1995



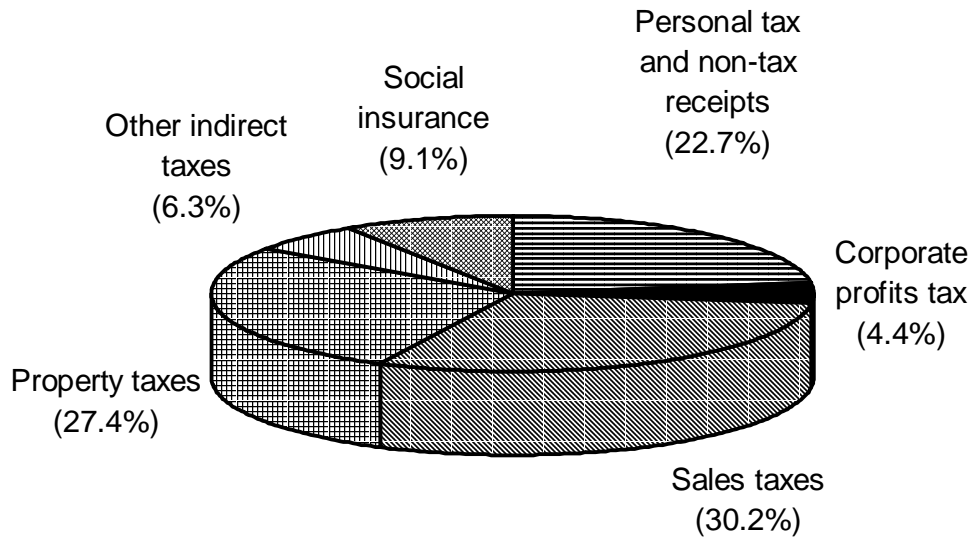
Source: *National Income and Product Accounts*, April 1996.

FIGURE 2
U.S. Federal Revenue Sources
as Share of Federal Receipts, 1959-95



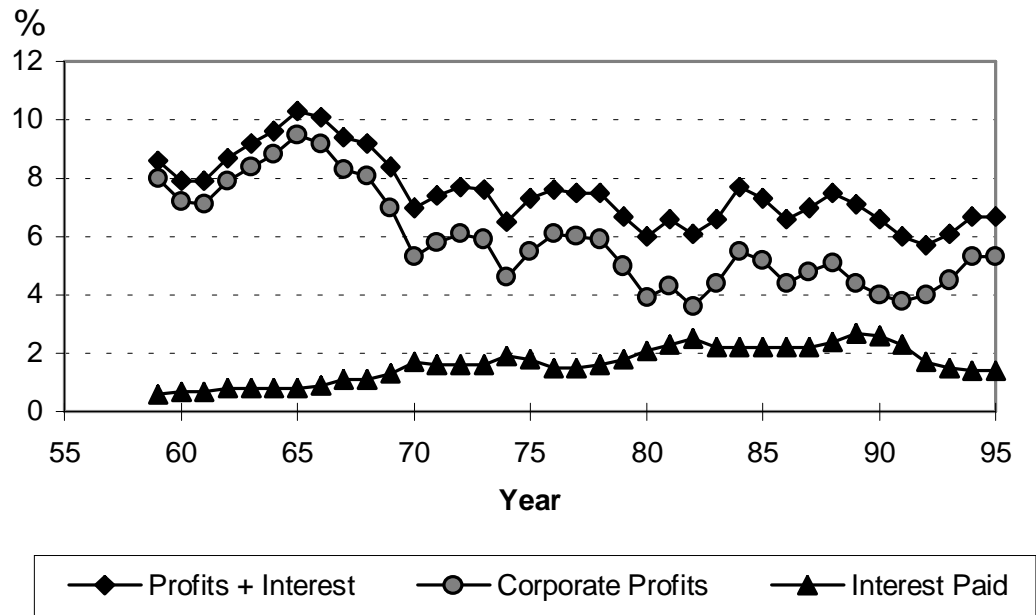
Source: *National Income and Product Accounts*, April 1996.

FIGURE 3
State and Local Revenue Sources, 1995



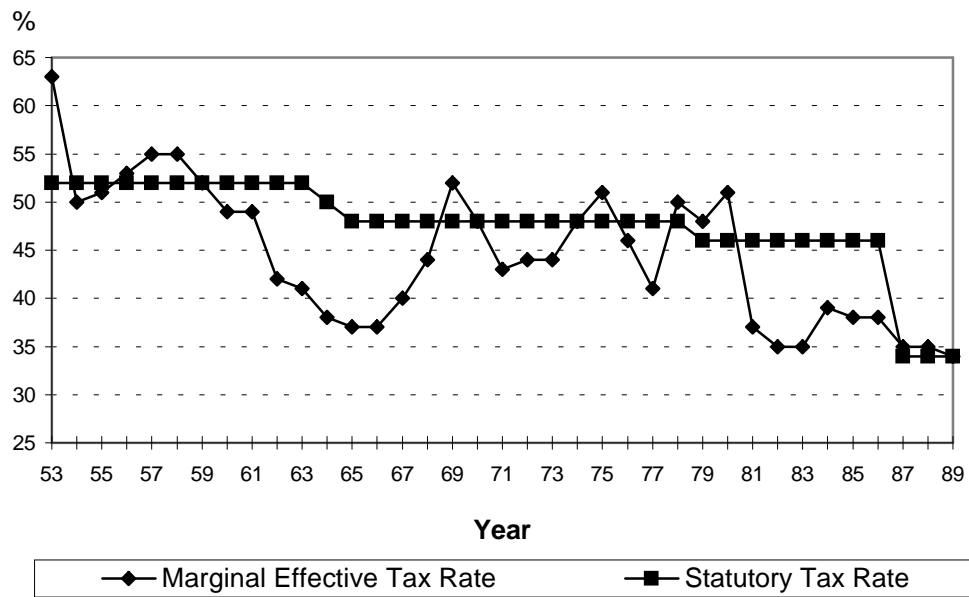
Source: *National Income and Product Accounts*, April 1996.

FIGURE 4
Corporate Profits as Share of GDP, 1959-95



Source: *National Income and Product Accounts*, April 1996.

FIGURE 5
Corporate Tax Rates, 1953-89



Source: Gravelle (1994), Table 2.1 and computations prepared by Gravelle.

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Technical Committee on Business Taxation

The Technical Committee was established by the Minister of Finance, at the time of the March 1996 federal budget, to consider ways of:

- improving the business tax system to promote job creation and economic growth,
- simplifying the taxation of businesses to facilitate compliance and administration, and
- enhancing fairness to ensure that all businesses share the cost of providing government services.

The Technical Committee will report before the end of 1997; consultations with the public will follow the release of the report.

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The Technical Committee has commissioned a number of studies from outside experts to provide analysis of many of the issues being considered as part of its mandate. These studies are being released as working papers to make the analysis available for information and comment. The papers have received only limited evaluation; views expressed are those of the authors and do not necessarily reflect the views of the Technical Committee.

A list of completed research studies follows. They may be requested from:

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Brian Arnold (Goodman Phillips & Vineberg)
Jinyan Li and *David Sandler* (University of Western Ontario)
- WORKING PAPER 96-2**
Why Tax Corporations
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