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**DESCRIPTION AND ANALYSIS OF TAX
PROVISIONS EXPIRING IN 1992**

SCHEDULED FOR HEARINGS

BEFORE THE

HOUSE COMMITTEE ON WAYS AND MEANS

ON JANUARY 28-29 AND FEBRUARY 26, 1992

PREPARED BY THE STAFF

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INTRODUCTION

This pamphlet,¹ prepared by the staff of the Joint Committee on Taxation, provides a description and analysis of tax provisions scheduled to expire in 1992. The House Committee on Ways and Means has scheduled public hearings on the expiring tax provisions on January 28-29, and February 26, 1992.

The first part of the pamphlet is a summary listing of tax provisions scheduled to expire in 1992. The second part is a description of the 1992 expiring tax provisions, including present law, legislative background, and an analysis of issues related to the provision.

¹ This pamphlet may be cited as follows: Joint Committee on Taxation, *Description and Analysis of Tax Provisions Expiring in 1992* (JCS-2-92), January 27, 1992.

I. SUMMARY

The following is a summary listing of tax provisions scheduled to expire in 1992 (102nd Congress).

Tax provisions expiring generally after June 30, 1992

The following 12 tax provisions are generally scheduled to expire after June 30, 1992, except for item (6):²

- (1) Exclusion for employer-provided educational assistance benefits (Code sec. 127);
- (2) Exclusion for group legal services benefits and the tax exemption for an organization providing group legal services as part of a qualified group legal services plan (secs. 120 and 501(c)(20));
- (3) Deduction for health insurance costs of self-employed individuals (sec. 162(l));
- (4) Tax exemption for qualified mortgage bonds and election to issue mortgage credit certificates (secs. 143 and 25);
- (5) Tax exemption for qualified small-issue bonds (sec. 144(a));
- (6) Rules for allocation and apportionment of research expenses to U.S. and foreign income (sec. 864(f));³
- (7) Tax credit for qualified research expenditures (sec. 41);
- (8) Tax credit for low-income rental housing (sec. 42);
- (9) Targeted jobs tax credit (sec. 51);
- (10) Business energy tax credits for solar and geothermal property (sec. 48(a));
- (11) Tax credit for orphan drug clinical testing expenses (sec. 28); and
- (12) Minimum tax exception for gifts of appreciated tangible property (sec. 57).

Tax provisions expiring after September 30 or December 31, 1992

The following tax provisions are also scheduled to expire in 1992:

- (1) Access to tax information by the Department of Veterans Affairs (sec. 6103);⁴
- (2) Placed-in-service date for the nonconventional fuels production credit (sec. 29);⁵ and
- (3) Excise tax on certain vaccines for the Vaccine Injury Compensation Trust Fund (secs. 4131 and 9510).⁶

² These 12 tax provisions were last extended in the Tax Extension Act of 1991 ("1991 Act") (P.L. 102-227).

³ Scheduled to expire generally after the first six months of the taxpayer's first taxable year beginning after August 1, 1991.

⁴ This provision was enacted in the Omnibus Budget Reconciliation Act of 1990 ("1990 Act"), and is scheduled to expire after September 30, 1992.

⁵ This provision was last extended in the 1990 Act, and is scheduled to expire after December 31, 1992.

⁶ These provisions were enacted in the Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203), and are scheduled to expire after December 31, 1992, under certain circumstances.

II. DESCRIPTION AND ANALYSIS OF 1992 EXPIRING TAX PROVISIONS

A. Tax Provisions Expiring Generally After June 30, 1992

1. Exclusion for employer-provided educational assistance (sec. 127 of the Code)

Present Law

An employee's gross income and wages for income and employment tax purposes do not include amounts paid or incurred by the employer for educational assistance provided to the employee if such amounts are paid or incurred pursuant to an educational assistance program that meets certain requirements (Internal Revenue Code sec. 127). This exclusion, which expires on June 30, 1992, is limited to \$5,250 of educational assistance with respect to an individual during a calendar year.

In the absence of the section 127 exclusion, an employee generally would be required to include in income and wages, for income and employment tax purposes, the value of educational assistance provided by an employer to the employee, unless the cost of such assistance qualified as a deductible job-related expense of the employee.

Legislative Background

The section 127 exclusion was first established on a temporary basis by the Revenue Act of 1978 (through 1983). It subsequently was extended, again on a temporary basis, by Public Law 98-611 (through 1985), by the Tax Reform Act of 1986 (through 1987), by the Technical and Miscellaneous Revenue Act of 1988 (through 1988), by the Omnibus Budget Reconciliation Act of 1989 (through September 30, 1990), by the Omnibus Reconciliation Act of 1990 (through 1991), and by the Tax Extension Act of 1991 (through June 30, 1992). Public Law 98-611 adopted a \$5,000 annual limit on the exclusion; this limit was subsequently raised to \$5,250 in the Tax Reform Act of 1986. The Technical and Miscellaneous Revenue Act of 1988 made the exclusion inapplicable to graduate-level courses. The restriction on graduate-level courses was repealed by the Omnibus Reconciliation Act of 1990, effective for taxable years beginning after December 31, 1990.

Analysis

The exclusion for employer-provided educational assistance programs is aimed at increasing the levels of education and training in the workforce. Employer-provided educational assistance benefits may serve as a substitute for cash wages (or other types of fringe benefits) in the overall employment compensation package.

Because of their favorable tax treatment, benefits received in this form are less costly than cash wages in terms of the after-tax cost of compensation to the employer-employee pair.

The tax treatment serves to subsidize the provision of education and could lead to larger expenditures on education for workers than would otherwise occur. This extra incentive for education may be desirable if some of the benefits of an individual's education accrue to society at large (through the creation of a better-educated populace or workforce). Absent the subsidy, individuals would underinvest in education (relative to the socially desirable level) because they would not take into account those benefits that others receive. To the extent that expenditures on education represent a purely personal consumption benefit, a subsidy would lead to overconsumption of education.

Because the provision allows an exclusion from gross income, the value in terms of tax savings is greater for those taxpayers facing higher marginal tax rates. Thus higher-paid individuals or individuals with working spouses may be able to receive larger tax benefits than their fellow workers.

In general, in the absence of section 127, the value of employer-provided education is excludable from income only if the education relates directly to the taxpayer's current job. If the education would qualify the taxpayer for a new trade or business, however, then the value of the benefit generally would not be excludable from income. Under this rule, higher-income, higher-skilled individuals may be more able to justify education as related to their current job because of the breadth of their current training and responsibilities. For example, an accountant may find more courses of study directly related to his or her current job and not qualifying him or her for a new trade than would a clerk.

The exclusion for employer-provided educational assistance is meant to counteract the above effect by making the exclusion widely available. Proponents argue that the exclusion is used by the nonhighly compensated employees to improve their competitive position in the work force. In practice, however, the scant evidence available seems to indicate that those individuals receiving employer-provided educational assistance are somewhat more likely to be higher-paid workers.⁷ The size of the benefits paid also appear to be positively correlated with the income of the recipient. Such evidence is consistent with the observation that the exclusion is more valuable to those individuals in higher marginal tax brackets. A reformulation of the incentive as inclusion of the value of benefits into income in conjunction with a tax credit could make the value of the benefit more even across marginal tax brackets.⁸

An alternative rationale originally offered for the exclusion is that in its absence, there may be significant administrative costs for the Internal Revenue Service to distinguish between job-related

⁷ See, for example, Coopers & Lybrand, "Section 127 Employee Educational Assistance: Who Benefits? At What Cost?", June 1989, p. 15, and Steven R. Aleman, "Employer Education Assistance: A Profile of Recipients, Their Educational Pursuits, and Employers," CRS Report, 89-33 EPW, January 10, 1989, p. 9.

⁸ If the credit were nonrefundable, then to the extent that a taxpayer may reduce his or her tax liability to zero, he or she may not be able to receive the full value of the credit.

and other educational expenditures as well as the possibility of numerous disputes between the IRS and taxpayers.

2. Exclusion for employer-provided group legal services; tax exemption for qualified group legal services organizations (secs. 120 and 501(c)(20) of the Code)

Present Law

Under present law, certain amounts contributed by an employer to a qualified group legal services plan for an employee (or the employee's spouse or dependents) and the benefits provided under such a plan are excluded from the employee's gross income for income and employment tax purposes (sec. 120). The exclusion does not apply to the extent that the value of insurance against legal costs incurred by the individual (or spouse or dependents) provided under the plan exceeds \$70.

The exclusion for group legal services benefits expires on June 30, 1992.

In addition, present law provides tax-exempt status for an organization the exclusive function of which is to provide legal services or indemnification against the cost of legal services as part of a qualified group legal services plan (sec. 501(c)(20)). The tax exemption for such an organization expires for taxable years beginning after June 30, 1992.

Legislative Background

The section 120 exclusion and the section 501(c)(20) exemption were enacted initially on a temporary basis by the Tax Reform Act of 1976 (through 1981). They subsequently were extended, again on a temporary basis, by the Economic Recovery Act of 1981 (through 1984), Public Law 98-612 (through 1985), the Tax Reform Act of 1986 (through 1987), the Technical and Miscellaneous Revenue Act of 1988 (through 1988), the Omnibus Budget Reconciliation Act of 1989 (through September 30, 1990), the Omnibus Reconciliation Act of 1990 (through 1991), and by the Tax Extension Act of 1991 (through June 30, 1992). The Technical and Miscellaneous Revenue Act of 1988 imposed the \$70 annual limit on the amount of premium that may be excluded by the employee.

Analysis

The exclusion from income for benefits under a qualified group legal services plan was originally enacted to provide a tax incentive to promote prepaid group legal services plans. The tax subsidy was intended to increase the access to legal services by encouraging employers to offer and employees to seek such plans. The legislative history of the provision indicates that the Congress believed that the exclusion would be particularly helpful in increasing the access of middle-income taxpayers to legal services.

In 1991, approximately 2.3 million employees (and members of their families) were covered by group legal services plans.^{8a} The services provided under legal services plans may vary, ranging from free limited consultations, such as advice by phone or in person or review of legal documents, to more comprehensive plans providing assistance with matters such as divorce cases, collection suits, or other types of suits. Personal injury cases and litigation are often excluded.

There are a number of reasons why a tax subsidy might be provided for any particular activity. Economic justifications for a subsidy rest on the idea that there is a benefit to society from an activity in addition to the benefit received by the individual. In such cases, individuals tend to undervalue the benefit of the activity, and an incentive is needed to produce the desired level of activity. A similar argument is that the subsidy is simply another form of providing social services. For example, the exclusion for employer-provided health insurance is sometimes justified on the ground that it reduces the amounts that would otherwise be paid for public health assistance for people who are uninsured.

Another argument sometimes advanced for subsidies for insurance is that the benefit may offer scale and risk pool efficiencies that will lower premiums for all participants in the group. If persons were not compelled to join the group, a problem of adverse selection may arise. Adverse selection would exist if the individuals had better information about their likelihood of incurring claims than would the provider of the insurance. At a given price for the insurance, individuals with a high risk of incurring claims would be willing to purchase the insurance while low-risk individuals may not, leading to high claims experience and potential losses for the insurance provider. There may be no premium at which the insurer would be willing to cover the pool of risk that the premium would attract.⁹

In the absence of a market failure with respect to group legal services, the tax subsidy merely serves as a subsidy for personal consumption. Such a subsidy may be inefficient, since it could lead to more use of legal services than would otherwise occur. Also, some taxpayers may receive the benefit of the exclusion for legal services that they otherwise would have purchased with after-tax dollars. Thus, the cost to the Federal Government of allowing the exclusion may exceed the social good (i.e., additional access to legal services) that the exclusion is intended to achieve.

The tax subsidy for the group legal services clearly encourages consumption of legal services because benefits received through the tax-subsidized form are less costly than cash wages in terms of the after-tax cost of compensation to the employer-employee pair. For example, suppose an employee is willing to spend for group legal services and that the employee faces a 15-percent marginal income

^{8a} National Resource Center for Consumers of Legal Service Plans, *Legal Plan Letter*, No. 231, August 30, 1991.

⁹ For a general discussion of the adverse selection problem in insurance markets, see Michael Rothschild and Joseph Stiglitz, "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information," *Quarterly Journal of Economics*, 90 (1976), pp. 629-650.

tax rate.^{9a} Instead of paying the employee an additional dollar of cash wages (that allows the employee to purchase 85 cents ($\$1 \times (1 - .15)$) of additional group legal services), the employer could provide directly an additional 90 cents of tax-favored group legal services and both parties would be better off.

Recent studies¹⁰ have not determined whether the exclusion operates to correct a market failure or has improved access to legal services for taxpayers who could not otherwise purchase the services. Some argue that adverse selection is not a problem in the market for group legal services. First, the crucial element for combating adverse selection is the compulsion to join the group, not the presence of financial incentives. Second, adverse selection may not be a problem in the market for group legal services, as there has been the formation of groups consisting of self-selected individuals. In March 1987, almost one quarter of the people covered by prepaid legal services plans were members of voluntary or individual enrollment plans.^{10a} Also, group legal services may be offered by the employer through a cafeteria plan, allowing employees to opt in or out of the program.

^{9a} For simplicity of exposition, this example ignores FICA taxes. Including them would not change the qualitative results.

¹⁰ In a 1988 study, the Treasury Department questioned the cost effectiveness of the exclusion. The study also questioned the need for a Federal subsidy, finding that most of the benefits of group legal services are personal rather than social. Department of the Treasury, *Report to the Congress on Certain Employee Benefits Not Subject to Federal Income Tax*, June 1988.

^{10a} Department of the Treasury, *Report to the Congress on Certain Employee Benefits Not Subject to Federal Income Tax*, June 1988, p. 39, using data from National Resource Center for Consumers of Legal Services, *Legal Plan Letter*, March 1987.

3. Deduction for health insurance costs of self-employed individuals (sec. 162(l) of the Code)

Present Law

Under present law, an employer's contribution to a plan providing accident or health coverage is excludable from an employee's income (sec. 106). No equivalent exclusion is provided for self-employed individuals (i.e., sole proprietors or partners in a partnership), or for more than 2-percent shareholders of S corporations.

However, present law provides a deduction for 25 percent of the amounts paid for health insurance for a taxable year on behalf of a self-employed individual and the individual's spouse and dependents. This deduction is allowable in calculating adjusted gross income. The 25-percent deduction is also available to a more than 2-percent shareholder of an S corporation.

No deduction is allowable for any taxable year in which the self-employed individual or eligible S corporation shareholder is eligible to participate (on a subsidized basis) in a health plan of an employer of the self-employed individual (or of such individual's spouse).

The 25-percent deduction is scheduled to expire after June 30, 1992.

Legislative Background

The 25-percent deduction for the health insurance costs of self-employed individuals was enacted on a temporary basis by the Tax Reform Act of 1986 (for taxable years beginning before January 1, 1990). Certain technical corrections to the provision were made by the Technical and Miscellaneous Revenue Act of 1988. The Omnibus Budget Reconciliation Act of 1989 extended the deduction for 9 months (through September 30, 1990) and clarified that the deduction is available to certain S corporation shareholders. The Omnibus Reconciliation Act of 1990 extended the deduction through 1991. The Tax Extension Act of 1991 then extended the deduction through June 30, 1992.

Analysis

Overview

The 25-percent deduction for the health insurance expenses of self-employed individuals is intended to provide such individuals some of the favorable tax treatment for health insurance given to employees who are covered under an employer-provided health plan. In 1988, a deduction for the health insurance expenses of the self-employed was claimed on 1.89 million tax returns, with an average deduction of \$469 (indicating average self-employed health insurance premiums of \$1,876). The deduction can be analyzed in terms of both equity and efficiency.

Equity issues

Judgments concerning the fairness of providing self-employed individuals with a 25-percent deduction for health insurance premiums depend upon whether the self employed are compared to taxpayers who receive employer-provided health insurance or to taxpayers who do not.¹¹ The tax subsidy for the health insurance expenses of the self employed is smaller than the tax subsidy for employees covered under an employer-provided health plan. Employer-provided health insurance expenses are excluded from income, whereas the self employed can deduct only 25 percent of the costs of their health insurance. Furthermore, employer-provided health insurance expenses generally are also excluded from the Federal Insurance Contributions Act (FICA) wage base, whereas the self employed cannot deduct their insurance expenses when calculating Self-Employment Contributions Act (SECA) taxes.¹²

For example, a taxpayer in the 15-percent tax bracket receives a 28.1-percent health insurance subsidy on health insurance premiums paid for by an employer (including both the employer and the employee share of FICA taxes),¹³ whereas a self-employed worker in the same bracket receives a subsidy of 3.75 percent on health insurance premiums. The difference between the subsidy granted to the health insurance expenses of the self employed and that provided to employer-provided health insurance is somewhat smaller for taxpayers with higher incomes. For instance, an employee in the 31-percent tax bracket with total wages exceeding the FICA cap receives a 31-percent subsidy from employer-provided health. A self-employed worker in the 31% tax bracket, with earnings above the SECA cap, receives a 7.75-percent subsidy.

However, employers typically require employees to pay some part of their health insurance premium. This share is generally paid with after-tax dollars.¹⁴ If employees pay an average of 20 percent of their health insurance premium with after-tax dollars, then the subsidy for workers in the 15-percent bracket is reduced from 28.1 percent to 22.5 percent. Furthermore, self-employed indi-

¹¹ According to one source, in 1989 roughly 11 percent of individuals had public health care coverage (e.g., Medicaid, Medicare, Champus), 62 percent had employer-related health care coverage, 14 percent had other private coverage, and 13 percent had no coverage. See, Health Insurance Association of America, *Source Book of Health Insurance Data*, 1991, Washington, D.C.

¹² Like other employees of an S corporation, more than 2-percent shareholder-employees of an S corporation are subject to FICA taxes (not SECA taxes as are self-employed individuals). Thus, amounts paid by an S corporation for health insurance covering a more than 2-percent shareholder may be excludable from wages for FICA tax purposes even though they are includible in income for income tax purposes. IRS Announcement 92-16.

¹³ The subsidy for employer-provided health insurance is calculated as follows. Assume an employer is willing to spend an additional \$100 compensating an employee. If the employer provides the compensation in the form of cash wages, and the employee's total wages are below the FICA income caps, the employer will pay the employee an additional

$\$92.89$ in wages, and $.0765 \times \$92.89 = \7.11 in FICA taxes. Assuming the employee is in the 15-percent marginal tax bracket, the employee will receive net of taxes $\$92.89 \times (1 - .15 - .0765) = \71.85 . If the employer instead bought health insurance for the employee with the \$100, the employee would receive an additional \$100 of health insurance, instead of \$71.85. This is equivalent to the employee receiving \$71.85, but being able to purchase \$100 of health insurance with it, a 28.1-percent $((\$100 - \$71.85) / \$100)$ subsidy.

¹⁴ Employees with cafeteria plans may be able to pay their share of their health insurance premium, as well as their deductible and copayments with pre-tax dollars. A 1988 survey of employee benefits in medium and large firms found that 16 percent of employees required to contribute toward their health benefits in 1988 could do so with pre-tax dollars. *Employee Benefits in Medium and Large Firms, 1988*, U.S. Department of Labor, Bureau of Labor Statistics (Washington DC: U.S. Government Printing Office, 1989).

viduals may have more flexibility in designing their health insurance plans to maximize the amount of health expenses that are called insurance, and therefore eligible for the 25-percent deduction. This ability also reduces the disparity between the tax treatment of the health expenditures of employees covered under an employer-provided plan relative to the health expenditures of the self employed.

Taxpayers who do not receive employer-provided health insurance and who are not self employed cannot deduct their health insurance expenses unless their expenditures for medical expenses exceed 7.5 percent of their adjusted gross income (AGI). This generally means that the cost of purchasing health insurance is not subsidized unless the taxpayer also has significant uninsured medical expenses so that the AGI floor is exceeded. Compared with these taxpayers, the health insurance expenses of self-employed individuals are provided somewhat favorable tax treatment.

Efficiency issues

Because society generally chooses to provide some health care for individuals without insurance,¹⁵ it is possible that in the absence of a government subsidy, more people would choose not to purchase health insurance and would count on receiving free care if they became ill. Thus, one rationale for providing a tax subsidy to health insurance expenditures is to create an incentive for taxpayers to purchase health insurance and, thereby, reduce the overall subsidy the government would otherwise provide for health care. The effectiveness of the 25-percent deduction (which, for a taxpayer in the 31-percent tax bracket, represents a 7.75-percent subsidy) for the health insurance of the self employed is unclear. If the self employed face higher health care costs than workers in group plans, a 25-percent deduction may not be enough of a subsidy to induce much additional coverage, and may only provide a tax benefit for those who would purchase the insurance anyway.

Many people argue that the tax subsidies currently provided to health insurance are so large that they result in a higher level of health service utilization than is desirable. Some would argue that extending this subsidy (though at a reduced level) to the self employed exacerbates this problem. Furthermore, if the goal is to encourage the purchase of health insurance, it is unclear why the tax subsidy should not be available to all individuals without regard to whether their employers provide health insurance for them or they are self employed.

Finally, providing a lower subsidy to health insurance purchased by the self employed than to employer-provided health insurance encourages people to work for others rather than for themselves. Providing a 25-percent deduction for the health insurance expenses of the self employed reduces this inefficiency.

¹⁵ For instance, according to one estimate, in 1986 the uninsured contacted the doctor two-thirds as often and used three-quarters as many hospital days as the insured. See, The Pepper Commission, *A Call for Action*, U.S. Government Printing Office (S. PRT. 101-114), September 1990, p. 34. Presumably, some of the costs of this care was paid for by the uninsured recipients, and some was paid from other sources.

4. Qualified mortgage bonds and mortgage credit certificates (secs. 143 and 25 of the Code)

Present Law

Qualified mortgage bonds

Qualified mortgage bonds ("QMBs") are bonds the proceeds of which are used to finance the purchase, or qualifying rehabilitation or improvement, of single-family, owner-occupied residences located within the jurisdiction of the issuer of the bonds (sec. 143). Persons receiving QMB loans must satisfy a home purchase price, borrower income, first-time homebuyer, and other requirements. Part or all of the interest subsidy provided by QMBs is recaptured if the borrower experiences substantial increases in income and disposes of the subsidized residence within nine years after purchase.

Mortgage credit certificates

Qualified governmental units may elect to exchange QMB authority for authority to issue mortgage credit certificates ("MCCs") (sec. 25). MCCs entitle homebuyers to nonrefundable income tax credits for a specified percentage of interest paid on mortgage loans on their principal residences. Once issued, an MCC remains in effect as long as the loan remains outstanding and the residence being financed continues to be the certificate-recipient's principal residence. MCCs are subject to the same targeting requirements as QMBs.

Expiration

Authority to issue QMBs and to elect to trade in bond volume authority to issue MCCs is scheduled to expire after June 30, 1992.

Legislative Background

The Mortgage Subsidy Bond Tax Act of 1980 first imposed restrictions on the ability of States and local governments to issue tax-exempt bonds to finance mortgage loans on single-family, owner-occupied residences. These restrictions included many of the rules applicable under present law.

Under that Act, the authority of States and local governments to issue QMBs was scheduled to expire after December 31, 1983. The Deficit Reduction Act of 1984 extended this authority (with modifications) through December 31, 1987, and enacted the MCC alternative to QMBs. The Tax Reform Act of 1986 imposed a State volume limitation on the issuance of QMBs and certain other private activity bonds.

Authority to issue QMBs and the election to trade in bond volume authority to issue MCCs were extended for one year (through December 31, 1988) by the Tax Reform Act of 1986. The

Technical and Miscellaneous Revenue Act of 1988 extended the authority to issue QMBs and the election to trade in bond volume authority to issue MCCs for another year (through December 31, 1989), with substantial modifications, including imposition of the recapture provision described above. The Omnibus Budget Reconciliation of 1989 extended the expiration date of this authority nine months (through September 30, 1990).

Authority to issue QMBs and to elect to trade in bond volume authority to issue MCCs were extended for 15 months (through December 31, 1991) by the Omnibus Budget Reconciliation Act of 1990 ("1990 Act"). The 1990 Act also made several modifications to the recapture provision. These modifications were effective as if enacted in the Technical and Miscellaneous Revenue Act of 1988 (the Act which originally enacted the recapture provisions). The Tax Extension Act of 1991 extended the expiration date of the QMB and MCC programs through June 30, 1992.

Analysis

Overview

The purpose of the QMB and MCC programs is to increase homeownership by reducing the financial burden of becoming a homeowner for certain taxpayers. Would-be first-time homebuyers generally face two problems: accumulating a sufficient downpayment and meeting monthly mortgage payments. The QMB and MCC programs are designed to address the second of the two problems by providing interest subsidies to qualifying taxpayers. By their design, QMBs and MCCs cannot easily address the problem of accumulating a sufficient down payment. However, to the extent that lenders are willing to accept a lower downpayment in return for a higher interest rate on the loan, the QMB and MCC programs can be used to reduce down payment requirements for qualifying taxpayers by subsidizing the higher interest charge which accompanies a loan for the purchase of a home on which the taxpayer has made a lower downpayment.

In 1989, \$5.6 billion in new-issue qualified mortgage bonds were issued. Between 1984 and 1986, QMBs were issued at a rate of \$9.6 billion annually.¹⁶ According to data from the National Council of State Housing Agencies, in 1990 State housing agencies made approximately 127,000 loans to individuals having an average income of \$27,800 to purchase homes with an average purchase price of approximately \$60,000.¹⁷

Efficiency of tax-exempt finance for funds provided to individuals

As is the case generally with tax-exempt bonds, the interest rate subsidy provided to homebuyers by QMBs cannot efficiently pass the full value of the revenue lost to the Federal Government to the homebuyers. This arises primarily for five reasons. First, the Federal income tax has graduated marginal tax rates. Thus, \$100 of in-

¹⁶ Dennis Zimmerman, *The Private Use of Tax-Exempt Bonds: Controlling Public Subsidy of Private Activity* (Washington, D.C.: The Urban Institute Press), 1991.

¹⁷ Data from a survey of State agencies by the National Council of State Housing Agencies. These figures do not include loans made by local housing agencies.

terest income forgone to a taxpayer in the 31-percent bracket costs the Federal Government \$31, while the same amount of interest income forgone to a taxpayer in the 28-percent bracket costs the Federal Government \$28. Generally, a taxpayer will find it attractive to buy a tax-exempt security rather than an otherwise equivalent taxable security if the interest rate paid by the tax-exempt security, r_{te} , is greater than the after-tax yield from the taxable security, $r(1-t)$, where t is the marginal tax rate and r is the yield on the taxable security. Consequently, if a taxpayer in the 28-percent bracket finds it profitable to hold a tax-exempt security, a taxpayer in the 31-percent bracket will find it even more profitable. This conclusion implies that the Federal Government will lose more in revenue than the tax-exempt issuer gains in reduced interest payments. Because MCCs do not rely on the issuance of tax-exempt bonds, the subsidy that MCCs provide is not subject to this inefficiency.

Moreover, the recipient of a QMB-financed loan does not receive the full spread in yields between taxable and tax-exempt securities. For example, issuers of QMBs are permitted to retain up to 112.5 basis points above the tax-exempt bond yield to cover administrative expenses. This reduces the ultimate size of the interest rate subsidy received by the homebuyer.

The transaction costs arising from providing loans to individuals through issuance of tax-exempt bonds may, in some cases, be greater than those arising between an individual and financial institution such as a bank. Issuance of tax-exempt bonds involves costs of issuance (e.g., bond counsel and underwriting fees) in addition to costs which may arise in qualifying an individual for a direct bank loan and processing the loan.

The use of tax-exempt bonds to re-lend funds to individuals also creates another inefficiency which sometimes works to the ultimate borrowers' benefit and sometimes to their detriment. The tax-exempt bonds are sold prior to the funds ultimately being loaned to individuals. When interest rates are falling, this means that by the time the funds are made available to the ultimate borrowers the interest subsidy relative to available taxable sources is reduced. For example, conventional bank mortgages have fallen more than 100 basis points over the past six months. Had a housing agency issued QMBs six months ago to make the proceeds available to borrowers today, the effective interest subsidy available would have narrowed by 100 basis points. Of course, if interest rates were rising, the effective interest subsidy would have increased. Because MCCs do not rely on the issuance of tax-exempt bonds, the subsidy that MCCs provide is not subject to these unpredictable swings in market interest rates.

An additional source of inefficiency may arise if the supply of housing in a given area is limited, perhaps by zoning prohibitions on new construction. If interest rate subsidies are made available to potential buyers, the subsidy may permit buyers to bid up the purchase price of the housing, thereby transferring some of the subsidy to the seller. Some evidence suggests that this capitaliza-

tion of at least part of the interest rate subsidy in the form of higher prices does indeed occur.¹⁸

Measuring the costs and benefits of QMBs and MCCs

The cost of the QMB program is represented by the tax revenue foregone from investors purchasing and holding tax-exempt securities rather than taxable securities, less the tax revenue gained by the reduction in itemized mortgage interest deductions claimed by beneficiaries of QMB financing plus the loss from the inherent inefficiencies involved in tax-exempt finance, discussed above.¹⁹ The economic cost of MCCs is limited to the tax revenue lost from credits claimed.

The benefits of these programs, on the other hand, are much harder to quantify. The benefits take two broad forms. For some recipients of QMBs and MCCs, the interest rate subsidy lowers their cost of purchasing a home, but does not directly alter their ability to purchase a home. That is, some recipients of the subsidy could successfully qualify for a loan and purchase the same home using market rate financing.²⁰ For example, from the data cited above, in 1990, the average income of recipients of QMB financing was \$27,800 while the average home purchased cost approximately \$60,000. Under the common rule of thumb that a household can afford a home worth two and a half times household income, the data indicate that the average recipient of QMB financing could have qualified for conventional financing, assuming he or she had accumulated a sufficient down payment. For these recipients of the subsidy, the benefit is the reduction in interest costs.

However, QMBs or MCCs may permit some recipients to purchase a home when they would not otherwise have been able to do so. In this case, the benefit is the increase in housing services provided by an owner-occupied home rather than rental housing, and this increase in improved housing services would not be measured by the reduction in interest cost.

Unfortunately, it is difficult to identify which recipients of the subsidy are in each category. The calculation is made even more difficult when one recognizes that for some recipients the subsidy may accelerate the purchase of a home when the recipient would

¹⁸ See, Dan Durning and John Quigley, "On the Distributional Implications of Mortgage Revenue Bonds and Creative Finance," *National Tax Journal*, 38, December 1985, and Kirk McClure, "A Research Note on the Capitalization of Mortgage Revenue Bond Benefits," *National Tax Journal*, 42, March 1989.

¹⁹ This cost calculation is not the same as the revenue estimate for extending the QMB program for two reasons. First, the QMB program is subject to the State private activity annual volume limitation. To the extent that the issuance of other private activity bonds would increase if the authority to issue QMBs were not extended, the revenue estimate of extension would be substantially lower than the economic cost of issuing mortgage revenue bonds. Second, the revenue estimate would not necessarily assume that investors switch from holding QMBs to holding fully taxable investments.

²⁰ See, U.S. General Accounting Office, *Home Ownership: Mortgage Bonds Are Costly and Provide Little Assistance to Those in Need* (GAO/RCED-88-11), March 1988 (GAO, "Home Ownership"). GAO estimated that 56 percent of assisted buyers could have purchased the same home using conventional financing. For a dissenting view, see, Margaret Wrightson with Andrew Zehner, "Who Benefits from Single-Family Housing Bonds? History, Development and Current Experience of State-Administered Mortgage Revenue Bond Programs," unpublished manuscript Georgetown University, Government Department, Graduate Program in Public Policy, April 28, 1988. However, both of these studies may have limited relevance to the current debate because of the substantial modifications to the QMB and MCC programs made by the Tax Reform Act of 1986 and the Technical and Miscellaneous Revenue Act of 1988.

have been able to purchase a home with conventional financing in the future by continuing to save and experience income growth over time. For such recipients, the benefit is the acceleration of the receipt of improved housing services.

In a 1988 study, U.S. the General Accounting Office calculated that when conventional mortgage rates are 10 percent the benefits received by the homebuyer under the QMB program range between 36 and 39 cents per dollar of revenue cost to the Federal Government. They also argued that with the lower yield spreads which would result from the reduction in marginal tax rates in the Tax Reform Act of 1986, 30 cents in benefit per dollar cost might be a more appropriate estimate.²¹ However, these estimates do not reflect the program changes made by the Technical and Miscellaneous Revenue Act of 1988.

Some analysts believe that homeownership creates additional social benefits not captured in the market value of homes or in reduced interest costs.²² They argue that homeownership creates more stable neighborhoods and more involved communities. This can lead to better schools, reduced crime, and other positive social outcomes. It is nearly impossible to attempt to quantify the extent to which QMBs and MCCs create or contribute to these benefits. Such benefits arising from the QMB and MCC programs would depend upon the extent to which these programs increase homeownership beyond what it would in the absence of such programs. However, to the extent these benefits are perceived to be important, they should be factored into a cost-benefit analysis of the QMB and MCC programs.

²¹ GAO, "Home Ownership," p. 62.

²² These additional benefits are called externalities by economists.

5. Qualified small-issue bonds (sec. 144(a) of the Code)

Present Law

Interest on certain small issues of private activity bonds is exempt from tax if at least 95 percent of the bond proceeds is used to finance manufacturing facilities or agricultural land or property for first-time farmers ("qualified small-issue bonds"). Qualified small-issue bonds are issues having an aggregate authorized face amount of \$1 million or less. Alternatively, the aggregate face amount of the issue, together with the aggregate amount of certain related capital expenditures during the six-year period beginning three years before the date of the issue and ending three years after that date, may not exceed \$10 million. Special limits apply to these bonds for first-time farmers.

Authority to issue qualified small-issue bonds is scheduled to expire after June 30, 1992.

Legislative Background

Substantial modifications to the tax treatment of small-issue industrial development bonds (the predecessor to qualified small-issue bonds) were made by the Tax Equity and Fiscal Responsibility Act of 1982 ("1982 Act"). The 1982 Act also provided that the authority to issue these bonds would expire after December 31, 1986. The Deficit Reduction Act of 1984 limited the small-issue bond exception to financing for manufacturing and farming facilities, effective after December 31, 1986, and extended that exception to December 31, 1988. The Tax Reform Act of 1986 extended the date further to December 31, 1989. The Tax Reform Act of 1986 also imposed a State volume limitation on the issuance of qualified small-issue bonds and certain other private activity bonds.

The Technical and Miscellaneous Revenue Act of 1988 clarified the definition of manufacturing to allow up to 25 percent of the proceeds of qualified small-issue bonds to be used to finance facilities for ancillary activities carried out at the manufacturing site. The Omnibus Budget Reconciliation Act of 1989 and the Omnibus Budget Reconciliation Act of 1990 extended the expiration date through September 30, 1990, and December 31, 1991, respectively. The Tax Extension Act of 1991 extended the expiration date through June 30, 1992.

Analysis

Overview

The purpose of the qualified small-issue bond program is to increase employment by reducing the financial burden of establishing or expanding small manufacturing enterprises. Small businesses and new businesses generally face higher costs of funds than do

larger, more established businesses because of the perceived risk of the enterprises. Some analysts believe that the private market overprices the riskiness of such enterprises. Others argue that the private market does not account for the benefits, in addition to the profits earned by investors, which accrue to the economy from the creation of new businesses. The qualified small-issue bond program is designed to address the higher cost of capital faced by small manufacturing enterprises and first-time farmers.

In 1989, \$3.2 billion in new money qualified small-issue bonds were issued. Between 1984 and 1986, these bonds were issued at a rate of \$13.6 billion annually.²³

Efficiency of tax-exempt finance for funds provided to individuals

As is the case generally with tax-exempt bonds, the interest rate subsidy provided to the beneficiaries of qualified small-issue bonds cannot efficiently pass the full value of the revenue lost to the Federal Government to the recipient enterprise. This arises primarily for two reasons. First, the Federal income tax has graduated marginal tax rates. Thus, \$100 of interest income forgone to a taxpayer in the 31-percent bracket costs the Federal Government \$31, while the same amount of interest income forgone to a taxpayer in the 28-percent bracket costs the Federal Government \$28. Generally, a taxpayer will find it attractive to buy a tax-exempt security rather than an otherwise equivalent taxable security if the interest rate paid by the tax-exempt security, r_{te} , is greater than the after-tax yield from the taxable security, $r(1-t)$, where t is the taxpayer's marginal tax rate and r is the yield on the taxable security. Consequently, if a taxpayer in the 28-percent bracket finds it profitable to hold a tax-exempt security, a taxpayer in the 31-percent bracket will find it even more profitable. This conclusion implies that the Federal Government will lose more in revenue than the tax-exempt issuer gains in reduced interest payments.

Moreover, the recipient of the loan does not receive the full spread in yields between taxable and tax-exempt securities. For example, issuers of qualified small-issue bonds are permitted to retain up to 12.5 basis points above the tax-exempt bond yield plus certain costs. This reduces the ultimate size of the interest rate subsidy received by the qualifying enterprise.

In addition, providing loans to individuals through issuance tax-exempt bonds may involve greater transactions costs than those arising between an individual and a financial institution such as a bank. Issuance of exempt bond involves costs (e.g., bond counsel and underwriting fees) in addition to costs which may arise in qualifying an individual for a direct bank loan and processing the loan.

The use of tax-exempt bonds to re-lend funds to individuals also creates another inefficiency which sometimes works to the ultimate borrower's benefit and sometimes to their detriment. In some cases qualified small-issue bonds are issued as a composite of issues for several borrowers. This structure may force the ultimate borrowers to either accelerate or delay the date at which they would other-

²³ Zimmerman, *The Private Use of Tax-Exempt Bonds: Controlling Public Subsidy of Private Activity*.

wise choose to borrow funds. When interest rates are falling, this means that borrowers who delayed their borrowing benefit from a lower interest rate than they would otherwise receive, but borrowers who accelerated their borrowing will pay a higher interest rate than if they had waited. For example, interest rates on long- and short-term conventional bank loans have fallen more than 100 basis points over the past six months. Had been issued qualified small-issue bonds six months ago to make the proceeds available to borrowers who otherwise would have waited until today to borrow, the effective interest subsidy available would have narrowed by 100 basis points. Of course, if interest rates were rising, the effective interest subsidy would be increased.

Measuring the costs and benefits of qualified small-issue bonds

Measuring the costs of the qualified small-issue bond program is relatively straightforward. The tax revenue foregone from investors purchasing and holding tax-exempt securities rather than taxable securities, less the tax revenue gained by the reduction in deductible business interest and depreciation expenses claimed by beneficiaries of qualified small-issue bonds represent the majority of the cost of the program. In addition, the value of the inherent inefficiencies involved in tax-exempt finance, discussed above, represent costs.²⁴

The benefits, on the other hand, are much harder to quantify. This is because the benefits take two broad forms. For some recipients of loans financed by qualified small-issue bonds the interest rate subsidy lowers their cost of obtaining capital, but does not directly alter their ability to obtain capital. That is, some recipients of the subsidy could successfully qualify for a conventional business loan at prevailing market interest rates. For these recipients of the subsidy, the benefit is the reduction in cost.

However, qualified small-issue bonds may permit other borrowers to obtain capital when they would not otherwise have been able to do so, or to obtain more capital than they otherwise might have. In this case, the benefit is substantially more difficult to quantify. The benefit could be measured, in principle, by the net increase in employment and profits to the national economy.

Unfortunately, it is difficult to identify which recipients of the subsidy are in each category. The ability of qualified small-issue bonds to increase investment and employment depends upon the responsiveness of savers to an increase in the interest rate. If savings are not responsive to changes in the interest rates, issuance of qualified small-issue bonds would merely reallocate investment among alternative uses. There is no consensus on the responsiveness of saving to the after-tax interest rate.²⁵ The calculation of

²⁴ This cost calculation is not the same as the revenue estimate for extending the qualified small-issue bond program for two reasons. First, the program is subject to the State private activity annual volume limitation. To the extent that the issuance of other private activity bonds would increase if the authority to issue qualified small-issue bonds were not extended, the revenue estimate of extension would be substantially lower than the economic cost of issuing qualified small-issue bonds. Second, the revenue estimate would not necessarily assume that investors switch from holding qualified small-issue bonds to holding fully taxable investments.

²⁵ For contrasting theoretical views see, Lawrence H. Summers, "Capital Taxation and Accumulation in a Life Cycle Growth Model," *American Economic Review*, 71 (September 1981) and

benefits is made even more difficult when one recognizes that for some recipients the subsidy may accelerate the expansion of an existing business when the recipient, by continuing to save internal funds, would have been able to expand with conventional financing in the future. For such recipients, the benefit is the acceleration of the expansion in employment and profits. Of course, it is difficult to determine when a business would have been able to expand in the future.

It is inappropriate to attempt to measure the benefits of the qualified small-issue bond program by counting the payroll of firms utilizing tax-exempt finance. First, as discussed above, employment growth in some firms utilizing such finance does not represent net employment additions to the national economy. For example, when qualified small-issue bonds are used by one community to attract an existing business from another community, the increase in employment in the community issuing the bonds is likely offset by declines in employment in the other community.²⁶ More subtly, an entirely new business may attract some of its labor from other established businesses, which do not replace all of their lost employees.

Some analysts believe that transferring an existing business from one area to another creates additional benefits not captured in the reduced interest cost to the enterprise.²⁷ They argue that, for example, transfer of an enterprise from a high employment area to a low employment area creates more geographically balanced economic opportunities. This can lead to reduced crime and other positive social outcomes. It is nearly impossible to quantify the extent to which small-issue bonds may create or contribute to these perceived benefits. However, to the extent these benefits are sizeable, they should be incorporated into any cost-benefit analysis.

David A. Starrett, "Effects of Taxes on Saving," in Henry J. Aaron, Harvey Galper, and Joseph A. Pechman (eds.), *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax* (Washington: Brookings Institution), 1988. For contrasting empirical results see, Michael Boskin, "Taxation, Saving, and the Rate of Interest," *Journal of Political Economy*, 86, April 1978, and George von Furstenberg, "Saving," in Henry J. Aaron and Joseph A. Pechman (eds.), *How Taxes Affect Economic Behavior*, (Washington: Brookings Institution), 1981.

²⁶ Michael J. Stutzer, "The Statewide Economic Impact of Small-Issue Industrial Revenue Bonds," Federal Reserve Bank of Minneapolis Quarterly Review, 9, Spring 1985, analyzed industrial development bonds in Minnesota, and concluded that the use of industrial development bonds had no significant effect on statewide employment or property tax base growth. See, also the discussion in Zimmerman, *The Private Use of Tax-Exempt Bonds*, pp. 166.

²⁷ These additional benefits are called externalities by economists.

6. Allocation of research expenses to U.S. and foreign income (sec. 864(f) of the Code)

Overview

This item of the pamphlet reviews the rules for allocating and apportioning deductions for research expenses between U.S. and foreign source income. Such allocations are relevant to the computation of a taxpayer's foreign tax credit limitation. A temporary statutory research allocation rule is now in effect. Among other things, extending the statutory research allocation rule would tend to increase taxpayers' foreign tax credit limitations.

As explained below, such an increase reduces U.S. tax liabilities of U.S.-based multinationals with excess foreign tax credits. Therefore, the practical tax effect of any particular research allocation rule on any particular taxpayer depends on the level of its excess foreign tax credits. Businesses find themselves in an excess credit or excess limitation position based on a myriad of other aspects of the U.S. and foreign tax laws, any of which can change: for example, rates of income tax imposed by foreign governments, U.S. rules for sourcing items of gross income, and U.S. rules for allocating deductions other than research expenses.

If no extension is enacted, the effect of research expenses on the foreign tax credit limitation will be determined by reference to regulations in effect since 1977, as they may be amended by the Treasury from time to time in the future. As explained more fully below, the 1977 regulation generally permits taxpayers to automatically allocate at least 30 percent of U.S.-performed research expense against U.S. source income.

If the statutory rule is extended, the effect of research expenses on the foreign tax credit limitation will be determined by reference to Code section 864(f). As described fully below, this Code section contains allocation rules originally enacted in 1988 on a temporary basis and extended, also on a temporary basis, in 1989, 1990, and 1991. As explained below, this Code section would permit taxpayers to allocate at least 64 percent of U.S.-performed research expense against U.S. source income. The allocation rules of section 864(f) are, in general, more generous to taxpayers than the allocation rules of the 1977 regulation.

As explained further below, a great deal of consideration has been given in the past 20 or more years to various alternative research allocation rules and the policies supporting each alternative. Perhaps the least generous such alternative, from the taxpayer's viewpoint, was embodied in 1973 proposed regulations. The most generous alternative, permitting 100 percent of U.S.-performed research expense to be allocated to U.S. source income, was enacted in 1981 and extended on a temporary basis in 1984 and 1985. A third alternative, permitting 50 percent of U.S.-performed research

expense to be allocated to U.S. source income, was enacted on a temporary basis in 1986. A fourth alternative, permitting 67 percent of U.S.-performed research expense to be allocated to U.S. source income, was tentatively agreed to by the Administration and industry in 1987.

The following sections of this pamphlet describe the history of all of the above research allocation alternatives, their practical impacts on taxpayers (see Tables 1-3 below), and the various tax policy arguments raised on their behalf. Of course, the alternatives described do not exhaust the possibilities for future enactments; the Congress and the President could in the future enact statutory research allocation rules that differ in some way from all of the above-mentioned alternatives.

Present Law

a. Foreign income and the foreign tax credit

Introduction

U.S. persons²⁸ are taxable on their worldwide income, including their foreign income.²⁹ That is, the taxable income reported on the U.S. tax return of a U.S. person includes both U.S. and foreign income. A U.S. person who earns foreign income may incur foreign income tax. The United States allows U.S. persons subject to the regular income tax to take full, dollar-for-dollar credit for foreign income taxes. This credit directly reduces U.S. tax.

The purpose of the foreign tax credit is to prevent U.S. taxpayers from paying tax twice on their foreign income—once to the foreign country where the income arises and again to the United States as part of the taxpayer's worldwide income. This foreign tax credit system embodies the principle that the country where a taxpayer conducts a business activity (or earns any income), the source country, has the first right to tax any or all of that income, even if it is not the taxpayer's home country. Under this principle, the taxpayer's country of residence has a residual right to tax that income; that is, the residence country taxes foreign income only to the extent that the residence country income tax rate exceeds the source country rate. As a practical matter, often the residence country tax on foreign income is wholly eliminated.

Some countries avoid double taxation by exempting foreign source income from tax altogether. However, most developed countries, like the United States, minimize double taxation through a foreign tax credit system, providing a dollar-for-dollar credit against home country tax liability for income taxes paid to a foreign country. Either system, the exemption system or the foreign tax credit system, requires a determination of what income is domestic and what income is foreign.

²⁸ U.S. persons are U.S. citizens, resident aliens, U.S. partnerships, U.S. corporations, and, generally, U.S. trusts and estates (sec. 7701(a)(30)).

²⁹ Foreign earned income of a qualified U.S. individual may be exempt from U.S. income tax under section 911.

Foreign tax credit limitation

Purpose

A fundamental premise of the U.S. foreign tax credit system is that foreign taxes should not offset the U.S. tax on U.S. source income. Accordingly, a statutory formula limits the foreign tax credit so that the credit will offset only the U.S. tax on the taxpayer's foreign income. As a result of the limitation, the U.S. tax system generally departs from capital-export neutrality where firms operate in foreign countries which levy an income tax greater than the U.S. tax on foreign source income.

Without the foreign tax credit limitation, foreign countries could effectively levy a tax on U.S. source income by raising their tax rates above the U.S. rate. Because of the credit, the U.S. Treasury would absorb the additional foreign tax burden. That is, post-credit U.S. taxes owed on U.S. source income would be reduced.

Computing the foreign tax credit

The limitation generally operates by separating the taxpayer's U.S. tax liability on worldwide income, computed before foreign tax credits ("pre-credit U.S. tax"), into two categories: tax on U.S. source taxable income and tax on foreign source taxable income.³⁰ Computing the limitation involves computing the ratio of foreign source taxable income to worldwide taxable income. This fraction is multiplied by the pre-credit U.S. tax. The product of this multiplication represents the amount of pre-credit U.S. taxes associated with foreign income. This amount is the upper limit on the foreign tax credit. Note that this upper limit rises proportionately with any rise in the portion of the taxpayer's worldwide taxable income that is treated as foreign source taxable income.

In a typical case, a corporate taxpayer might take a foreign tax credit for either foreign income taxes paid or the U.S. corporate tax rate times foreign taxable income, whichever is less. Generally speaking, as U.S. tax rates go down (relative to foreign rates), the more likely it becomes that pre-credit U.S. tax on foreign source income will be less than foreign taxes actually paid.

Examples

The following example illustrates the computation of the foreign tax credit limitation:

Assume that the U.S. taxpayer has foreign source taxable income of \$300 and U.S. source taxable income of \$200, for total taxable income of \$500. Assume further that the pre-credit U.S. tax on the \$500 is \$170 (i.e., 34 percent of \$500). Since 60 percent ($\$300/\500) of the taxpayer's total worldwide taxable income is from foreign sources, the foreign tax credit is limited to \$102, or 60 percent of the \$170 pre-credit U.S. tax. Thus, if foreign taxes paid exceed \$102, only \$102 of foreign tax credit will be allowed (the excess taxes paid may be carried to other years). If the taxpayer

³⁰ A series of separate limitations further subdivides the tax on different types of foreign source income.

has paid less than \$102 in foreign taxes, the taxpayer will have a foreign tax credit equal to the amount of the taxes paid.

The manner in which the foreign tax credit limitation prevents foreign countries from effectively levying a tax on U.S. source income and protects the U.S. Treasury's right to tax U.S. source income may be illustrated as follows:

Assume that each of two U.S. corporations earns \$100 of U.S. income and faces an average U.S. income tax rate of 34 percent. One of them earns no foreign income. The other earns \$100 of foreign income and pays \$50 of foreign tax on that income.

The taxpayer with no foreign income owes \$34 of U.S. tax. The taxpayer with foreign income has pre-credit U.S. tax of \$68 (on \$200 of worldwide income). That taxpayer would owe \$18 of U.S. tax if there were no foreign tax credit limitation—the \$68 pre-credit U.S. tax less the \$50 credit. High foreign taxes imposed by a foreign government would reduce the U.S. tax paid on U.S. income from \$34 to \$18. The limitation prevents such reduction of the U.S. tax base.

Excess foreign tax credits

Excess foreign tax credits exist when the amount of creditable foreign income taxes paid or accrued in a given year exceeds the taxpayer's foreign tax credit limitation. Excess credits can be expected to arise where the effective income tax rate imposed (or deemed to be imposed) by a foreign country on income of a U.S. taxpayer is higher than the U.S. income tax rate.

Excess credits can arise, for example, from differences in the deduction allocation rules of the United States and those of other countries. For example, in those cases where a foreign country does not allocate a deduction for U.S.-performed research to income taxed within that country, and the United States does, the foreign taxes will be higher than if the foreign country allowed the research deduction, and may exceed the foreign tax credit limitation.

Excess credits can arise for a variety of other reasons. Differences between the income-sourcing rules of the United States and those of other countries may result in U.S. treatment of income taxed by another country as domestic income for purposes of the foreign tax credit. Timing differences in the reporting of income and deductions under U.S. and foreign tax laws may result in a taxpayer's being unable to utilize some foreign tax credits in a year in which income is reported in a foreign country but not in the United States. Domestic losses may reduce worldwide taxable income and pre-credit U.S. tax and, hence, the amount of foreign tax credits that can be used currently.

One way taxpayers may reduce excess credits is to shift foreign operations to a foreign country with an effective income tax rate equal to or lower than the U.S. income tax rate. Another method is to use self-help to reduce the taxpayer's effective foreign income tax rates in the foreign countries where it currently operates. A

third alternative is to bring the foreign operations located in a high-tax foreign country back to the United States.

Source rules for income and deductions—in general

As explained above, taxable income from foreign sources times pre-credit U.S. tax constitutes the numerator of the fraction that determines the foreign tax credit limitation. Thus the foreign tax credit limitation increases proportionately when foreign source taxable income increases. Taxable income from foreign sources is computed by (1) determining the items of gross income that are from foreign sources, and then (2) subtracting from that amount of gross income that portion of the taxpayer's deductions that are allocable to foreign source gross income. The following discussion addresses first the sourcing of items of gross income, and then the allocation of items of expense.

Sourcing items of income

The greater the portion of a taxpayer's gross income that the taxpayer derives from foreign sources (or the lesser the portion it derives from U.S. sources), the greater will be the foreign tax credit limitation. Sections 861 and 862 list items of gross income that arise from sources within the United States ("U.S. source gross income" or "U.S. gross income") and from sources outside the United States ("foreign source gross income" or "foreign gross income"), respectively. Under section 861, U.S. gross income includes, generally, income from sales of inventory property manufactured in the United States and sold in the United States, wages and salaries for work done in the United States, rent paid for property located in the United States, dividends paid by U.S. corporations, and interest paid by U.S. persons. Under section 862, foreign gross income includes income from the sale outside the United States of inventory property manufactured outside the United States, royalties from the use outside the United States of patents, secret processes, and similar properties, and dividends paid by certain foreign corporations. Sections 865 and 988 provide rules for determining the source of income from sales and other dispositions of certain types of personal property.

Allocating and apportioning items of expense

Code rules in general

After determining the amount of gross foreign source and U.S. source income, taxpayers must determine *net* (or taxable) foreign source and U.S. source income. This determination brings deductible expenses into play. The smaller the portion of any particular deduction of a taxpayer that is allocated to foreign source gross income (or the greater the portion allocated to domestic source gross income), the greater will be the taxpayer's foreign tax credit limitation.

Generally, under sections 861 and 862, taxable income from U.S. or foreign sources is determined by deducting from the items of gross income treated as arising from U.S. or foreign sources, as the case may be, (1) those expenses, losses, and other deductions properly apportioned or allocated to those particular items and (2) a

ratable part of any expenses, losses, or other deductions which cannot definitely be allocated to some item or class of gross income (secs. 861(b), 862(b)).³¹

Under these principles, for example, a taxpayer with \$100 of U.S. source gross income, \$80 of expense properly allocated to U.S. source gross income, \$100 of foreign source gross income, \$70 of expense properly allocated to foreign source gross income, and \$10 of expense that cannot definitely be allocated to U.S. or foreign source gross income, will split that \$10 proportionately (in this case, evenly) between U.S. and foreign gross income. The taxpayer will thus have \$15 of U.S. source taxable income (\$100-\$80-\$5) and \$25 of foreign source taxable income (\$100-\$70-\$5).

The Code generally articulates only the broad principles of how expenses reduce U.S. and foreign income, leaving it up to the Treasury to provide detailed rules for the allocation and apportionment of expenses.

Regulatory rules for expense allocation—in general

Treasury Regulation sections 1.861-8 and 1.861-8T through 1.861-14T (“the Regulations”) apply in determining foreign source taxable income for calculation of the foreign tax credit limitation.³² They provide specific rules for the treatment of expenses, losses, and certain other deductions. Generally, as the first step in calculating foreign source income, the Regulations require a taxpayer to allocate his deductions to individual “classes” of gross income.³³

When a particular expense relates to a class of gross income including both U.S. and foreign source income, the Regulations generally prescribe no single method for apportioning deductions between the two. The Regulations state that the method used in apportioning a deduction must reflect the factual relationship between the deduction and the gross income. The Regulations contain a nonexclusive list of bases and factors to consider. Some of these relevant bases and factors are: a comparison of units sold (between sales yielding foreign source and sales yielding U.S. source gross income), a comparison of profit contributions, a comparison of gross

³¹ Section 863 specifies that items of gross income, expenses, losses, and deductions other than those specified in sections 861 and 862 are to be allocated or apportioned to sources within or outside of the United States under regulations prescribed by the Secretary of the Treasury. Section 863 also contains general rules for computing taxable income when gross income derives from sources partly within and partly outside of the United States, as well as source rules for transportation income, space and ocean income, and international communications income.

³² They also apply in determining the taxable income of a taxpayer from specific sources and activities for purposes of a number of other “operative” Code sections. The operative section for the foreign tax credit limitation is section 904(a).

³³ These classes include royalties, dividends, compensation for services, and gross income derived from business. A taxpayer must allocate his deductions on the basis of the factual relationships that exist between his deductions and his classes of gross income. The Regulations express this factual relationship concept this way: a deduction generally reduces a class of gross income if the deduction is incurred as a result of, or incident to, an activity, or in connection with property, from which the class of gross income has been, is, or could reasonably have been expected to be derived. If a deduction does not bear a definite relationship to a class of gross income, it is ordinarily treated as definitely related and allocable to all of the taxpayer’s gross income: “all of the taxpayer’s gross income” is then considered a class of gross income for purposes of applying the remainder of the Regulations. After a deduction has been allocated to a class of gross income, it is apportioned between a “statutory grouping” of gross income within the class, such as foreign source gross income, and a “residual grouping,” consisting of all other gross income in the class. The statutory grouping depends on the operative Code section. For example, when the operative Code section is 904(a) (relating to the foreign tax credit limitation), the statutory grouping is foreign source gross income.

sales or receipts, and a comparison of amounts of gross income. The Regulations' list contemplates that the higher the proportion of foreign sales or foreign gross income (for example), the greater, logically, the proportion of expenses attributable to foreign source income.

Several types of deductions are considered not definitely related to any gross income under the Regulations. These include, for example, the deductions for medical expenses and (unless currently proposed regulations become final) charitable contributions. These deductions reduce foreign and U.S. gross income pro rata.

The Regulations set forth detailed allocation and apportionment rules for certain types of deductions, including those for interest, research and development expenditures, stewardship expenses, and legal and accounting fees and expenses. (A detailed discussion of the rules for research deductions appears in Part b. below.)³⁴

Insofar as the Regulations apply specifically to research expenses, they were promulgated in their present form in 1977.³⁵ They incorporate a number of significant modifications to a 1973 proposed revision³⁶ of the original Regulations, which were adopted in 1957.³⁷ These modifications were made in response to taxpayer comments on the proposed 1973 revision.³⁸

b. Allocation and apportionment rules for research deductions

Overview

To the extent there are permanent rules in this area, they are contained in a regulation promulgated in 1977. For a calendar year taxpayer, the current year is governed partly by this regulation and partly by a statutory allocation rule set forth in Code section 864(f). This portion of the pamphlet describes the permanent rule set forth in the regulations. The *Legislative Background* portion of the pamphlet, below, describes the statutory allocation rule set forth in section 864(f), as well as alternative allocation rules that have been considered or enacted in the process of arriving at section 864(f).

The research Regulation (section 1.861-8(e)(3))

In general

The research rules of Treasury Regulation sec. 1.861-8(e)(3) ("the research Regulation") embody to some extent each of three approaches for allocation and apportionment of research expenses.

³⁴ In addition, the Regulations provide rules relating to deductions in excess of gross income; exempt, excluded, and eliminated income; substantiation of allocations and apportionments; and intercompany pricing adjustments under section 482 or other sections of the Code.

³⁵ Treasury issued temporary regulation sec. 1.861-8T, regarding the allocation and apportionment of various expenses other than interest, in 1988. These regulations are generally applicable to taxable years beginning after December 31, 1986 (Treas. Reg. secs. 1.861-8T(h) and 1.861-14T(a)). Section 1.861-8T(e)(3) of the temporary regulation is expected to cover research expenses (Treas. Reg. sec. 1.861-14T(e)(2)). To date, however, substantive research allocation rules under 1.861-8T(e)(3) have not been issued or proposed. When those rules are issued, they generally are to be applied (except with respect to research expenses allocated under the statutory rules, described below, of DEFRA) as if all members of the affiliated group are a single taxpayer (Treas. Reg. sec. 1.861-14T(e)(2)).

³⁶ 38 Fed. Reg. 15,840 (1973).

³⁷ T.D. 6258, 1957-2 C.B. 368.

³⁸ An earlier proposed revision of the Regulations, published in 1966, 31 Fed. Reg. 10,405 (1966), was withdrawn at the time the 1973 proposed revision was published.

One approach, the place-of-performance method, assumes that these deductions relate straight-forwardly to the place where the research occurs. Another approach, the sales (or gross receipts) method, apportions the burden of research expense among the sources of the taxpayer's sales receipts. A third approach, the gross income method, apportions research expense among the sources of the taxpayer's gross income. (The *Analysis* section, following, examines the strengths and weaknesses of these approaches.)

The research Regulation takes as its premise that research "is an inherently speculative activity, that findings may contribute unexpected benefits, and that the gross income derived from successful research and development must bear the cost of unsuccessful research and development." The research Regulation prescribes rules for allocating and apportioning these expenses between U.S. source and foreign source income.³⁹

As explained in more detail below, the Economic Recovery Tax Act of 1981, the Deficit Reduction Act of 1984, and the Consolidated Omnibus Budget Reconciliation Act of 1985 suspended these rules as they relate to U.S.-based research activity through taxable years beginning on or before August 1, 1986; they provided that taxpayers were to allocate all research deductions for research conducted in the United States to U.S. source income during the suspension period.

For taxable years beginning during the period after August 1, 1986, and on or before August 1, 1987, the Tax Reform Act of 1986 provided for a temporary modification of the research Regulations. As described more fully below, the effect of the modification generally was to attribute more U.S.-based research to U.S. source gross income than would be attributed under the (unmodified) research Regulation. For some periods during taxable years beginning after August 1, 1987, a different temporary modification, which also has had the effect of attributing more U.S.-based research to U.S. source gross income than would be attributed under the (unmodified) research Regulation, has applied as provided in the Technical and Miscellaneous Revenue Act of 1988, the Omnibus Budget Reconciliation Act of 1989, the Omnibus Budget Reconciliation Act of 1990, and the Tax Extension Act of 1991. The substance of the rule temporarily imposed by those Acts, described below, appears in Code section 864(f).

Product categories

The research Regulation associates research expenses with income from product categories. For example, it contemplates that research performed for a taxpayer's chemical business will not reduce that taxpayer's income from a separate textile mill business. It provides that research expenditures which a taxpayer deducts under section 174 are ordinarily considered definitely related to all income "reasonably connected" with one or more product categories of the taxpayer. The research Regulation enumerates 32

³⁹ The research Regulation also prescribes rules for the allocation and apportionment of deductions between pairs of gross income groupings other than U.S. source and foreign source income.

product categories based on two-digit classifications within the Standard Industrial Classification ("SIC") system.

Ordinarily, a taxpayer may divide research expenditures among relevant product categories, but not among subdivisions within the categories. When research is conducted with respect to multiple product categories, the categories may be aggregated for allocation purposes. When research cannot be clearly identified with one or more product categories (e.g., basic research), it is considered conducted with respect to all the taxpayer's product categories.

Research to meet legal requirements

The research Regulation contemplates that taxpayers will sometimes undertake research solely to meet legal requirements (like noise pollution standards). In some such cases, the research cannot reasonably be expected to generate income (beyond de minimis amounts) outside a single geographic source. If so, those deductible research expenses reduce gross income only from the geographic source that includes that jurisdiction.⁴⁰ For example, a research deduction for research performed solely to meet noise pollution standards mandated by the U.S. Government and which cannot reasonably be expected to generate significant foreign source income reduces only U.S. source income.

After allocating deductions to meet legal requirements, the taxpayer generally matches income to deductions on the basis of the place of performance of the research and the source of income from sales of products. At the taxpayer's election, the matching can involve the source of gross income.

Sales method of apportionment, step 1: Exclusive place-of-performance apportionment

The research Regulation presupposes that the place where research is performed (such as a laboratory) bears a significant relation to the source of the income it produces. Generally, the regulation allows 30 percent of deductible research expenses to reduce gross income from the source where over half of the taxpayer's total deductible research expenses are incurred.⁴¹ For example, assume that a U.S. manufacturer of gasoline engines sells them in the United States and abroad and performs all its research in the United States. It first subtracts 30 percent of its research deduction from U.S. source income. (The manufacturer generally allocates the remaining 70 percent on the basis of sales, discussed below.)

The research Regulation states (at sec. 1.861-8(e)(3)(ii)(A)) that such place-of-performance apportionment

reflects the view that research and development is often most valuable in the country where it is performed, for two reasons. First, research and development often benefits a broad product category, consisting of many individual products, all of which may be sold in the nearest market but only some of which may be sold in foreign markets. Second, research and development often is uti-

⁴⁰ Treas. Reg. sec. 1.861-8(e)(3)(i)(B).

⁴¹ Treas. Reg. sec. 1.861-8(e)(3)(ii)(A). This rule applies to expenses remaining after allocation under the legal requirements test.

lized in the nearest market before it is used in other markets, and, in such cases, has a lower value per unit of sales when used in foreign markets.

Optional increase in place-of-performance apportionment

A taxpayer has the opportunity to apportion more than 30 percent of its research deduction exclusively to the source where research is performed if it can establish that a significantly higher percentage is warranted because the research is reasonably expected to have a very limited or long-delayed application outside that geographic source. Taxpayers that use this method must allocate any remaining portion of their research deduction only on the basis of sales.

To establish that research is reasonably expected to have a very limited application outside the United States, a taxpayer generally must show that only some of its products within the relevant product category are sold outside the United States. This involves a comparison of the taxpayer's own domestic and foreign sales plus sales of other users of the taxpayer's research: uncontrolled parties that sell products incorporating intangible property purchased or licensed from the taxpayer, and controlled corporations that can reasonably be expected to benefit from any of the taxpayer's research expense connected with the product category.⁴²

To establish that research is reasonably expected to have a long-delayed application outside the United States, a taxpayer generally must compare the commercial introduction of its own products and processes in the United States and foreign markets and commercial introduction by other users of its research.⁴³

Sales method of apportionment, step 2: Apportionment on the basis of sales

After a taxpayer makes a place-of-performance apportionment, it must apportion the amount of its research deduction remaining, if any, on the basis of sales. Generally, under this method, the remaining research deduction amount is apportioned between domestic and foreign source income on the basis of relative amounts of domestic and foreign sales receipts.⁴⁴

Example

Suppose that a taxpayer has foreign sales of \$280, \$200 in textiles and \$80 in paper products, U.S. sales of \$220, \$200 in textiles and \$20 in paper products, textile-related research expense of \$100, and paper-product-related research expense of \$50. Assume that the taxpayer cannot allocate any portion of its research deduction under the legal requirements test and that the taxpayer is entitled to no place-of-performance allocation because no more than half of

⁴² For purposes of comparing product sales within categories, products in "nonmanufactured" categories are limited to those listed in the Standard Industrial Classification ("SIC") manual; products in "manufactured" categories are limited to those enumerated at a seven-digit level in the U.S. Census Bureau's Numerical List of Manufactured Products.

⁴³ For these purposes, there is no requirement that the term "product" be limited to those defined in the SIC or Census Bureau classifications. To evaluate the delay in the application of research findings in foreign markets, the taxpayer is to use a safe haven discount rate of 10 percent per year unless he can establish that another discount rate is more appropriate.

⁴⁴ Treas. Reg. sec. 1.861-8(e)(3)(ii)(B).

its research deduction is accounted for by research activities in any single country. The textile sales are in, and the textile-related research is connected with, the SIC two-digit product category "Textile mill products" (SIC major group number 22). The paper product sales are in, and the paper-product-related research is connected with, the SIC product category "Paper and allied products" (SIC major group number 26). The textile-related research expense of \$100 is apportioned \$50 to foreign source income and \$50 to U.S. source income because the taxpayer had \$200 in foreign sales in the Textile mill product category and \$200 in U.S. sales in the Textile mill products category. The paper-product-related research of \$50 is apportioned \$40 to foreign source income and \$10 to U.S. source income because the taxpayer had \$80 in foreign sales in the Paper and allied products category and \$20 in U.S. sales in the Paper and allied products category.

Look-through rules and other refinements to the concept of "sales"

Sales, for purposes of the sales method of apportionment, include amounts received from the lease of equipment. In addition, a "look-through" approach treats certain sales of parties other than the taxpayer as sales of the taxpayer in computing the apportionment of the taxpayer's research deduction between domestic and foreign source income. Under this look-through approach, the taxpayer's \$200 in foreign textile sales in the above example might actually be sales of a foreign subsidiary licensing technology from the taxpayer or those of an uncontrolled party that has purchased secret processes from the taxpayer. The apportionment in such cases would be the same as in the preceding example.

The look-through rules provide that an uncontrolled party's sales of products involving intangible property obtained from the taxpayer are fully taken into account in determining the taxpayer's apportionment (and the apportionment of any other member of a controlled group of corporations to which the taxpayer belongs) if the uncontrolled party can reasonably be expected to benefit from the research expense connected with the product category (or categories). An uncontrolled party can reasonably be expected to benefit from a research expense if the taxpayer can reasonably be expected to license, sell, or transfer intangible property to that uncontrolled party. In the case of licensed products, if the amount of sales of the products is unknown, a reasonable estimate is to be made. Where intangible property is sold outright, and in cases where a reasonable estimate of sales of licensed products cannot be made, the sales of products are considered equal to 10 times the amount received or accrued for the intangible property during the taxpayer's taxable year.

A controlled corporation's sales of products are taken into account, to the extent explained below, if the controlled corporation can reasonably be expected to benefit from the taxpayer's research expense connected with the product category (or categories). A controlled corporation can reasonably be expected to benefit from the taxpayer's research expense if the taxpayer can be expected to license, sell, or transfer intangible property to that corporation, or transfer secret processes to that corporation. Past experience with research and development is to be considered in determining rea-

sonable expectations. However, if the controlled corporation has entered into a bona fide cost-sharing arrangement (in accordance with Treasury Regulation section 1.482-2(d)(4)) with the taxpayer for the purpose of developing intangible property, then that corporation is not reasonably expected to benefit from the taxpayer's share of the research expense.

A controlled corporation's sales of products within a product category are taken into account to the extent of the greater of (1) the amount of sales that would have been taken into account if the controlled corporation were an uncontrolled party and if any intangible property contributed by the taxpayer to the controlled corporation were treated as a license of that intangible property; or (2) the amount of sales that bear the same proportion to total sales of the controlled corporation as the taxpayer's voting power in the controlled corporation bears to the total voting power in the corporation. However, sales between or among controlled corporations or the taxpayer are not to be taken into account more than once.

Sales, for purposes of the sales method of apportionment, do not include sales of products sold solely within the United States if the taxpayer has, on account of such sales, made an optional place-of-performance apportionment of significantly greater than 30 percent of his research deduction to U.S. income and established that the research connected with the products sold is reasonably expected to have a very limited application outside the United States (see Treas. Reg. sec. 1.861-8(g), Example 10).

Optional gross income methods of apportionment

Sometimes, using an "optional gross income method," a taxpayer may reduce allocation of research expenses to foreign source income by as much as 50 percent. Subject to certain limitations, a taxpayer may elect to apportion his research deduction under one of two optional gross income methods instead of the sales method. Under the optional methods, a taxpayer generally apportions the remainder of his research deduction (after allocation under the legal requirements test but not the place-of-performance test) on the basis of relative amounts of gross income from domestic and foreign sources.⁴⁵

The basic limitation on the use of optional gross income methods is that the respective portions of a taxpayer's research deduction apportioned to U.S. and foreign source income using a gross income method may not be less than 50 percent of the respective portions that would be apportioned to each such income grouping using the sales apportionment method (with the latter's exclusive place-of-performance allocation, typically 30 percent). If this 50-percent test is satisfied when deductions (other than those allocated under the legal requirements test) are apportioned ratably on the basis of gross income, then, under "Option One," the taxpayer may use the income-based ratable apportionment to compute source-specific taxable income, without limitation.

If, on the other hand, a ratable apportionment based on gross income fails the 50-percent test, then, under "Option Two," the tax-

⁴⁵ Treas. Reg. sec. 1.861-8(e)(3)(iii).

payer apportions 50 percent of the amount of its research deduction which would have been apportioned under the sales method to that income grouping (i.e., U.S. or foreign source income) to which an income-based ratable apportionment allocates less than the required 50 percent. The remaining amount of its research deduction is apportioned to the other income grouping.

A taxpayer electing an optional gross income method, then, may be able to reduce the amount of its research deduction apportioned to foreign source income to as little as one-half of the amount that would be apportioned to foreign source income under the sales method.

For example, consider a taxpayer with \$110 of U.S.-performed research expense and equal U.S. and foreign sales. Assume that \$10 of the research expense is to meet legal requirements and is allocated to U.S. source income. Under the sales method, 30 percent (\$30) of the remaining \$100 is exclusively apportioned to U.S. source income and the rest (\$70) is divided evenly between U.S. and foreign source income. Under an optional gross income method, the \$35 foreign source research allocation could be reduced as much as 50 percent, to \$17.50. This could occur, for example, if the foreign sales were made by a foreign subsidiary that did not repatriate earnings to the U.S. corporation.

The optional gross income methods apply to all of a taxpayer's gross income, not gross income on a product category basis. If any member of an affiliated group which files a consolidated return uses an optional gross income method in a taxable year, then all members joining that return must use an optional gross income method in that taxable year.

The 1973 proposed Regulation

The research rules of the present Regulation reflect a number of changes in and additions to the research rules included in an earlier proposed version of the Regulation issued in 1973.⁴⁶ Many of these modifications were liberalizations made in response to the comments of taxpayers on the 1973 proposed Regulation. The changes and additions include:

(1) Addition of the place-of-performance apportionment rules, that generally let a taxpayer apportion 30 percent or more of its research deduction to U.S. source income;

(2) Addition of the legal requirements test, that lets a taxpayer allocate a portion of its research deduction solely to U.S. source income when the corresponding research expenditures generate minimal income outside the United States and are mandated by a legal requirement (such as a U.S. Food and Drug Administration testing requirement);

(3) The division of a research deduction between product categories rather than general classes of gross income such as royalties from licensing intangible property or dividends; this change reduces allocations to foreign source income of research expenditures related to products that

⁴⁶ 38 Fed. Reg. 15,840 (1973).

are substantially different from the products that generate the foreign source income; and

(4) The optional gross income methods of apportionment, which expressly permit a taxpayer to apportion some or all of its research deduction on a gross income-to-gross income basis, subject to limitations.

Legislative Background

Treasury study and temporary suspension of regulation

In the Economic Recovery Tax Act of 1981 ("ERTA"), Congress directed the Treasury Department to study the impact of the research rules of Treasury Regulation sec. 1.861-8 on research activities conducted in the United States and on the availability of the foreign tax credit, and also provided for a temporary suspension of the research Regulation.

Suspension of the research Regulation

ERTA provided that, for a taxpayer's first two taxable years beginning after the date of its enactment (August 13, 1981), all research and experimental expenditures (within the meaning of sec. 174) which were paid or incurred in those taxable years (and only in those taxable years) for research activities conducted in the United States were to be allocated or apportioned to sources within the United States for all purposes under the Code (sec. 223 of ERTA). ERTA did not change the Regulation's allocation rules for deductions other than that for research and experimental expenditures.

One reason for enacting this suspension of the Regulation's research rules as they relate to U.S.-based research activity (the "moratorium") was that foreign countries would not, in some instances, allow deductions under their tax laws for expenses of research activities conducted in the United States and allocated by the research Regulation to foreign source income. It was argued that this disallowance results in unduly high foreign taxes and that, absent changes in the foreign tax credit limitation, U.S. taxpayers would lose or defer utilization of foreign tax credits. Thus, went the argument, there was incentive for taxpayers to shift their research expenditures to those foreign countries whose laws disallow tax deductions for research activities conducted in the United States, but allow tax deductions for research expenditures incurred locally.

Accordingly, Congress concluded that the Treasury should study the impact of the allocation of research expenses under the Regulation on U.S.-based research activities.

Treasury study

On June 14, 1983, the Secretary of the Treasury submitted its report on the mandated study to the House Committee on Ways and Means and the Senate Committee on Finance.⁴⁷ In summary, the Treasury report concluded that:

⁴⁷ Department of the Treasury, *The Impact of the Section 861-8 Regulation on U.S. Research and Development* (June 1983).

Had the Regulation fully been in effect in 1982, the \$37 billion in privately financed domestic research spending in 1982 would have been reduced by between \$40 million and \$260 million—i.e., by between 0.1 and 0.7 percent. Most of the reduction would have represented a net reduction in overall research undertaken by U.S. corporations and their foreign affiliates, rather than a transfer of research abroad.

The moratorium reduced U.S. tax liabilities. If the research rules in the Regulation had been in effect in 1982, U.S. tax liabilities of U.S. firms would have been \$100 million to \$240 million higher.

The moratorium reduced the tax liabilities only of firms with excess foreign tax credits. Whether or not a firm had excess credits did not seem to be closely related to the level of its research efforts.

The moratorium had its most significant effect on large, mature multinationals, as opposed to small, relatively young high-technology companies. Of the Regulation's \$100 million to \$240 million estimated increase in U.S. tax liabilities, about 85 percent was estimated to be accounted for by 24 U.S. firms on the list of the 100 largest U.S. industrial corporations compiled by *Fortune Magazine*.

An allocation of research expense to foreign income may increase a taxpayer's worldwide tax liability if the foreign government does not allow the apportioned expense as a deduction and the foreign tax paid exceeds the taxpayer's foreign tax credit limitation. Some allocation to foreign income, however, is appropriate on tax policy grounds when domestic research is exploited in a foreign market and generates foreign income. If an allocation is not made, foreign source taxable income will be too high and the higher limitation may allow the credit for foreign tax to reduce U.S. tax on domestic source income.

The Regulation's research rules reflect significant modifications of the 1973 proposed Regulation in response to taxpayer comments. Compared to the 1973 version of the Regulation, these modifications allow taxpayers to allocate less research expense to foreign income and recognize that research conducted in the United States may be most valuable in the domestic market.

On the ground that a reduction in research might adversely affect the competitive position of the United States, the report stated that the Treasury supported a two-year extension of the ERTA moratorium. The rationale for this recommendation was to give Congress an opportunity to consider the findings of the report while Congress and the Administration worked to develop a coherent national program of research incentives.

Believing that it was appropriate both (1) to require allocation of deductions between U.S. and foreign source income, and (2) to provide tax laws generally encouraging U.S.-based research activities,

Congress granted the recommended two-year extension of the moratorium in the Deficit Reduction Act of 1984 ("DEFRA"). The extension was expected to give Congress and the Treasury an opportunity to assess more fully the impact of the research Regulation on U.S.-based research activity and to compare the relative effectiveness of 100-percent allocation of U.S.-based research to U.S. source income, on the one hand, versus other possible research incentives. A further one-year extension of the moratorium was enacted in the Consolidated Omnibus Budget Reconciliation Act of 1985 ("1985 Act"). Under the moratorium as enacted and extended through the 1985 Act, taxpayers allocated all expenses of U.S.-based research to U.S. source income in all taxable years beginning after August 13, 1981, and on or before August 1, 1986.

Tax Reform Act of 1986

Congress enacted temporary modifications to the research Regulation in the Tax Reform Act of 1986 ("1986 Act"), thus further suspending some, but not all, of the full impact of the Regulation.⁴⁸ During taxable years beginning in the 12-month period after August 1, 1986, and on or before August 1, 1987, the research Regulation was essentially liberalized in three respects. These liberalizations were intended by Congress to provide an additional tax incentive to conduct research in the United States while Congress analyzed whether any additional permanent incentive was necessary.

The first liberalization was that for the specified one-year period, 50 percent of all remaining amounts allowable as a deduction for qualified research expenditures (that is, research and experimental expenditures within the meaning of section 174 that are attributable to activities conducted in the United States) after allocation of legally required research expenses could be apportioned to U.S. source income and deducted from such income in determining the amount of U.S. source taxable income. The 1986 Act thus had the effect of increasing the automatic place-of-performance apportionment percentage for U.S.-based research expense from 30 percent to 50 percent.

The 1986 Act further provided that, for the specified one-year period, the portion of those amounts allowable as a deduction for qualified research expenditures that remained after any legal requirements allocation and the 50 percent automatic place-of-performance apportionment were apportioned either on the basis of sales or gross income. Thus, the second effective liberalization of the Regulation was to allow the automatic place-of-performance apportionment temporarily to taxpayers who elected to apportion expenses using the optional gross income method, rather than only to taxpayers that used the standard sales method of apportionment.

⁴⁸ The temporary modifications made by the 1986 Act to the research expense allocation rules in regulation section 1.861-8 applied for purposes of computing taxable income from U.S. sources and taxable income from sources outside the United States. The modifications applied only to the allocation of expenditures for research and experimental activities conducted in the United States, and only for the purposes of geographic sourcing of income; the modifications did not apply for other purposes, such as the computation of combined taxable income of a FSC (or DISC) and its related supplier. *Accord, St. Jude Medical, Inc. v. Commissioner*, 97 T.C. No. 33 (October 31, 1991). Also, the modifications did not apply to any expenditure for the acquisition or improvement of land, or for the acquisition or improvement of depreciable or depletable property to be used in connection with research.

Third, the 1986 Act had the effect of temporarily suspending the regulatory rule that prohibits taxpayers from using the optional gross income method to reduce allocation of research expense to foreign source income by more than 50 percent of the amount that would be allocated to foreign source income under the sales method.

Provisions of the 1986 Act directly addressing research allocations were not the only 1986 Act provisions substantially affecting the interaction of research expenses and the foreign tax credit. As described above, the foreign tax credit limitation is the product of (1) pre-credit U.S. tax and (2) a fraction equal to foreign source taxable income over worldwide taxable income. The 1986 Act's temporary modification of the research Regulation generally increased the fraction (for a limited period). By itself, this increase would tend to have raised the credit limitations of taxpayers with research expenses and foreign source income, and thus reduced the overall tax liability of such taxpayers previously in an excess credit position. On the other hand, by lowering corporate tax rates from 46 to 34 percent, the 1986 Act decreased taxpayers' pre-credit U.S. tax. In addition, other 1986 Act provisions generally increased allocations of interest expense to foreign source income. By themselves, the rate and interest allocation changes tended to reduce all taxpayers' foreign tax credit limitations, thus increasing the number of U.S. taxpayers with excess foreign tax credits, and increasing the likelihood that any change in the research allocation rules would affect a taxpayer's overall tax liabilities.

The 1987 Administration proposal

At a hearing before a subcommittee of the Senate Finance Committee on April 3, 1987, the Administration testified in favor of a proposal under which taxpayers would be permitted to allocate 67 percent of expenses for research conducted in the United States to U.S. source income.⁴⁹ The remainder of such expenses would be apportioned on the basis of either gross sales or gross income, with no limitation on the amount apportioned to U.S. source income using the gross income method.

The Administration's 1987 proposal represented the tentatively agreed outcome of discussions between House and Senate sponsors of moratorium legislation, the Treasury, and affected companies.⁵⁰ The proposal was included in H.R. 3545, the Omnibus Budget Reconciliation Act of 1987 ("1987 Act"), as passed by the House. The proposal also was included in the October 1987 budget reconciliation submission of the Senate Finance Committee to the Senate Budget Committee. The proposal was not included in the conference agreement on the 1987 Act. Nor was it enacted in its original form subsequently, although it was part of the President's budget proposals in 1988 and 1989. Instead, beginning with the Technical and Miscellaneous Revenue Act of 1988 ("1988 Act"), Congress

⁴⁹ *Interaction Between U.S. Tax Policy and Domestic Research and Development: Hearing on S. 58 and S. 716 Before the Subcommittee on Taxation and Debt Management of the Senate Committee on Finance*, 100th Cong., 1st Sess. 64, 84 (written testimony of J. Roger Mentz, Assistant Secretary (Tax Policy), Department of the Treasury) (1987).

⁵⁰ *Id.* at 54 (remarks of Senator Baucus).

passed a series of statutes temporarily enacting, and then extending, a modified version of the 1987 Administration proposal.

Code section 864(f)

The substance of the statutory research allocation rules that have been enacted into law since 1987 has not varied. Under some of the statutes, however, the treatment of research expenses incurred in a single taxable year has been bifurcated. That is, expenses incurred during one part of the year (or deemed to have been incurred during that part of the year) have sometimes been allocated under the new statutory allocation rule. Expenses treated as having been incurred during the remainder of such years have been allocated under the research Regulation.

The 1988 Act provided for such bifurcated treatment. For expenditures incurred during the part of the year covered by the statutory allocation rule, the treatment of research and development expenditures incurred to meet certain legal requirements was unchanged. After applying the legal requirements rule, however, the 1988 Act modifications provided that 64 percent of the U.S.-based research expenses remaining to be allocated and apportioned were allocated to U.S. source income. Unlike either the research Regulation, the 1986 Act modifications, or the 1987 Administration proposal, the 1988 Act also provided that 64 percent of the remaining *foreign-based* research expenses were allocated to *foreign* source income. Unlike the Regulation, the 1988 Act statutory allocation permits the research expenditures remaining after the automatic place-of-performance allocation to be allocated and apportioned *either* on the basis of sales or gross income. However, unlike the 1986 Act and unlike the 1987 Administration proposal, the 1988 Act allocation rule placed a limit, based on the sales method of apportionment, on the reduction taxpayers could achieve in the amount of research expense allocated to foreign source income using the gross income method. This limit was patterned after the limit in the Regulation, but was less restrictive. Under the 1988 Act, if the gross income method of apportionment was utilized, the amount apportioned to foreign source income could be no less than 30 percent of the amount that would have been apportioned to foreign source income had the sales method been used. Under the Regulation, by contrast, the limitation is 50 percent of the amount that would have been apportioned to foreign source income had the sales method been used.

These statutory allocation rules were effective only for the first four months of a taxpayer's first taxable year beginning after August 1, 1987 (treating all applicable expenditures in that taxable year as if they were incurred ratably over the year). Generally, for the expenditures in the first taxable year beginning after August 1, 1987 (and for subsequent taxable years) that were not covered by the statutory allocation rules, the rules set forth in the Regulation were applicable with respect to sourcing research and experimental expenditures.

Generally, no statutory allocation rule applied to research expenses incurred in the taxpayer's first taxable year beginning after August 1, 1988 and on or before August 1, 1989. For expenses incurred in that year (as generally was the case for two-thirds of the

research expenses incurred for the preceding year), the Regulation applied.

The Omnibus Budget Reconciliation Act of 1989 ("1989 Act") revived, again on a temporary basis, the rules for sourcing research expenditures that were contained in the 1988 Act. The 1989 Act also codified these statutory allocation rules in section 864(f) of the Code. As codified in 1989, these rules were effective only for the first nine months of a taxpayer's first taxable year beginning after August 1, 1989, and before August 2, 1990 (treating all applicable expenditures in that taxable year as if they were incurred ratably over the year). Under the 1989 Act, for the remainder of a taxpayer's first taxable year beginning after August 1, 1989, and before August 2, 1990 (and for subsequent taxable years), the rules set forth in the Regulation applied with respect to sourcing research expenditures.

The Omnibus Budget Reconciliation Act of 1990 ("1990 Act") further extended the statutory allocation rules that were codified in the 1989 Act. Under the 1990 Act, the rules of section 864(f) applied to the taxpayer's first two taxable years beginning after August 1, 1989, and on or before August 1, 1991. Thus, for any taxpayer, the taxable year partly covered by section 864(f) under the 1989 Act was made fully covered by section 864(f), as was the following year.

The Tax Extension Act of 1991 ("1991 Act") further extended section 864(f) to cover years beginning after August 1, 1989, and on or before August 1, 1992. In the case of the taxpayer's first taxable year beginning after August 1, 1991, however, the 1991 Act made section 864(f) applicable only to research expenses incurred during the first six months of the year. Thus, in general, the effect of the 1991 Act was to extend the life of section 864(f) by six months. Unlike the 1988 Act and 1989 Act partial-year extensions, however, the 1991 Act did not require proration of a full year's expenses equally to each month within that year. Rather, the 1991 Act allows taxpayers to apply the section 864(f) allocation rules to any research expenses actually incurred during the first six months of that year, and only those expenses, regardless of what portion those expenses represent of the entire amount of research expense properly taken into account for that taxable year.

*Foreign Law*⁵¹

Foreign countries' source rules for deductions

It appears that few countries have developed detailed rules governing the allocation of expenses between foreign and domestic income (or taxable and nontaxable income). Thus, specific allocation rules for research expense, resembling those of Treasury Regulation sec. 1.861-8, are absent in most countries. This lack of detailed allocation rules may reflect a general lack of attention to the

⁵¹ This section is based chiefly on the collection of studies of the source, allocation, apportionment, and related rules of 24 countries published by the International Fiscal Association (IFA): *Rules for determining income and expenses as domestic or foreign*, LXVb Cahiers de droit fiscal international (1980). While the discussion in this pamphlet also incorporates the fruits of more recent research on selected topics, conducted by the staff of the Law Library, Library of Congress, this pamphlet does not purport to be based on a comprehensive update of IFA's 1980 survey.

allocation issue. The most common approach to allocations appears to be a facts and circumstances test or a reasonableness test.

Many countries, however, have recognized the general principle that expenses, to be deductible against income from a particular source, should be related to that income. These countries have in the past included Argentina, Australia, Canada, Finland, Hong Kong, Israel, Luxembourg, the Netherlands, New Zealand, South Africa, and the United Kingdom.

Some countries apparently have had specific rules for research expense. Under Finnish law, for example, research expenses generally have in the past been deductible from the category or categories of income to which they relate. In New Zealand, it has been the law that research expenditures must be demonstrated to yield some benefit to the New Zealand economy to be deductible against New Zealand income. Switzerland, for purposes of treaty foreign tax credits, has deemed 50 percent of foreign royalties to represent expenses. In Japan, however, it has been the law that research expenses will not be allocated to offset foreign source income. In addition, Canada apparently has required no allocation of research expense to foreign source income.

Deductions in foreign countries for U.S.-performed research

U.S. income tax treaties generally require our treaty partners to allow appropriate deductions for expenses incurred in the United States. Generally, however, under the treaties, these countries are required to allow deductions only for research expenses directly related to local income. Some research conducted in the United States within a product category that includes products sold in a foreign country may not bear a direct relation to local income. A foreign country's disallowance of deductions for such research when those amounts are allocated to foreign income under the research Regulation may, therefore, comport with its treaty obligations.

Even absent a treaty, a deduction for overseas research has been within the scope of many countries' general rules governing deductions for overseas expenditures. Denmark, Germany, Ireland, the United Kingdom, and South Africa, for example, apparently have not in the past generally distinguished in their internal law between domestic- and foreign-based research expenses for purposes of the deduction each permits for research expenses. However, foreign countries that recognize the right of taxpayers to deduct overseas expenses may not allow deductions in sufficient amounts to offset the impact of the research Regulation. Additionally, such countries may impose gross withholding taxes on royalty payments to U.S. companies for that research, potentially offsetting any tax benefits derived from favorable deduction rules.

While some foreign countries may prohibit direct deductions for U.S.-performed research, the foreign subsidiary of a U.S. company may be able to take a related deduction in some cases by paying the U.S. parent an increased price for technology and components to reflect research costs. Transfer prices paid by foreign subsidiaries for technology and components often are deductible under foreign tax laws. On the other hand, if deductions from foreign taxable income can be taken for the value of technology developed in

the United States and then transferred abroad or incorporated into products sent abroad, such deductions would generally be of less benefit than a deduction for research expenses when incurred; research tends to generate costs well before it generates transferable benefits.

Comparison of Allocation Methods

This section compares five methods of deducting research expenses by a taxpayer with \$10,000 of U.S. sales and \$10,000 of foreign sales (through a foreign branch). The taxpayer has \$1,000 of U.S. source taxable income and \$1,000 of foreign source taxable income before deduction of research expense. The taxpayer incurs \$400 of research expense, all in the United States.

Table 1 shows the calculation of U.S. and foreign income under five methods. The first method, based on the proposed 1973 regulation, allocates research expense solely on the basis of sales (gross receipts). The second method is one of those available in the 1977 Regulation. Under the 1977 Regulation, the taxpayer described above is first permitted to apportion 30 percent (\$120) of research expense to U.S. source income (place-of-performance apportionment). The remaining \$280 (\$400-\$120) of research expense is split equally between U.S. and foreign source income on the basis of gross receipts, which results in \$140 of foreign source and \$260 of U.S. source research expense (sales method apportionment).⁵²

Table 1.—Example of Apportionment of Domestic Research Expense Under 1.861-8 Regulation and Moratorium

Item	U.S. source	Foreign source	Total
Gross receipts.....	\$10,000.00	\$10,000.00	\$20,000.00
Income before research	1,000.00	1,000.00	2,000.00
R&D apportionment: ¹			
(1) 1973 Proposal	200.00	200.00	400.00
(2) 1977 Regulation	260.00	140.00	400.00
(3) Moratorium	400.00	0	400.00
(4) 1986 Act	300.00	100.00	400.00
(5) Code sec. 864(f).....	328.00	72.00	400.00
Income after research: ²			
(1) 1973 Proposal	800.00	800.00	1,600.00
(2) 1977 Regulation	740.00	860.00	1,600.00
(3) Moratorium	600.00	1,000.00	1,600.00
(4) 1986 Act	700.00	900.00	1,600.00
(5) Code sec. 864(f).....	672.00	928.00	1,600.00

⁵² In these examples, the optional gross income methods do not yield a smaller foreign-source apportionment of research expense than the sales method. Operation in subsidiary form instead could reduce the foreign source gross income to zero if the taxpayer did not repatriate income from the foreign subsidiary. In that case, an optional gross income method could be used to reduce the foreign-source apportionment of research expense by 50 percent under the unmodified Regulation, from \$140 to \$70, or by 100 percent under the temporary 1986 Act modification. Either of these allocations would be more favorable to the taxpayer than the allocations resulting from full repatriation of the foreign subsidiary's earnings.

Table 1.—Example of Apportionment of Domestic Research Expense Under 1.861-8 Regulation and Moratorium—Continued

Item	U.S. source	Foreign source	Total
U.S. tax on worldwide income (pre-credit): ³			
(1) 1973 Proposal	272.00	272.00	544.00
(2) 1977 Regulation	251.60	292.40	544.00
(3) Moratorium	204.00	340.00	544.00
(4) 1986 Act	238.00	306.00	544.00
(5) Code sec. 864(f)	228.48	315.52	544.00

¹ Apportionment of research expense described in text.

² Income after research equals income before R&D reduced by the R&D apportionment.

³ U.S. tax on worldwide income (before the foreign tax credit) equals income after research times the present U.S. corporate tax rate (34 percent).

The third method of apportionment, provided under the ERTA/DEFRA/1985 Act moratorium, allocates the full \$400 of research expense to U.S. source income (place-of-performance apportionment). The fourth method, pursuant to the 1986 Act modifications to the 1977 Regulation, first apportions \$200 of research expense to U.S. source income based on place of performance, then splits the remaining \$200 evenly between U.S. and foreign source income, resulting in a \$100 apportionment of research expense to foreign source income. The fifth method, pursuant to Code section 864(f), first apportions \$256 of research expense to U.S. source income based on place of performance, then splits the remaining \$144 evenly between U.S. and foreign source income, resulting in a \$72 apportionment of research expense to foreign source income.

Table 2 illustrates the case where the taxpayer operates in a low-tax country and does not have excess foreign tax credits. The foreign country imposes tax at a 25-percent rate with no deduction for U.S.-performed research expense. The foreign taxable income is \$1,000 (not reduced by research expense), and the foreign tax is \$250. In this situation, the taxpayer would pay \$294 of U.S. tax (after credit) under all five methods of apportionment. The total tax liability of \$544 (\$250 plus \$294) is identical to the tax which would be owed if the taxpayer moved his foreign operations to the United States. Thus, the U.S. research apportionment rules are a matter of indifference for taxpayers who have no excess credits.

Table 2.—Tax Liability Under 1.861-8 Regulation and Statutory Rules: U.S. Taxpayer Without Excess Foreign Tax Credits

[25-percent foreign tax rate without a deduction for U.S. research]

Item	1973 Proposed Regs.	1977 Regs. (1.861-8)	Morato- rium	1986 Act	Code section 864(f)
U.S. tax on domestic income	\$272.00	\$251.60	\$204.00	\$238.00	\$228.48
U.S. tax on foreign income ...	272.00	292.40	340.00	306.00	315.52
Foreign tax at 25-percent rate	250.00	250.00	250.00	250.00	250.00
Foreign tax credit..	-250.00	-250.00	-250.00	-250.00	-250.00
Total tax liability	544.00	544.00	544.00	544.00	544.00
Average tax rate (percent)	34	34	34	34	34

Table 3 illustrates the case where the taxpayer operates in a relatively high-tax country and has excess foreign tax credits. The foreign country imposes tax at a 40-percent rate with no deduction for U.S.-performed research expense.⁵³ The foreign taxable income is \$1,000 (not reduced by research expense), and the foreign tax is \$400. In this situation, the U.S. tax liability depends on the method of apportionment: \$272 under the 1973 proposed regulation, \$251.60 under the 1977 Regulation, \$204.00 under the moratorium, \$238.00 under the 1986 Act, and \$228.48 under section 864(f); the taxpayer's total tax liability is lowest under the moratorium method of allocation. Under all five methods, the taxpayer's total tax liability exceeds the tax which would be owed if the taxpayer moved his foreign manufacturing operations to the United States. However, if the foreign country permits a deduction for head office research expense, then the total tax liability of the taxpayer could perhaps be reduced.

⁵³ Prior to the 1986 Act, a foreign country imposing tax at a 40-percent rate would have been a low-tax country for these purposes.

Table 3.—Tax Liability Under 1.861-8 Regulation and Statutory Rules: U.S. Taxpayer Without Excess Foreign Tax Credits

[40-percent foreign tax rate without a deduction for U.S. research]

Item	1973 Proposed Regs.	1977 Regs. (1.861-8)	Morato- rium	1986 Act	Code section 864(f)
U.S. tax on domestic income	\$272.00	\$251.60	\$204.00	\$238.00	\$228.48
U.S. tax on foreign income ...	272.00	292.40	340.00	306.00	315.52
Foreign tax at 40- percent rate	400.00	400.00	400.00	400.00	400.00
Foreign tax credit..	-272.00	-292.40	-340.00	-306.00	-315.52
Total tax liability	672.00	651.60	604.00	638.00	628.48
Average tax rate (percent)	42.0	40.7	37.8	39.9	39.3

Analysis

Overview

This section of the pamphlet discusses issues raised by research allocation rules. These issues include (1) the degree to which any particular rule, taken together with the rules for sourcing items of gross income, results in an accurate measurement of net income from foreign sources; (2) the extent, if any, to which any particular rule causes the U.S. Treasury to give up jurisdiction over U.S. income; (3) the degree to which any particular rule constitutes an incentive to move research activities on- or offshore; (4) the degree to which any particular rule constitutes an incentive to increase or decrease overall research spending; and (5) the effect of research allocation rules on the competitiveness of U.S.-based multinationals as compared with foreign-based multinationals.

The foreign tax credit limitation and preservation of the U.S. tax base

As explained above, the basic reason for the foreign tax credit limitation is to protect the U.S. Treasury's tax base. Without a credit limitation, a foreign government could levy a tax on U.S.-source income by raising foreign taxes—either by denying deductions or raising the statutory rate—to an effective rate above 34 percent. In this case, it would be the U.S. Treasury, not the taxpayer, who would bear the burden of this high foreign tax.

As a consequence of limiting the foreign tax credit, a firm that operates in a high-tax foreign country may pay more total tax than a similar firm operating exclusively in the United States. The added tax burden is the tax paid to foreign governments in excess

of the rate of U.S. tax times the U.S. definition of foreign source income. This additional burden can be large when (1) the foreign tax rate is much higher than 34 percent, and/or (2) the foreign definition of the tax base is much broader than the U.S. definition of foreign source income.

Opponents of the regulatory research allocation rules argue that those rules are unfair because in certain situations, a foreign country may deny local firms or local branches of U.S. firms the effect of full current expensing for research expenses incurred in the United States by U.S. firms. Therefore, they argue that the foreign tax credit limitation should be increased by permanently revising or repealing the regulatory apportionment rules.

Proponents of the regulatory allocation rules argue, however, that those rules measure the net income from foreign sources more accurately than the various statutory allocation rules. Increasing the foreign tax credit limitation unilaterally by resort to the latter, they argue, would effectively allow foreign governments to levy a tax on U.S. source income, displacing the U.S. Treasury's right to do so. In addition, they argue that because taxpayers with excess credits effectively are exempt from U.S. tax on their foreign income, the portion of their research deductions that help generate such foreign income should not, in effect, operate like a deduction from U.S. tax on U.S. taxable income. They point out that other expenses that generate tax-free income—such as interest expense on borrowings made to purchase tax-exempt securities—generally are not deductible.

Double deduction: Domestic deduction for research and foreign deduction for royalty arising from the same research

In general

It can be argued that under any automatic place-of-performance allocation, corporations with excess foreign tax credits may obtain the equivalent of double deductions for at least a portion of U.S.-performed research expense. This benefit potentially is available when a U.S. parent company deducts 100 percent of domestic research expense against U.S. source income, and its foreign subsidiary deducts (for foreign tax purposes) a royalty payment for exploitation of this research.

Table 4 sets out two examples involving a U.S. corporation with excess credits from prior-year foreign operations which were unaffected by the research allocation rules. This corporation does all its research in the United States and the research relates generally to both its manufacturing operations in the United States and those of its foreign subsidiary abroad. All manufacturing and research are assumed to fall within a single product category. The current foreign tax rate that applies to the subsidiary is assumed to be equal to the 34-percent U.S. tax rate.

The parent company has \$150 of worldwide net income before research expenses of \$50. This \$150 consists of \$75 of net U.S. source income and \$75 of foreign source income, the latter representing in the first case a distribution of all of the foreign subsidiary's earnings. Gross worldwide sales receipts are equally divided between

the parent and the subsidiary. The foreign country allows the subsidiary no deduction for U.S. research conducted by the parent.

Effect of research allocation on domestic tax

After the research deduction for U.S. income tax purposes, worldwide taxable income is \$100 and U.S. tax on worldwide income is \$34. If all research expense is allocated to U.S. source income, then foreign source taxable income of the parent is \$75, giving the parent a foreign tax credit limitation equal to three-quarters of \$34, or \$25.50.

Assume in the first case that foreign tax on the subsidiary equals \$25.50, or 34 percent of \$75, because none of the research expense offsets profits of the subsidiary, and no royalty is payable to the parent in connection with use of its intangible property. The overall U.S. and foreign tax burden on the two corporations is \$34. This is the same tax burden which the parent company would confront if it operated as one entity exclusively in the United States or in the other country.⁵⁴ But viewed from the Treasury's vantage, U.S. tax on U.S. source taxable income has been reduced to \$8.50, or 34 percent of \$25, when in fact half of the parent's \$100 in taxable income is fairly attributable to the United States. In essence the Treasury is giving the taxpayer an extra \$25 deduction from U.S. taxable income, even though that extra deduction is more properly attributable to income that is exempt from U.S. tax.

Effect of royalty payment on foreign tax

Now assume that in the second case all facts are the same except that the foreign subsidiary characterizes \$10 of its \$75 payment to the parent as a royalty for current use of the proprietary knowledge produced by the \$50 of domestic research, and that the royalty is deductible for foreign tax purposes.⁵⁵ In this case, the foreign country's definition of the affiliate's domestic source income is reduced by \$10, and foreign taxes are reduced by \$3.40. The U.S. definition of foreign source income is unchanged (since the royalty, like the dividend, is treated as foreign source income of the parent), so the foreign tax credit limitation is unaffected. The tax paid to the United States is not increased by the decrease in foreign tax, because both (1) the credit limitation remains the same, and (2) other, unrelated prior-year excess credits can be employed.

The enterprise has reduced its total tax liability by \$3.40, from \$34 to \$30.60, by characterizing \$10 of the payment to the parent company as a royalty rather than a dividend. The reduction occurs because \$10 of the research expense effectively has been deducted a second time. The first deduction was the \$50 reduction of U.S. source income corresponding to the research expense. The second deduction effectively occurs when foreign taxes are reduced as a result of the \$10 royalty payment, while U.S. taxes remain the same. Because the royalty payment is treated as entirely foreign source income of the parent and because the parent has prior-year

⁵⁴ This statement assumes, of course, that like the United States, the foreign taxing jurisdiction would allow a deduction in full to the subsidiary for research expenses currently incurred abroad by the subsidiary.

⁵⁵ In tax treaty countries, for example, foreign governments generally allow a deduction for royalty payments made to the U.S. parent that are directly related to local income.

excess credits, the company's total tax burden (\$30.60 on \$100 of worldwide income) is less than it would be if it operated exclusively in the United States or the other country, each of which imposes \$34 of tax on \$100 of worldwide income.

Table 4.—Example of U.S.-Allocated Research Expense and Royalty Income

Item	U.S. source	Foreign source	Total
Income before research	\$75.00	\$75.00	\$150.00
Research deduction	50.00	0.00	50.00
Taxable income	25.00	75.00	100.00
Pre-credit U.S. tax	8.50	25.50	34.00
FTC limitation	0	25.50	25.50
FTC carryover available from prior year	0	3.40	3.40
<i>Case (1): Net receipts of foreign affiliate repatriated as dividend:</i>			
Foreign tax on current income	0	25.50	25.50
Post-credit U.S. tax	8.50	0	8.50
Total tax	8.50	25.50	34.00
<i>Case (2): \$10 repatriated as royalty; balance repatriated as dividend:</i>			
Foreign tax on current income	0	22.10	22.10
Post-credit U.S. tax	8.50	0	8.50
Total tax paid currently	8.50	22.10	30.60

In this example, allocation of research solely to the United States permits all domestic research expenses to be deducted from U.S. source income even where a portion of this expense is related to the production of foreign source income that is effectively exempt from U.S. tax. The tax benefit could be eliminated by allowing only the portion of expenses incurred for the production of U.S. income to reduce U.S. source gross income. Alternatively, this double deduction problem can be remedied by treating all or part of royalty payments from foreign affiliates as U.S. source income in situations where the parent deducts research exclusively from U.S. source income.

Export of research activity

The principal reason for enacting and renewing the moratorium on apportionment of research expense under the 1977 Regulation was Congressional concern that the regulation encouraged multinational businesses to shift research activities abroad. However, according to the Treasury Department's June 1983 study, the impact

of the research Regulation (at least under the pre-1986 Act tax rates) was unclear. Based on National Science Foundation data, the Treasury study shows that, following promulgation of the Regulation in 1977, the foreign-performed share of research expenses by U.S. companies and their foreign affiliates dropped from 9.08 percent in 1978 to 8.20 percent in 1981.⁵⁶ Thus, the aggregate statistics did not show a shift of research offshore after the Regulation was adopted.

The Treasury study also reviewed several economic analyses of the overseas research activity of multinational companies. This survey indicated that U.S. multinationals locate research offshore primarily to transfer developed technology or to adapt technology to indigenous factors of foreign markets, rather than to develop new technologies or new products for a worldwide market. The literature survey also indicated that there are important efficiency advantages of centralized research which make the establishment of offshore research units unattractive to multinational companies. The Treasury study concluded that, "[b]ased on these considerations, it appears that foreign R&D is not highly substitutable for R&D performed in the United States."⁵⁷

The primary importance of factors other than taxes in the research location decision was confirmed in a study by Arthur Andersen and Company. Based on a survey of 85 major multinational firms, the Arthur Andersen study found: "The results indicate that the most common incentive for determining timing, placement, and scope of R&D projects is the competency of the available workforce. The geographical location of necessary raw materials and research data was the second most frequent response."⁵⁸ While the Arthur Andersen study found that taxes have some influence on the location of research investment, this factor was not of primary importance to the firms included in the survey.

Based on the Treasury study, and the other economic analyses cited therein, it would appear that there is little evidence that the 1977 Regulation resulted in a large shift of research offshore, at least under pre-1986 Act rates, or that such a shift would have occurred had the Regulation's research rules been reimplemented prior to 1986.

Even if the regulation could provide an incentive to relocate research facilities to overseas locations, shifting *research activity offshore* is not the only tax planning strategy available for reducing excess credits. An alternative is to shift *manufacturing activity to the United States* or from a high tax foreign country to a low tax country.^{58a} Another strategy which may be feasible in some cases is for the foreign user of the results of research to make royalty or cost-sharing payments to the United States.

Assuming that there were circumstances where a U.S. company could most easily reduce excess credits by locating research off-

⁵⁶ Department of the Treasury, *The Impact of the Section 861-8 Regulation on U.S. Research and Development* (June 1983) p. 25 (hereinafter "Treasury study.")

⁵⁷ Treasury study, p. 28.

⁵⁸ Arthur Andersen and Co., *National Research and Development Study*, January 1983, p. V-3.

^{58a} Conversely, more generous statutory allocation rules that increase the foreign tax credit limitation would decrease the overall tax burden on manufacturing activity in high-tax foreign countries.

shore, the taxpayer would have to weigh the benefits to be gained through using extra foreign tax credits against the costs that may be incurred in forgoing the relatively favorable provisions of the Code relating to research in general. (See discussion below of the issue relating to the competitive position of U.S. firms in the world marketplace.)

Allocation of research to U.S. source income as an incentive to increase overall research

Some argue that some firms may reduce research expenditures as a result of the Regulation's research rules. The statutory rules, it is asserted, have been a research incentive. The Treasury study examined this issue and found that as a result of suspending the Regulation's research rules, privately financed U.S. research was increased in 1982 between 0.27 and 0.65 percent or between \$40 million and \$260 million. The revenue cost of the moratorium in 1982 was estimated to be in the range of \$100 million to \$240 million. Thus, the increase in domestic research per dollar of revenue loss is estimated to range from \$0.17 (40/240) to \$2.60 (260/100).⁵⁹

It is interesting to note that in all of the Treasury estimates of the effect of allocation rules on the level of domestic research activity, more than one-half and, in some cases, nearly 90 percent of the increase in *domestic* research corresponds to an increase in overall research, as opposed to a shifting of research across national borders. If one could correctly conclude that the behavioral effect of making the allocation rules more generous lies primarily in its stimulus to overall research spending, then the economic benefits of the various statutory allocation rules should be evaluated by comparing them to other research incentives, such as direct (non-tax) subsidies, expensing of research expenditures, and the R&E tax credit.

The Treasury study pointed out that the tax benefits of dropping the research rules would, at that time, have been highly concentrated: 24 firms were estimated to obtain 85 percent of the benefit. In addition, the benefit would go only to firms with excess foreign tax credits and these may not be the same firms with the most promising research opportunities. The Treasury study concluded:

All firms are not affected uniformly by the moratorium. It only reduces the tax liabilities of firms in an excess credit position. These firms earn from 16 percent to 22 percent of the worldwide income of U.S. manufacturing corporations. Whether or not a firm is in an excess credit position does not seem to be closely related to the level of its R&D effort. The moratorium has its most significant effect on large, mature multinational firms, as opposed to small, relatively young, high technology companies.⁶⁰

⁵⁹ Estimates of a similar order of magnitude, but over a smaller range, were obtained in a more recent unpublished study. James R. Hines estimates changes in domestic research per dollar of revenue loss between \$0.43 and \$1.88. See "On the Sensitivity of Research to Delicate Tax Changes: The Behavior of US Multinationals in the 1980s," paper presented at the National Bureau of Economic Research Conference on the International Aspects of Taxation, September 27, 1991, Table 14.

⁶⁰ Treasury study, p. 32.

Thus, the Treasury study implied that there may be more effective, less haphazard methods to increase domestic research, at a lower revenue cost, than the repeal of the research rules of the Regulation. Under current law, the basic premise of this conclusion may be valid. For instance, the present credit for certain research expenses may encourage the pursuit of basic research by universities and other exempt organizations. Such research by exempt organizations does not benefit so clearly from an incentive relating to the allocation of research expenses. And even though corporate tax rates have been reduced by the 1986 Act, it generally remains true that many firms will not be in an excess credit position.

On the other hand, the rate reduction and interest allocation rule amendments in the 1986 Act potentially modify the conclusions reached in the Treasury study. All other things being equal, the percentage of worldwide income of U.S. corporations earned by firms in an excess foreign tax credit position may have risen as a by-product of those 1986 Act provisions with the result that any change in the research allocation rules might be expected to have a more uniform effect than was true in 1983. On the other hand, factors other than those 1986 Act provisions could have an opposite effect (for example, post-1986 reductions in *foreign* income tax rates), and other factors, such as deferral,⁶¹ may dampen the effects of any changes in the relative levels of foreign and domestic tax rates on the proportion of income of U.S. corporations subject to excess foreign tax credits. Moreover, potential future increases in U.S. corporate income tax rates, or liberalizations of U.S. interest allocation rules (*cf.* H.R. 2948, secs. 5 and 6, introduced July 18, 1991 by Mr. Gradison) may decrease the proportion of the income of U.S. corporations subject to excess foreign tax credits.

Competitive position of U.S. firms in the world marketplace

Opponents of the Regulation have claimed that U.S. multinational corporations were at a disadvantage relative to foreign multinational corporations because other countries did not *specifically* require allocation of a portion of domestic research expense to foreign source income. Other countries may, however, amend their laws or require allocations of domestic research expense to foreign source income under their general tax principles. Moreover, in order to determine the relative tax advantage of international competitors in the conduct of research, it is necessary to examine all aspects of the tax system which influence the rate of return on research development projects. The U.S. tax system provides a number of incentives to research which may, on balance, offset any detrimental effects of the Regulation's research rules. First, most research expenses may be deducted in the year they are incurred even though the income resulting from the use of this knowledge may stretch out over many years (e.g., as long as 17 years in the case of a patent). Second, a 20-percent tax credit is now allowed on increases in U.S.-based research expenditures.

Thus, the multinational competitiveness of U.S. companies in high technology industries is influenced by a variety of provisions

⁶¹ "Deferral" is used here to refer to U.S. tax rules that generally do not impose current U.S. tax on foreign operations carried on through foreign subsidiaries of U.S. taxpayers.

in the U.S. tax law. While the research allocation rules may disadvantage U.S. companies relative to their foreign competitors, other provisions of the Code, such as the research credit, may offset this disadvantage.

Matching research expenses with U.S. and foreign income

In general

U.S. income tax law generally attempts to match deductions for expenditures with the income that the expenditures help generate. Matching is necessary when net income must be measured from a particular source, from a particular year, or from a particular activity. There are several instances in the tax law where this is important. To accurately measure income in a particular year, capital expenses generally are not deductible in full in the year paid or incurred, but must be deducted ratably over the period of years during which they generate income. To prevent tax arbitrage, a deduction is generally denied for interest paid or incurred with respect to funds borrowed to invest in tax-exempt securities. Similarly, to accurately measure foreign source income and U.S. source income, the Code requires allocation and apportionment of deductions between foreign and domestic gross income.

Determination of the source of income that research deductions should offset, however, raises difficult issues. Part of the difficulty arises because laboratories and other research facilities are cost centers, not profit centers. Much research never results in any income. The scientific method of trial and error sometimes produces no commercially valuable results. Moreover, it is especially difficult to allocate basic research expenses to foreign or U.S. income. And even focused research yields unanticipated results.

Additional problems arise because of the difficulties in determining the correct timing of deductions for research. Congress has enacted a special rule (sec. 174) generally making research currently deductible even though it will not yield current income. A foreign tax credit system that allocates current research expenses against current income may yield distorted results, because current income often arises more from past research than from current year research. For instance, a taxpayer who has just begun foreign operations may have little measurable foreign activity. If foreign operations expand in the future, however, current research may significantly benefit future foreign operations. If the taxpayer performs no research in those later years of profitable foreign operations, it is likely that any method (over the entire period) will overstate foreign income.

Because of these practical problems, the research Regulation provides taxpayers with a limited opportunity to match research performed in one location to particular items of income. This direct tracing is available only on the basis of "reasonable expectations" of "very limited or long-delayed application" of the research results outside the United States. The taxpayer must satisfy the Commissioner of the propriety of the tracing.

More generally, the research Regulation relies on more mechanical methods of sourcing expenses and embrace elements of each of three competing approaches to research deductions (in addition to

their limited tracing approach). The Regulation's exclusive geographic apportionment rules are an application of the place-of-performance approach; the sales method is an application of the gross sales approach; and the optional gross income methods are an application of the gross income-to-gross income approach.

Place-of-performance rules

Advocates of a place-of-performance approach argue that there is no alternative to it that is not vague or arbitrary. In some cases, a straight place-of-performance rule may produce the theoretically proper measure of U.S. and foreign income. For example, a taxpayer conducts organic chemical research in the United States on methods of eliminating an agricultural pest found only in this country. The taxpayer earns all of its foreign income by manufacturing and selling inorganic chemical compounds in Europe. The taxpayer earns U.S. income by manufacturing and selling both organic and inorganic chemical compounds in the United States. The taxpayer's organic chemical research apparently bears little or no relation to its foreign income. For that reason, the expenses of that research should perhaps not reduce foreign income at all.

Opponents of a straight place-of-performance rule would not agree to its application in this case. There is some chance that the taxpayer's research will result in products that the taxpayer can manufacture abroad or processes that the taxpayer can use to earn foreign income.

Opponents of a place-of-performance rule argue that the research Regulation would reach the proper result by treating this case as one involving very limited foreign use of the research. Under the research Regulation's optional place-of-performance rule, presumably less than 100 percent of the taxpayer's research deduction would be apportioned to U.S. income.⁶² Proponents of a straight place-of-performance rule reply that the optional place-of-performance rule yields complexity and confusion in this case.

Alternatives to the place-of-performance method

In some cases, the gross sales method (the rule of Reg. sec. 1.861-8(e)(3)(ii)(B)) or the gross income-to-gross income method (the rule of Reg. sec. 1.861-8(e)(3)(iii)) may produce the theoretically proper measure of U.S. and foreign income. Assume that a taxpayer owns U.S. and foreign patents for one drug. The taxpayer's only business is manufacturing that drug. The taxpayer manufactures in two factories, one in the United States and one in Germany (through a German branch). Profit margins and costs of production in these

⁶² The research Regulation's optional place of performance rule has provoked debate. As discussed above, the research Regulation permits a taxpayer that qualifies for a 30-percent apportionment of his research deduction to income from one geographic source to apportion to that income a percentage of his research deduction "significantly greater" than 30 percent. The taxpayer may do so if it establishes that the higher percentage is warranted because the research is reasonably expected to have a very limited or long-delayed application outside the geographic source. The research Regulation does not define the term "significantly greater." One example given in the Regulation (Example (10)) suggests that an apportionment to income from the geographic source that is 34 percent higher than the apportionment yielded by application of the base line percentage might, at least in some circumstances, be considered significantly greater; another example given in the Regulation (Example (9)) suggests that a 6-percent differential would not be. Taxpayers have argued that the Regulation should give taxpayers more specific guidance on this point.

two factories are identical. The taxpayer conducts research in a U.S. laboratory. The focus of that research is improvement of the one drug patent that the taxpayer owns. Both gross foreign sales and income and gross U.S. sales and income appear to bear some relationship to the U.S. research. Comparison of gross sales is administratively feasible, and might be a proper way of allocating research expenses. Comparison of gross income is also administratively feasible, and would yield the same allocation of research expenses in this case.⁶³

Proponents of a place-of-performance rule would argue that the U.S. research is more likely to produce U.S. income than foreign income, however. Any improvements that the research creates may be more likely to appear first in the U.S. market. There are several factors that could cause first U.S. appearance, including: proximity of the U.S. laboratory to the U.S. plant, familiarity of researchers with the U.S. market, greater political risk in the foreign country, familiarity of the company's marketers with the U.S. market, competition in the foreign market from unsafe drugs that cannot meet U.S. standards, and likelihood that foreign competitors will infringe on the improvement. Moreover, although the research is focused on an existing product, it might well result in a new product or process that produces only or primarily U.S. income.

Comparison of gross sales and gross income methods

Both the gross sales rule and the gross income rule involve difficulties. A sales method involves practical difficulties. For example, assume that a U.S. taxpayer who manufactures and sells an automobile windshield defrosting device in the United States and licenses the device for manufacture and sale abroad by foreign automobile makers. The taxpayer's gross U.S. sales are its sales of the windshield defrosting device in the United States. Determination of gross foreign sales is more difficult. One application of the sales method and look-through rules would compare these sales with those of the foreign licensee, which are sales of automobiles. The automobile sales reflect many cost components of the automobiles other than the windshield defrosting device, so this comparison seems inappropriate.

To deal with the difficulty of estimating third-party licensees' (and purchasers') sales, the research Regulation adopts a deemed sales price for certain licensed (and purchased) intangibles of ten times the amount received for the intangibles. Critics note the arbitrariness of this deemed sales figure.

Advocates of the sales method point out that arbitrariness can be avoided sometimes because taxpayers exercise a degree of control over whether the look-through rules of the sales method are applied and, thus, over whether sales of certain foreign entities will be treated as the taxpayer's own for purposes of apportioning research expense. For example, the research Regulation provides that if a U.S. taxpayer and its controlled corporation enter into a bona fide cost-sharing arrangement for purposes of developing in-

⁶³ For simplicity, the example equates profit margins and costs of production in the two factories owned by a single corporation, so that the two methods yield the same allocation. A comparison of two methods when they do not yield the same allocation appears below.

tangible property, then the controlled corporation's sales relating to the intangible property will not be treated as the taxpayer's for purposes of apportioning the taxpayer's research expense.

Critics of the sales method argue that the gross income-to-gross income method avoids the comparison of sales (or deemed sales) in all cases and, in addition is easier to use than the sales method, has been approved by U.S. courts, and had been used widely by U.S. taxpayers for many years.

Critics of the sales method also point out that the method seems to produce arbitrary results in some circumstances. For example, suppose that the sales method is used by a U.S. licensor who negotiates a large up-front license fee from a foreign company with the proviso that the fee will reduce future royalties. If the licensee makes few sales in the year in which the up-front fee is paid, most of the foreign source income from the license will not cause research expense to be apportioned to foreign source income.

On the other hand, the gross income-to-gross income method may encourage U.S. taxpayers to license technology to foreign manufacturers instead of utilizing the technology themselves to manufacture products for sale abroad. Assume that the before-tax return would be the same from these two alternatives. If the sales method were mandated, foreign sales would be taken into account in apportioning the research expense to foreign source income in either case. If, however, the gross income-to-gross income method were used, foreign sales would be taken fully into account only if the taxpayer chose to manufacture and sell directly.⁶⁴ If the taxpayer chose to license the relevant technology to others instead, foreign license fees only, likely equaling a small percentage of the licensee's foreign sales, would be taken into account in apportioning research expense to foreign income.

Use of the gross income-to-gross income method also may, in contrast with the sales method, result in a smaller apportionment of research expense to foreign source income when foreign operations are conducted through a subsidiary as compared to a branch. The reason is that gross income attributable to a foreign subsidiary generally includes only profits distributed to the U.S. parent and not retained for foreign investment. A U.S. parent generally can control the timing of these dividends and thus can potentially reduce gross income from foreign sources to zero in a given year and thereby avoid any allocation of research expense to foreign source income. Moreover, the dividends represent the foreign subsidiary's receipts net of depreciation, interest, and other indirect expenses. To the extent of its own operations, on the other hand, the gross income of a U.S. parent generally includes receipts whether reinvested or not and whether offset by expenses or not. If the U.S. corporation has a foreign branch, the gross income of the latter is a component of the U.S. corporation's gross income. Whether operations are conducted through a foreign subsidiary or a foreign branch bears no relation to the connection between particular re-

⁶⁴ In the case of the direct manufacturing and sales alternative, the gross income method would account for sales through foreign branches directly; the gross income method would generally account for sales of foreign subsidiaries indirectly, only upon payment of subsidiary dividends, and then only to the extent of the subsidiary's net (rather than gross) income.

search activities and types of income. The gross income-to-gross income method's distinction between branch and subsidiary operations, therefore, seems unwarranted.

At least in part for this reason, the unmodified research Regulation limits the application of the gross income-to-gross income method to cases when its results do not diverge too greatly from those of the gross sales method. However, under both the temporary 1986 Act allocation rules and the 1987 Administration proposal, this restraint on the potential distortions of the gross income method, as applied to subsidiary operations, was lifted; under Code section 864(f), it has been retained but in a weakened form.

In addition, the gross income-to-gross income method may give U.S. taxpayers a limited incentive to underprice transfers to related parties abroad, including transfers of technology developed through the very research expenditures whose allocation is at issue here. Code section 482 allows the IRS to correct any improper transfer prices, but it has proved difficult to administer in practice. In any case, section 482 would not necessarily give the IRS authority to readjust transfer prices based on research performed in the same year as the transfer, absent an unusually short lead time between research and product improvement.

Breadth of product categories

Critics of the Regulation's research rules argue that the prescribed product categories are too broad. They point out that research which relates solely to a product sold in the United States may nonetheless be apportioned to foreign source income when a second product, falling in the same product category as the first, happens to be sold abroad. For example, an apportionment to foreign source income of research expense relating to bulldozers manufactured and sold solely in the United States may be required when the taxpayer manufactures and sells small gasoline engines for lawnmowers abroad because the bulldozers and lawnmower engines fall in the same product category.⁶⁵

As another example, a taxpayer performs basic pharmaceutical research in the United States in an effort to create new antibiotics. The taxpayer's U.S. plants produce a variety of antibiotics for the U.S. market, while the taxpayer's foreign plants produce only aspirin for foreign markets. Nonetheless, under the research Regulation, antibiotics and aspirin are in the same product category, and the general rules of the Regulation would allocate some of the research expense to foreign source income unless the taxpayer met the burden of showing very limited or long-delayed application of the research abroad. Proponents of the research Regulation argue that this result may in fact be the correct one. For example, although the taxpayer does not use the basic research in producing aspirin, the taxpayer might not use it immediately in producing antibiotics, either.⁶⁶ Also, the taxpayer might begin making substantial foreign sales of any new drug its research creates.

⁶⁵ See paragraph (g) of Regulation, Example (4).

⁶⁶ If the expenditures in this case were for testing existing products rather than for developing new products, they are related to income from those products. Such expenses are not subject to the allocation rules of the research Regulation. See Treas. Reg. sec. 1.174-2(a)(1). Therefore, such expenses would typically be deductible from U.S. source income.

Critics of the research rules argue that the use of narrower product categories (for example, three-digit instead of two-digit SIC categories) should be permitted. Alternatively, they argue that allocation should be permitted on a project-by-project basis and product categories should be eliminated.

Narrower product categories might, however, eliminate the research rules' capacity to take into account for apportionment purposes that research sometimes contributes unexpected benefits. For instance, in the bulldozer/lawnmower example above, it is assumed that the research relating to the bulldozers yields no results applicable to the lawnmower engines. But in some circumstances, a taxpayer's bulldozer-related research might unexpectedly benefit its lawnmower engine line.

Also, the structure of the product categories Wholesale trade and Retail trade sometimes allows a taxpayer to apportion all of its research expense relating to a product that sells both in the United States and abroad to U.S. source income. This may be viewed as a mitigating factor in connection with the breadth of the product categories.

For example, suppose a U.S. corporation manufactures and sells forklift trucks in the United States and distributes them abroad through a wholesaling subsidiary. The U.S. corporation performs research relating to the forklifts but none relating to wholesale trade. The manufacture and sale of forklifts in the United States belongs to the product category Transportation equipment, but the wholesaling of the forklifts abroad will generally belong to the product category, Wholesale trade. None of the U.S. corporation's research expense attributable to the forklifts is allocable to the wholesaling subsidiary's sales abroad because those sales are in a different product category (Wholesale trade) from the product category to which the sale and manufacture of forklifts belong and to which the research relates (Transportation equipment).⁶⁷

Treatment of basic research

The treatment of basic research expense under the research rules has also been questioned. The Regulation states that research that cannot be clearly identified with one or more product categories is to be divided among all product categories. One of the examples given in the Regulation (Example (15), at paragraph (g) of the Regulation) indicates that the Internal Revenue Service might regard some basic research as not clearly identifiable with any product categories and, thus, properly attributable to all product categories. In the example, basic research expense incurred by a U.S. manufacturer of heating equipment is considered related to all the manufacturer's product categories and, as a result, is allocated in part to income from the manufacturer's foreign hotel subsidiary.

Critics of the Regulation's research rules argue that this allocation is unfair. In their view, basic research expense generally should not be divided among all product categories. They argue that while basic research, by its nature, is less narrowly focused than applied or developmental research, basic research is frequent-

⁶⁷ See paragraph (g) of the Regulation, Example (6).

ly undertaken specifically in relation to one product or a group of products to the exclusion of others. Therefore, basic research expense should generally be attributable to one or a few of a taxpayer's product categories rather than all the taxpayer's product categories.

Advocates of the research Regulation respond that it may be possible to allocate basic research expense in this manner under the Regulation as presently drafted. To do so, a taxpayer must show that his basic research is clearly identified with certain product categories. The fact that the basic research may relate to several of the taxpayer's product categories should not normally prevent the taxpayer from attributing the expense to fewer than all of his product categories since the research Regulation permits the aggregation of product categories for allocation purposes.

Complexity

Critics of the Regulation argue that the research Regulation is overly complex and lengthy. They state that assembling the data necessary to perform the allocation calculations is very time consuming and difficult. They question whether the additional revenue that might be collected under the Regulation is worth the expenditure of taxpayers' and the Federal Government's time and money in attempting to comply with and administer the Regulation. On the other hand, the research Regulation applies to few taxpayers. In 1976, for example, only 6,513 U.S. corporations claimed foreign tax credits. Moreover, much of the research Regulation's complexity arises from various options (such as the optional increase in exclusive place-of-performance allocation) that benefit the taxpayers that choose them.

7. Tax credit for qualified research expenditures (sec. 41 of the Code)

Present Law

General rule

A 20-percent tax credit is allowed to the extent that a taxpayer's qualified research expenditures for the current year exceed its base amount for that year. The credit will not apply to amounts paid or incurred after June 30, 1992.

A 20-percent tax credit also applies to the *excess* of (1) 100 percent of corporate cash expenditures (including grants or contributions) paid for university basic research *over* (2) the sum of (a) the greater of two fixed research floors plus (b) an amount reflecting any decrease in nonresearch giving to universities by the corporation as compared to such giving during a fixed-base period, as adjusted for inflation.⁶⁸

Computation of allowable credit

Except for certain university basic research payments, the credit applies only to the extent that the taxpayer's qualified research expenditures for the taxable year exceed its base amount. The base amount for the current year is computed by multiplying the taxpayer's "fixed-base percentage" by the average amount of the taxpayer's gross receipts for the four preceding years.

If a taxpayer both incurred qualified research expenses and had gross receipts during each of at least three years from 1984 through 1988, then its "fixed-base percentage" is the ratio that its total qualified research expenses for the 1984-1988 period bears to its total gross receipts for that period (subject to a maximum ratio of .16). All other taxpayers (such as "start-up" firms) are assigned a fixed-base percentage of .03.

In computing the credit, a taxpayer's base amount may not be less than 50 percent of its current-year qualified research expenditures.

Eligible expenditures

Research expenditures eligible for the 20-percent incremental credit consist of (1) "in-house" expenditures by the taxpayer for research wages and supplies used in research; (2) certain time-sharing costs for computer use in research; and (3) 65 percent of amounts paid by the taxpayer for contract research conducted on the taxpayer's behalf.

⁶⁸ This credit generally is referred to as the "university basic research credit." Expenditures paid or incurred for university basic research after June 30, 1992, are not eligible for this credit.

Expenditures attributable to research that is conducted outside the United States do not enter into the credit computation. In addition, the credit is not available for research in the social sciences, arts, or humanities, nor is it available for research to the extent funded by any grant, contract, or otherwise by another person (or governmental entity).⁶⁹

Relation to deduction

Deductions for qualified research expenditures allowed to a taxpayer under section 174 or any other provision are reduced by an amount equal to 100 percent of the taxpayer's research credit determined for that year.

Legislative Background

The research credit initially was enacted in the Economic Recovery Tax Act of 1981 as a credit equal to 25 percent of the excess of qualified research expenses in the current year over the average of qualified research expenses in the prior three taxable years. The research credit was modified in the Tax Reform Act of 1986 ("1986 Act") which (1) extended the credit through December 31, 1988, (2) reduced the credit rate to 20 percent, (3) tightened the definition of research expenditures eligible for the credit, and (4) modified the university basic research credit.

The Technical and Miscellaneous Revenue Act of 1988 ("1988 Act") extended the credit for one additional year, through December 31, 1989. The 1988 Act also reduced the deduction allowed under section 174 for qualified research expenses by an amount equal to 50 percent of the research credit determined for the year.

The Omnibus Budget Reconciliation Act of 1989 ("1989 Act") effectively extended the research credit for nine months (by prorating qualified expenses incurred before January 1, 1991). The 1989 Act also modified the method for calculating a taxpayer's base amount and further reduced the deduction allowed under section 174 for qualified research expenses by an amount equal to 100 percent of the research credit determined for the year.

The Omnibus Budget Reconciliation Act of 1990 extended the research credit through December 31, 1991 (and repealed the special rule to prorate qualified expenses incurred before January 1, 1991).

The Tax Extension Act of 1991 extended the research credit for six months (i.e., for qualified expenses incurred through June 30, 1992).

Analysis

Overview

Technological development is an important component of economic growth. However, businesses may not find it profitable to invest in research because it is difficult to capture the full benefits

⁶⁹ The Tax Reform Act of 1986 provided statutory rules defining qualified research for purposes of the incremental credit as research undertaken to discover information that is technological in nature and that pertains to functional aspects of products. Also, the 1986 Act expressly excluded certain types of expenditures from eligibility for the credit, including post-production research activities, duplication or adaptation costs, and surveys, studies, and certain other costs.

from the research and prevent such benefits from being used by competitors. In general, businesses acting in their own self-interest will not necessarily invest in research to the extent that would be consistent with the best interests of the overall economy. This is because costly scientific and technological advances made by one firm are cheaply copied by its competitors. A tax subsidy is one method of offsetting this bias against research, so that research projects undertaken approach the optimal level. (Other methods by which the Federal Government provides benefits for research is through direct spending and grants, through favorable anti-trust rules, and through patent protection.) Research is one of the areas where there is a consensus that government intervention in the marketplace can improve overall economic efficiency.

Much of what has been written about the research credit is in reference to the credit before it was restructured by the Omnibus Budget Reconciliation Act of 1989. This literature—generally critical of the pre-1989 Act version of the credit—was instrumental in the decision to restructure the credit from an incremental credit with a base amount equal to a moving average of previous years' qualified expenditures to one with a so-called "fixed base." These studies are of limited usefulness, however, in evaluating a restructured research credit.

Scant evidence is available about the effectiveness of the restructured research credit, although it is expected to be substantially more effective than the prior-law credit. The revised research credit structure may be quite effective in increasing research expenditures, but its effect is largely uncertain because there is little evidence about the responsiveness of research to changes in taxes and other factors affecting its price. In addition, there apparently have been no specific studies of the effectiveness of the university basic research tax credit.

a. The research tax credit

Incremental tax credits

For a tax credit to be effective in increasing a taxpayer's research expenditures it is not necessary to provide that credit for all the taxpayer's research expenditures. By limiting the credit to expenditures above a base amount, incremental tax credits attempt to target the tax incentives where they will have the most effect on taxpayer behavior.

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

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

able. Thus, the tax credit would affect behavior only with respect to this marginal project.

Incremental credits attempt not to reward projects which would have been undertaken in any event and to target incentives to marginal projects. To the extent this is possible, incremental credits have the potential to be far more effective per dollar of revenue cost than flat credits in inducing taxpayers to increase qualified expenditures.⁷⁰ Unfortunately, it is nearly impossible as a practical matter to determine which particular projects would be undertaken without a credit and to provide credits only to other projects. In practice, almost all incremental credit proposals rely on some measure of the taxpayer's previous experience as a proxy for a taxpayer's total qualified expenditures in the absence of a credit. This is referred to as the credit's "base amount." Tax credits are provided only for amounts above this base amount.

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

Nevertheless, the incentive effects of incremental credits per dollar of revenue loss can be many times larger than those of a flat credit.⁷¹ However, in comparing a flat credit to an incremental credit, there are other factors that also deserve consideration. A flat credit generally has lower administrative and compliance costs than does an incremental credit. Probably more important, however, is the potential misallocation of resources and unfair competition that could result as firms with qualified expenditures determined to be above their base amount receive credit dollars, while other firms with qualified expenditures considered below their base amount receive no credit.

The responsiveness of research expenditures to tax incentives

Like any other commodity, the amount of research expenditures that a firm wishes to incur generally is expected to respond positively to a reduction in the price paid by the firm. Economists often refer to this responsiveness in terms of "price elasticity," which is measured as the ratio of the percentage change in quantity to a percentage change in price. For example, if demand for a product increases by 5 percent as a result of a 10-percent decline in price paid by the purchaser, that commodity is said to have a price elasticity of demand of 0.5.⁷²

⁷⁰ In the example above, if an incremental credit were properly targeted, the Government could spend the same \$20 in credit dollars and induce the taxpayer to undertake a marginal project so long as its expected cash flow exceeded \$80.

⁷¹ As discussed below, this is much less likely in the case of incremental credits with a moving-average base.

⁷² For simplicity, this analysis assumes that the product in question can be supplied at the same cost despite any increase in demand (i.e., the supply is perfectly elastic). This assumption may not be valid, particularly over short periods of time, and particularly when the commodity—such as research scientists and engineers—is in short supply.

One way of reducing the price paid by a buyer for a commodity is to grant a tax credit upon purchase. A tax credit of 10 percent (if it is refundable or immediately usable by the taxpayer against current tax liability) is equivalent to a 10-percent price reduction. If the commodity granted a 10-percent tax credit has an elasticity of 0.5, the amount consumed will increase by 5 percent. Thus, if a flat research tax credit were provided at a 10-percent rate, and research expenditures had a price elasticity of 0.5, the credit would increase research spending by 5 percent.⁷³ It is important to note, especially in anticipation of the discussion of incremental credits, that not all research expenditures need be subject to a price reduction to have this effect. Only the expenditures which would not have been undertaken otherwise—so called marginal research expenditures—need be subject to the credit to have a positive incentive effect.

Despite the central role of the measurement of price elasticity, there is little empirical evidence on this subject. What evidence exists generally indicates that the price elasticity for research is substantially less than one. For example, one survey of the literature reached the following conclusion:⁷⁴

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

Although most analysts agree that there is substantial uncertainty in these estimates, the general consensus when assumptions are made with respect to research expenditures is that the price elasticity of research is less than 0.5.⁷⁵

If this working assumption were assumed to be correct, it would be impossible for a flat credit to increase research spending by more than one half of the revenue cost of the credit. As discussed

⁷³ It is useful to note that for flat credits, the price elasticity can be quickly translated into a measure of the effectiveness of the credit. For example, suppose research expenditures qualified for the credit are equal to \$40 billion (disregarding the second-order effects of behavioral responses on revenue). If research price elasticity is 0.5, a 10-percent flat credit would increase research expenditures by \$2 billion and have an approximate revenue cost of \$4 billion. If the research price elasticity is 1.0, a 10-percent flat credit will increase research expenditures by \$4 billion and have an approximate revenue cost of \$4 billion. The ratio of increased expenditures to revenue cost is sometimes referred to as the "bang-for-the-buck." Thus, for a flat research credit, the research price elasticity equals the "bang-for-the-buck" of the credit.

⁷⁴ Charles River Associates, *An Assessment of Options for Restructuring the R&D Tax Credit to Reduce Dilution of its Marginal Incentive* (final report prepared for the National Science Foundation), February, 1985, p. G-14.

⁷⁵ In a 1983 study, the Treasury Department used an elasticity of .92 as its upper range estimate of the price elasticity of R&D, but noted that the author of the unpublished study from which this estimate was taken conceded that the estimate might be biased upward. See, Department of the Treasury, *The Impact of Section 861-8 Regulation on Research and Development*, p. 23. As stated in the text, although there is uncertainty, most analysts believe the elasticity is considerable smaller. For example, the General Accounting Office summarizes: "These studies, the best available evidence, indicate that spending on R&E is not very responsive to price reductions. Most of the elasticity estimates fall in the range of -0.2 and -0.5 Since it is commonly recognized that all of the estimates are subject to error, we used a range of elasticity estimates to compute a range of estimates of the credit's impact." See, *The Research Tax Credit Has Stimulated Some Additional Research Spending* (GAO/GGD-89-114), September 1989, p. 23. Similarly, Edwin Mansfield concludes: "While our knowledge of the price elasticity of demand for R&D is far from adequate, the best available estimates suggest that it is rather low, perhaps about 0.3." See, "The R&D Tax Credit and Other Technology Policy Issues," *American Economic Review*, Vol. 76, no. 2, May 1986, p. 191.

above, certain incremental credits have the potential to reduce the revenue cost of a credit with no diminution of incentive effects, at least for those firms that have qualified expenditures above the base amount.

The effective rate of credit

If a firm is able to use fully the credit in the year in which it is earned (or if the credit is refundable), and the credit is not subject to any limitations, the effective rate of credit generally could be equal to the statutory rate. However, there are many factors which may drive an effective rate of credit below the statutory rate. These factors are discussed below.

Moving-base credit

In general, an incremental tax credit with a base amount equal to a moving average of previous years' qualified expenditures is considered to have an effective marginal rate of credit substantially below its statutory rate. This is because an increase in qualified research expenditures in the current year will not only increase tax credits in the current year, but will also reduce tax credits in subsequent years. For example, under the research credit in effect prior to the 1989 Act (which computed a taxpayer's base amount as a moving average of its research expenditures for the previous three years), a \$1 increase in research expenditures in the current year would increase the firm's tax credit by 20 cents in the current year but would also increase the firm's base amount by 33 cents in each of the following three years. Consequently, the \$1 expenditure in the current year would reduce the credit by 6 and two-thirds cents in each of the following three years. On the margin, the incentive for a \$1 dollar increase in research was 20 cents in the current year, with a pay back of that 20 cents ratably over the following three years.⁷⁶

Under the present-law research credit as redesigned by the 1989 Act, current expenditures have no direct impact on the calculation of the base, so that \$1 of increased research spending can increase a firm's tax credit by 20 cents in the current year, with no effect on its base calculation in subsequent years. Thus, the present-law incremental research credit has the potential (as does a flat credit) to have a marginal effective rate of credit equal to the statutory rate of credit.

Firms with qualified expenditures less than the base amount

Unlike a flat credit, however, an incremental credit does not provide an incentive for all firms undertaking qualified research expenditures. Many firms have current-year qualified expenditures below the base amount. These firms receive no tax credit and have an effective rate of credit of zero. Although there is no revenue cost associated with firms with qualified expenditures below base, there may be a distortion in the allocation of resources as a result of these uneven incentives.

⁷⁶ The benefit, in essence, was the time value of money.

Inadequate tax liability and other limitations

If a firm has no current tax liability, or if the firm is subject to the alternative minimum tax (AMT) or the general business credit limitation, the research credit must be carried forward for use against future-year tax liabilities. The inability to use a tax credit immediately reduces its value according to the length of time between when it actually is earned and the time it actually is used to reduce tax liability.⁷⁷

Base limitation

Under present law, firms with research expenditures substantially in excess of their base amount may be subject to the 50-percent limitation. In general, although these firms receive the largest amount of credit when measured as a percentage of their *total* qualified research expenditures, their marginal effective rate of credit is exactly one half of the statutory credit rate of 20 percent (i.e., firms on the base limitation effectively are governed by a 10-percent credit rate).

Average effective rate of the credit

Although the statutory rate of the research credit is currently 20 percent, it is likely that the average marginal effective rate may be substantially below 20 percent, even though the restructured research credit does not have a moving base. Reasonable assumptions about the frequency that firms are subject to various limitations discussed above yields estimates of an average effective rate of credit between 25 and 40 percent below the statutory rate i.e., between 12 and 15 percent. Table 5 summarizes the expected increase in qualified research expenditures for a variety of assumptions about price elasticities and average marginal effective rates of credit, given \$30 billion⁷⁸ in aggregate qualified research expenditures.

Table 5.—Projected Increase in Qualified Research Expenditures, Given \$30 Billion of Qualified Research Expenditures, Under Various Assumptions about the Price Elasticity of R&D and the Effective Rate of Credit

[In billions of dollars]

Effective rate of credit (percent)	Price elasticity					
	0.0	0.1	0.2	0.3	0.4	0.5
12.....	0	0.4	0.7	1.0	1.4	1.8
13.....	0	.4	.8	1.2	1.6	2.0
14.....	0	.4	.8	1.3	1.7	2.1

⁷⁷ As with any tax credit that is carried forward, its full incentive effect could be restored, absent other limitations, by allowing the credit to accumulate interest that is paid by the Treasury to the taxpayer when the credit ultimately is utilized.

⁷⁸ In 1988, qualified research expenditures for Subchapter C corporations were approximately \$22 billion. If such expenditures grew at an annual rate of 8 percent, they would be equal to approximately \$30 billion in 1992.

Table 5.—Projected Increase in Qualified Research Expenditures, Given \$30 Billion of Qualified Research Expenditures, Under Various Assumptions about the Price Elasticity of R&D and the Effective Rate of Credit—Continued

[In billions of dollars]

Effective rate of credit (percent)	Price elasticity					
	0.0	0.1	0.2	0.3	0.4	0.5
15.....	0	.5	.9	1.4	1.8	2.3

Stability of the research credit over time

Although the moving-base incremental research tax credit under prior law had many undesirable features, one advantage it had over the current fixed-base credit concerns the evolution of each firm's base over time. A moving-average base can never substantially vary from a firm's actual experience for a sustained period of time. (In other words, a moving-average base design can be viewed as inherently "self-correcting.") For example, under prior law, if a firm decided to double its research expenditures (either permanently or at least for several years), the firm's calculated research base amount also would double after three years. In contrast, under the present-law research credit, if a firm doubles its research budget, the firm's base amount will not double unless, eventually, its gross receipts increase commensurately. Since sales growth over a long time frame will rarely track research growth as well as the previous three year's research growth, it can be expected that over time each firm's base will "drift" from the firm's actual current qualified research expenditures. Therefore, increasingly over time there will be a larger number of firms either substantially above or below their calculated base. This could gradually create an undesirable situation where many firms receive no credit and have no reasonable prospect of ever receiving a credit, while other firms receive large credits (despite the 50-percent base limitation). Thus, over time, it can be expected that, for those firms eligible for the credit, the average marginal effective rate of credit will decline while the revenue cost to the Government increases.

Cycling

As under the prior-law research credit structure, many firms currently have a substantial tax incentive to cycle or bunch their qualified research expenditures. For example, suppose a firm before enactment of the research credit had planned to spend \$100 on qualified research expenditures in each of two succeeding years. Suppose also that the firm had a base of \$90 in both of those years. If the firm maintained expenditures at \$100, it would earn \$2 of credit in each of the two years. However, if the firm reduced its expenditures to \$70 in the first year and increased its qualified research expenditures to \$130 in the following year (thereby still con-

ducting \$200 of research over the 2-year period), the taxpayer would earn \$8 of tax credit.⁷⁹ Although the tax advantages of cycling can be large, many observers believe it will not take place to a significant degree, because it is difficult to shift (either by delay or acceleration) from one year to another qualified research expenditures, which consist in large part of salaries of scientists and other highly skilled labor.⁸⁰

b. The university basic research credit

The university basic research credit is a fixed-base credit with many of the same economic properties as the more generally available research tax credit. The university basic research credit is targeted to basic research performed by educational institutions and certain other non-profit scientific organizations, which may result in more economic benefits since the spillover benefits of basic research to society as a whole often are larger than benefits derived from applied research.⁸¹ Apparently, there has been no empirical research assessing the effectiveness of the university basic research credit.

⁷⁹ This is derived as follows: \$8 is 20 percent of the difference between \$130 and \$90.

⁸⁰ Although supplies used in research also generally are eligible for the credit, this does not include real property or depreciable property (such as a computer).

⁸¹ Some observers have noted, however, that many of the results of basic research provide benefits not only to the United States but to the economies of other countries.

8. Tax credit for low-income rental housing (sec. 42 of the Code)

Present Law

A tax credit is allowed in annual installments over ten years for qualifying newly constructed or substantially rehabilitated low-income rental housing. For most qualifying housing, the credit has a present value of 70 percent of the cost of the low-income housing units. For housing also receiving other Federal subsidies (e.g., tax-exempt bond financing) and for the acquisition cost (e.g., costs other than rehabilitation expenditures) of existing housing that is substantially rehabilitated, the credit has a present value of 30 percent of qualified costs.

The credit amount is based on the qualified basis of the housing units serving the low-income tenants. A residential rental project will qualify for the credit only if (1) 20 percent or more of the aggregate residential rental units in the project are occupied by individuals with 50 percent or less of area median income, or (2) 40 percent or more of the aggregate residential rental units in the project are occupied by individuals with 60 percent or less of area median income. These income figures are adjusted for family size. The low income set-aside is elected when the project is placed in service.

Maximum rents that may be charged families in units on which a credit is claimed depend on the number of bedrooms in the unit. The rent limitation is 30 percent of the qualifying income of a family deemed to have a size of 1.5 persons per bedroom (e.g., a two-bedroom unit has a rent limitation based on the qualifying income for a family of three).

To qualify for the credit, a building owner generally must receive a low-income housing credit allocation from the appropriate State credit authority. An exception is provided for property which is substantially financed with the proceeds of tax-exempt bonds subject to the State's private-activity bond volume limitation. The annual credit ceiling for each State is \$1.25 per resident per year.

The low-income housing credit is scheduled to expire after June 30, 1992.

Legislative Background

The low-income housing credit was enacted by the Tax Reform Act of 1986, with an expiration date of December 31, 1989. The credit was substantially revised and extended through December 31, 1990, by the Omnibus Budget Reconciliation Act of 1989 ("1989 Act"). To implement the equivalent of a partial-year extension of the credit, the 1989 Act reduced the annual credit ceiling for 1990. In years prior to 1990, the credit ceiling for each State was \$1.25 multiplied by the State's population. For calendar year 1990, that amount was reduced by 25 percent from \$1.25 to \$0.9375.

The Omnibus Budget Reconciliation Act of 1990 ("1990 Act") restored the 1990 State credit ceiling to \$1.25 per resident, and extended authority to allocate the credit through December 31, 1991. In addition, the 1990 Act made technical and other modifications to the credit.

The Tax Extension Act of 1991 extended authority to allocate the credit through June 30, 1992. The credit ceiling for each State is \$1.25 per resident of the State for the period during 1992 for which the credit was extended.

Analysis

Demand subsidies versus supply subsidies

As is the case with direct expenditures, the tax system may be used to improve housing opportunities for low-income families either by subsidizing rental payments (increasing demand) or by subsidizing construction and rehabilitation of low-income housing units (increasing supply).

Provision of Federal Section 8 housing vouchers is an example of a demand subsidy. Exclusion of the value of such vouchers from taxable income is an example of a demand subsidy in the Internal Revenue Code. By subsidizing a portion of rent payments, these vouchers enable beneficiaries to rent more or better housing than they might otherwise be able to afford. The low-income housing credit is an example of a supply subsidy. By offering a credit worth 70 percent of construction costs, it is hoped that the credit induces investors to provide housing which otherwise would not be built.

A demand subsidy can improve the housing opportunities of a low-income family by increasing the family's ability to pay for improved housing. By providing additional income to the family, the family may purchase more or higher quality housing. Alternatively stated, a demand subsidy enables the family to increase its demand for housing. An increase in the demand for housing, however, may increase rents in the short run as families bid against one another for available housing. Consequently, while a family which receives the subsidy may benefit by being able to afford more or better housing, the resulting increase in market rents may reduce the well-being of other families. In addition, higher rents increase the income of owners of existing rental housing, and therefore may be expected to make rental housing a more attractive investment. Thus, in the long run, investors should supply additional housing ameliorating the current increase in market rents and expanding availability.

A supply subsidy can improve the housing opportunities of a low-income family by increasing the available supply of housing from which the family may choose. Generally speaking, a supply subsidy increases the investor's return to investment in rental housing. An increased after-tax return should induce investors to provide more rental housing. As the supply of rental housing increases, the market rents investors charge should decline as investors compete to attract tenants to their properties. Consequently, not only should qualifying low-income families benefit from an increased supply of housing, but other renters should also benefit. In addi-

tion, owners of existing housing should experience declines in income or declines in property values as rents fall.

Efficiency of tax subsidies

In principle, a demand or supply subsidy of equal size should lead to equal changes in improved housing opportunities.

However, both direct expenditures and tax subsidies for rental payments may not increase housing consumption dollar for dollar. One study of the Federal Section 8 Existing Housing Program suggests that, for every \$100 of rent subsidy, a typical family increases its expenditure on housing by \$22 and increases its expenditure on other goods by \$78.⁸² While the additional \$78 spent on other goods certainly benefits the family receiving the voucher, the \$100 rent subsidy does not increase their housing expenditures by \$100.

The theory of subsidizing demand assumes that, by providing low-income families with more spending power, their increase in demand for housing will ultimately lead to more or better housing being available in the market. However, if the supply of housing to these families does not respond to the higher market prices that rent subsidies ultimately cause, the result will be that all existing housing costs more, the low-income tenants will have no better living conditions than before, and other tenants will face higher rents.⁸³ The benefit of the subsidy will accrue primarily to the property owners because of the higher rents.

Supply subsidy programs can suffer from similar inefficiencies. If a developer had planned to build low-income rental units before enactment of the low-income housing credit, the developer may now find that the project qualifies for the credit. That is, the subsidized project may displace what otherwise would have been an unsubsidized project with no net gain in number of low-income housing units. If this is the case, the tax expenditure of the credit will result in little or no benefit except to the extent that the credit's targeting rules may force the developer to serve lower-income individuals than otherwise would have been the case. In addition, by depressing rents the supply subsidy may displace privately supplied housing.

One study of government-subsidized housing starts between 1961 and 1977 suggests that as many as 85 percent of the government-subsidized housing starts may have merely displaced unsubsidized housing starts.⁸⁴ This figure is based on both moderate- and low-income housing starts, and therefore may overstate the potential inefficiency of tax subsidies solely for low-income housing.

Displacement is more likely to occur when the subsidy is directed at projects the private market would have produced anyway. Displacement also is more likely to occur if the amount of subsidy granted is small relative to private market activity because there is more possibility for substitution. Thus, if relatively small private market activity exists for low-income housing, a supply subsidy is

⁸² See, W. Reeder, "The Benefits and Costs of the Section 8 Existing Housing Program," *Journal of Public Economics*, 26, 1985.

⁸³ For example, supply may not respond to price changes if there construction, zoning, or other restrictions on the creation of additional housing units.

⁸⁴ M. Murray, "Subsidized and Unsubsidized Housing Starts: 1961-1977," *The Review of Economics and Statistics*, 65, November 1983.

more likely to produce a net gain in available low-income housing units because the subsidy is less likely to displace otherwise planned activity.

Some believe that tax-based supply subsidies do not produce significant displacement within the low-income housing market because they believe that low-income housing is unprofitable and the private market would not otherwise build new housing for low-income individuals. In this view, tax-subsidized low-income housing starts would not displace unsubsidized low-income housing starts. However, the bulk of the stock of low-income housing consists of older, physically depreciated properties which once may have served a different clientele. Subsidies to new construction could make it no longer economic to convert some of these older properties to low-income use, thereby displacing potential low-income units.

The tax subsidy for low-income housing construction also could displace construction of other housing. Constructing rental housing requires specialized resources. A tax subsidy may induce these resources to be devoted to the construction of low-income housing rather than other housing. If most of the existing low-income housing stock originally was built to serve non-low-income individuals, a tax subsidy to newly constructed low-income housing could displace some privately supplied low-income housing in the long run.

Supply subsidies for low-income housing may be subject to some additional inefficiencies. As noted above much of the low-income housing stock consists of older structures. Subsidies to new construction may provide for units with more amenities or units of a higher quality than low-income individuals would be willing to pay for if given an equivalent amount of funds. That is, rather than have \$100 spent on a newly constructed apartment, a low-income family may prefer to have consumed part of that \$100 in increased food and clothing. In this sense, the supply subsidy may provide an inefficiently large quantity of housing services. If the supply subsidy involves fixed costs, such as the cost of obtaining a credit allocation under the low-income housing credit, a bias may be created towards large projects in order to amortize the fixed cost across a larger number of units. This may create an inefficient bias in favor of large projects. On the other hand, the construction and rehabilitation costs per unit may be less for large projects than for small projects. Lastly, unlike demand subsidies which permit the beneficiary to seek housing in any geographic location, supply subsidies may lead to housing being located in areas which, for example, are farther from places of employment than the beneficiary would otherwise choose. In this example, some of benefit of the supply subsidy being dissipated through increased transportation cost.

Targeting the benefits of tax subsidies

Because the basic principle of demand subsidies is to put more cash in the hands of consumers, targeting the recipients of the subsidy is not a difficult job. For example, the use of a tax deduction or tax credit could be limited to individuals whose income is less than some specified amount. However, such demand-side tax subsidies are not without problems for targeting recipients.

If a low-income housing tax-based demand subsidy is structured as a tax deduction, many low-income individuals may not be able to take advantage of the subsidy. Utilizing a tax deduction requires sufficient taxable income to generate a positive tax liability, and the Tax Reform Act of 1986 eliminated all Federal income tax liability for many low-income families. Even if the tax subsidy were structured as a credit, the credit would have to be refundable (i.e., payable without regard to tax liability) for the potential benefits to reach low-income families who have no income tax liability. Even if the credit were refundable, some low-income families either may not file tax returns or may not be aware of their eligibility for the credit and, as a result, the potential benefits could go unclaimed.

A refundable demand-side tax credit would have to be payable more frequently than annually to assist low-income taxpayers in meeting rent commitments. Such a credit would require creating a distribution system to get the funds in the hands of the recipients, which could present significant administrative difficulties, particularly if the recipient were unemployed.⁸⁵ Thus, some might contend that a demand subsidy may be administered most efficiently as a spending program (e.g., Section 8 vouchers) rather than through the tax system.

Targeting the recipient of a demand-side tax subsidy does not necessarily result in targeting the benefit of the subsidy. As discussed above, if market supply does not respond to the increase in demand which the subsidy creates, the benefit of the subsidy would flow to landlords in the form of higher rents. Even if, as a result of the subsidy, recipients can successfully buy more or better housing, some of the benefit of the subsidy will not be spent on housing because demand subsidies are rarely fully efficient (this is because money is fungible and can be spent on many types of consumption).

On the other hand, a supply subsidy to housing will be spent on housing; although, as discussed above, this may not be in addition to housing spending that would have occurred in the absence of the subsidy. Further, to insure that the housing, once built, serves low-income families, income and rent limitations for tenants must be imposed as is the case for demand subsidies. While an income limit may be more effective in targeting the benefit of the housing to lower income levels than would an unrestricted market, it may best serve only those families at or near the income limit.

If, as with the low-income housing credit, rents are restricted to a percentage of targeted income, the benefits of the subsidy may not accrue equally to all low-income families. Those with incomes beneath the target level may pay a greater proportion of their income in rent than does a family with a greater income. On the other hand, to the extent that any new, subsidy-induced housing draws in only the highest of the targeted low-income families it should open units in the privately provided low-income housing stock for others.

Even though the subsidy may be directly spent on housing, targeting the supply subsidy, unlike a demand subsidy, does not neces-

⁸⁵ The earned income tax credit is payable to the employee in his or her paycheck. However, few employers actually make use of this advance payment feature of the earned income tax credit.

sarily result in targeting the benefit of the subsidy to recipient tenants. Not all of the subsidy will result in net additions to the housing stock. The principle of a supply subsidy is to induce the producer to provide something he or she otherwise would not. Thus, to induce the producer to provide the benefit of improved housing to low-income families, the subsidy must provide benefit to the producer.

Targeting tax incentives according to income can result in creating high implicit marginal tax rates. For example, if rent subsidies are limited to families below the poverty line, when a family is able to increase its income to the point of crossing the poverty threshold the family may lose its rent subsidy. The loss of rent subsidy is not unlike a high rate of taxation on the family's additional income. The same may occur with supply subsidies. With the low-income housing credit the percentage of units serving low-income families is the criteria for receiving the credit. Again, the marginal tax rate on a dollar of income at the low-income threshold may be very high for prospective tenants.

Credits versus deductions

A tax subsidy may be structured as either a deduction or a credit. Deductions yield different dollar amounts of tax benefits depending upon the taxpayer's marginal tax rate. In the case of a demand subsidy, as a taxpayer's income and marginal tax rate increase, the tax subsidy provided to the taxpayer also increases because each dollar of deduction offsets a dollar of income that would have been taxed at a higher marginal tax rate.

In the case of a supply subsidy in the form of a deduction, if both a higher tax bracket and a lower tax bracket supplier find it profitable to use the deduction and provide low-income housing, the lower tax bracket supplier will have supplied the housing at less cost to the government, even though both suppliers provide the same amount of housing. For the same dollar amount of deduction, the higher tax bracket supplier of housing receives more dollars of tax benefit than the lower tax bracket supplier.

Tax credits yield the same dollar of tax benefit to all recipients and therefore do not favor higher-income taxpayers.⁸⁶ Thus, the low-income housing credit generally yields the same tax benefit to all investors who claim it.⁸⁷

Measuring the costs and benefits of the low-income housing credit

Comprehensive data from tax returns concerning the low-income housing tax credit currently are unavailable. However, Table 6 presents data from a survey of State credit allocating agencies. These data indicate that allocation of the available credit rose from approximately 20 percent in 1987, the initial year of credit availability, to nearly complete allocation in 1989, but allocation subsequently fell to 65 percent in 1990. There are several reasons why the 1990 experience may not be indicative of the long-term uti-

⁸⁶ This is not strictly true if a taxpayer has an insufficient tax liability to utilize fully the credit and the credit is not refundable.

⁸⁷ Investors claiming the low-income housing credit are subject to certain passive loss limitations and the credit may not be used against tax liability under the alternative minimum tax. Consequently, the value of the credit may not be equal for all taxpayers.

lization of the credit. First, 1990 was the first year following substantial modification to the credit, including the requirement of an additional low-income commitment beyond the credit compliance period. The substantial modification may be expected to delay some utilization of the credit. Moreover, the initial allocative authority for 1990 was limited to \$0.9375 per capita per State rather than the \$1.25 per capita per State of 1987-1989. While the Omnibus Budget Reconciliation Act of 1990 restored 1990 credit authority of \$1.25 per capita State,⁸⁸ the restoration occurred late in the calendar year and the reaction of allocation agencies and investors may have been delayed. In addition, 1990 was marked by a general economic slowdown in the real estate industry which may have affected the ability of developers to undertake low-income housing projects.

Table 6.—Allocation of the Low-Income Housing Credit, 1987-1990

Years	Authority (millions)	Allocated (millions)	Percentage allocated (percent)
1987.....	\$313.1	\$62.9	20.1
1988.....	311.5	209.8	67.4
1989.....	314.2	307.2	97.8
1990.....	317.7	206.4	65.0

Source: Survey of State allocating agencies conducted by National Council of State Housing Agencies.

Table 6 does not reflect actual units of low-income housing placed in service, but rather only allocations of the credit to proposed projects. Some of these allocations will be carried forward to projects placed in service in future years. As such, these data do not necessarily reflect the magnitude of the Federal tax expenditure from the low-income housing credit.

Preliminary data from a HUD study indicate that in 1987 and 1988, the first two years of the credit, credits were allocated to more than 4,000 projects that placed in service in those years more than 114,000 thousand housing units. The average project contained 28 units. More than 75 percent of all of these units were constructed using other subsidies in addition to the low-income housing credit. Approximately, 90 percent of the projects elected to satisfy the 60 percent of area median income test.⁸⁹

Table 7 provides data on the distribution of units placed in service by project size, bedroom count, production type, and geographic location. However, the substantial changes to the low-income housing credit since 1988, for example the prohibition against use of the credit for acquisition of unrehabilitated existing housing, make

⁸⁸ The 1990 Act also extended the authority at \$1.25 per capita for 1991.

⁸⁹ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, prepared by ICF Incorporated, "Evaluation of the Low-Income Housing Tax Credit: Final Report," February 1991.

these data less relevant for the past three years' experience. Also the data are drawn from a survey which omits eight States representing 18 percent of all tax credit authority.

Table 7.—Low-Income Housing Tax Credit Units Placed in Service in 1987 and 1988: Distribution of Units by Project Size, Bedroom Count, Production Type, and Geographic Location

	1987	1988
Total Units Placed in Service	37,568	77,351
<i>Percentage Distribution of Units by Numbers of Units in the Project:</i>		
	[percent]	
1	0.9	0.8
2 to 4	1.6	1.7
5 to 9	1.9	1.8
10 to 24	15.0	12.4
25 to 49	21.1	22.6
50 to 99	12.7	18.4
100 to 249	28.7	28.1
250 or more	18.2	14.1
<i>Percentage Distribution of Units by Bedroom Count:</i>		
Efficiencies	4.8	8.1
One bedroom	38.2	37.0
Two bedrooms	45.2	41.6
Three bedrooms	10.9	12.2
Four or more bedrooms	0.9	1.1
<i>Percentage Distribution of Units by Production Type:</i>		
New construction	41.0	46.1
Rehabilitation (> \$2,000/unit)	45.4	39.9
Acquisition only	12.6	13.0
Mixed	1.0	1.0
<i>Percentage Distribution of Units by Location:</i>		
Central city	49.8	54.0
Suburbs	26.9	23.3
Outside MSAs ¹	23.2	22.7
<i>Percentage Distribution of Units by Region:</i>		
Northwest	15.4	17.5
Midwest	22.9	26.2
South	42.7	39.0
West	19.1	17.3

¹ MSA: metropolitan statistical area.

Source: U.S. Department of Housing and Urban Development, Office of Policy Development and Research, prepared by ICF Incorporated, "Evaluation of the Low-Income Housing Tax Credit: Final Report," February 1991, based on survey data from the National Council of State Housing Agencies.

To measure the costs and the benefits attributable to the low-income housing credit, one needs to know not how many housing units were constructed using the credit, but how many housing

units were constructed that would not have been constructed in the absence of the credit. The benefit of these additional units would be given by the present value of the market rents that could be charged on such units. Because the low-income housing credit provides for rent ceilings, the rent charged for subsidized units will not necessarily reflect the value of the unit. In addition, one would like to measure as a further benefit of the low-income housing credit any decline in market rents which result from the expansion of supply of rental housing. As the foregoing discussion suggests, it may be very difficult to measure the benefits which accrue from the low-income housing credit.

The majority of the costs of the low-income housing credit are more easily quantifiable, as the lost Federal revenue should measure the cost of the credit. Additional costs may arise from some of the potential inefficiencies discussed above. These are more difficult to quantify. For example, it is difficult to measure the cost to tenants from living in housing which is not at a location more preferable to the tenant, or from providing housing of higher quality than the tenant would otherwise choose. In addition, it is important to realize that both the benefits and the costs associated with the construction of any unit occur over a period of years. In this regard, the estimated revenue effects from permanently extending the low-income housing credit do not reflect the total economic costs of the credit because the revenue estimate reflects the expected experience over the next five years, while the credit is payable to owners of the property for the next ten years.

A recent study has attempted to measure the costs and benefits of the low-income housing credit compared to that of the Federal Section 8 housing voucher program.⁹⁰ This study attempts to compare the costs of providing a family with an identical unit of housing, using either a voucher or the low-income housing credit. The study concludes that on average the low-income housing credit provides the same unit of housing as would the voucher at two and one half times greater cost than the voucher program. However, this study does not attempt to measure the effect of the voucher on raising the general level of rents, nor the effect of the low-income housing credit on lowering the general level of rents. The preceding analysis has suggested that both of these effects may be important.

⁹⁰ U.S. Department of Housing and Urban Development, "Evaluation of the Low-Income Housing Tax Credit: Final Report," February 1991.

9. Targeted jobs tax credit (sec. 51 of the Code)

Present Law

Tax credit

The targeted jobs tax credit is available on an elective basis for hiring individuals from several targeted groups. The targeted groups consist of individuals who are either recipients of payments under means-tested transfer programs, economically disadvantaged, or disabled.

The credit generally is equal to 40 percent of up to \$6,000 of qualified first-year wages paid to a member of a targeted group. Thus, the maximum credit generally is \$2,400 per individual. With respect to economically disadvantaged summer youth employees, however, the credit is equal to 40 percent of up to \$3,000 of wages, for a maximum credit of \$1,200.

The credit is scheduled to expire for individuals who begin work for an employer after June 30, 1992.

Certification of members of targeted groups

Prior to the Deficit Reduction Act of 1984 ("1984 Act"), an individual was not treated as a member of a targeted group unless certification that he or she was a member of such a group was received or requested in writing by the employer from the designated local agency on or before the day on which the individual began work for the employer. In the case of a certification of an economically disadvantaged youth participating in a cooperative education program, this requirement was satisfied if necessary certification was requested or received from the participating school on or before the day on which the individual began work for the employer.

The 1984 Act extended the deadline for requesting certification of targeted group membership until five days after the day the individual begins work for the employer, provided that, on or before the day the individual begins work, the individual has received a written preliminary determination of targeted group eligibility (a "voucher") from the designated local agency (or other agency or organization designated pursuant to a written agreement with the designated local agency). The "designated local agency" is the State employment security agency.

Authorization of appropriations

Present law authorizes appropriations for administrative and publicity expenses relating to the credit through June 30, 1992. These monies are to be used by the Internal Revenue Service and the Department of Labor to inform employers of the credit program.

Legislative Background

The targeted jobs tax credit was enacted in the Revenue Act of 1978 to replace an expiring credit for increased employment. As originally enacted, the targeted jobs tax credit was scheduled to apply to qualified wages paid before 1982.

The availability of the credit was successively extended by the Economic Recovery Tax Act of 1981 for one year (through 1982), by the Tax Equity and Fiscal Responsibility Act of 1982 for two years (through 1984), and by the Deficit Reduction Act of 1984 for one year (through 1985). The Tax Reform Act of 1986 extended the targeted jobs tax credit for three additional years (through 1988), with modifications. The Technical and Miscellaneous Revenue Act of 1988 extended the credit for one year (through 1989), with modifications. The Omnibus Budget Reconciliation Act of 1989 extended the credit for nine months (through September 30, 1990) and the Omnibus Budget Reconciliation Act of 1990 extended the credit for 15 months (through 1991). Most recently, the Tax Extension Act of 1991 extended the credit for six months so that it is available with respect to wages paid for employees who begin work for an employer before July 1, 1992.

Analysis

Overview

The targeted jobs tax credit (TJTC) is intended to increase the employment and earnings of target group members. The credit is made available to employers as an incentive to hire members of the target groups. To the extent the value of the credit is passed on from employers to employees, the wages of target group employees will be higher than they would be in the absence of the credit.⁹¹

The basic rationale for the TJTC is that employers will not hire certain individuals without a subsidy because either the individuals are stigmatized (e.g., convicted felons) or the current productivity of the individuals is below the prevailing wage rate. Where particular groups of individuals suffer reduced evaluations of work potential due to membership in one of the targeted groups, the credit may provide employers with a monetary offset for the lower perceived work potential. In these cases, employers may be encouraged to hire individuals from the targeted groups, and then make an evaluation of the individual's work potential in the context of the work environment, rather than from the job application. Where the current productivity of individuals is currently below the prevailing wage rate, on-the-job-training may provide individuals with skills that will enhance their productivity. In these situations, the TJTC provides employers with a monetary incentive to bear the costs of training members of targeted groups and providing them with job-related skills which may increase the chances of these individuals being hired in unsubsidized jobs. Both situations

⁹¹ For individuals with productivity to employers lower than the minimum wage, the credit may result in these individuals being hired and paid the minimum wage. For these cases, it would be clear that the credit resulted in the worker receiving a higher wage than would have been received in the absence of the credit (e.g., zero).

encourage employment of members of the targeted groups, and may act to increase wages for those hired as a result of the credit.

As discussed below, the evidence is mixed on whether the rationales for the credit are supported by economic data. The information presented is intended to provide a structured way to determine if employers and employees respond to the existence of the credit in the desired manner.

Efficiency of the credit

The credit provides employers with a substantial subsidy for hiring members of targeted groups. For example, assume that a worker eligible for the credit is paid an hourly wage of w and works 2,000 hours during the year. Ignoring payroll taxes (Social Security, Medicare, unemployment) and fringe benefits, the pre-tax cost to the employer for hiring this individual is $(2,000)(w)$ dollars. Since the worker is eligible for the full credit (40 percent of the first \$6,000 of wages), the firm will reduce its deduction for wages paid by \$2,400 and receive the full \$2,400 credit against its income taxes. Assuming the firm faces the full 34-percent corporate income tax rate, the after-tax cost of hiring this worker would be $((2,000)(w) - 2,400)(1 - .34)$ dollars. This amount is lower than the cost of hiring a credit-ineligible worker for 2,000 hours at the same hourly wage w by $2,400(1 - .34) = \$1,584$ dollars. This \$1,584 figure would be constant for all workers unless the wage (w) changed in response to whether or not the individual was a member of a targeted group. If the wage rate does not change in response to credit eligibility, the TJTC subsidy is larger in percentage terms for lower wage workers. If w rises in response to the credit, it is uncertain how much of the subsidy remains with the employer, and therefore the size of the TJTC subsidy to employers is uncertain.

To the extent the TJTC subsidy flows through to the workers eligible for the credit in the form of higher wages, the incentive for eligible individuals to enter the paid labor market may increase. Since many members of the targeted groups receive governmental assistance (e.g., Aid for Families with Dependent Children (AFDC) or Medicaid), and these benefits are phased out as income increases, these individuals potentially face a very high marginal tax rate on additional earnings.⁹² Increased wages resulting from the TJTC may be viewed as a partial offset to these high marginal tax rates. In addition, it may be the case that even if the credit has little effect on observed wages, credit-eligible individuals may have increased earnings due to increased employment.⁹³

The structure of the TJTC (the 40-percent credit rate for the first \$6,000 of qualified wages) appears to lend itself to the potential of employers churning employees who are eligible for the credit. This could be accomplished by firing employees after they earn \$6,000 in wages and replacing them with other TJTC-eligible employees. If

⁹² From this vantage point, the phaseout of benefits is analogous to unchanged benefits coupled with an increase in the tax rate faced by the individual on their earnings. Examples of how large marginal tax rates can be for persons receiving transfer payments are contained in Gordon Lewis and Richard Morrison, *Income Transfer Analysis*, Urban Institute Press, Washington, D.C., 1989.

⁹³ This argument is made in Edward Lorenz, *The Targeted Jobs Tax Credit in Maryland and Missouri: 1982-1987*, National Commission for Employment Policy, Washington, D.C., 1988.

training costs are high relative to the size of the credit, it may not be in the interest of an employer to churn such employees in order to maximize the amount of credit claimed. Empirical research in this area has not found an explicit connection between employee turnover and utilization of the TJTC.⁹⁴

Data on TJTC certifications and vouchers

Table 8 presents data on the number of TJTC certifications and vouchers for the years 1980-1990. Both certifications and vouchers are indications that individuals are members of targeted groups and that wages paid to these people may qualify for the credit. The table indicates that the number of certified individuals has fluctuated over time, with a slight downward trend. It is possible that this decline reflects less intensive use of the TJTC by employers. However, since certification takes place after the hiring decision has been made, the observed decline could reflect an increased emphasis on determining eligibility for the TJTC prior to employment through the use of vouchers.

The data also indicate a decline in the use of vouchers by TJTC-eligible individuals. Vouchers are used to indicate to an employer that an individual is eligible for the TJTC. In particular, vouchers may increase the efficiency of the TJTC by permitting employers to base the employment decision on whether or not the TJTC subsidy will be available for a specific worker.

Table 8.—Number of Targeted Jobs Tax Credit Certifications and Vouchers, 1982-1990

[In thousands]

Year ¹	Number of vouchers	Number of certifications
1982.....	625	202
1983.....	1,287	431
1984.....	1,338	563
1985.....	1,343	622
1986.....	190	87
1987.....	1,157	598
1988.....	842	497
1989.....	755	452
1990.....	710	445

¹ Figures for 1980-1985 are for fiscal years; those for 1986-1990 are for calendar years. The TJTC program lapsed between January and October 1986, accounting for the decline in certifications in 1986.

Source: U.S. Department of Labor tabulations for various years.

Certain empirical regularities exhibit themselves in the data on certifications. Generally, about half of the certifications are made for economically disadvantaged youth. The next largest group,

⁹⁴ See, for example, Macro Systems, Inc., *Final Report of the Effect of the Targeted Jobs Tax Credit Program on Employers*, U.S. Department of Labor, 1986.

AFDC recipients, represent nearly one-quarter of the total certifications. The third largest group, approximately one-tenth of the total, is made up of handicapped individuals. The three States that issue the largest number of certifications (California, New York, and Texas) generally account for nearly one-quarter of the total certifications.

Job creation

The number of jobs created by the TJTC is certainly less than the number of certifications. To the extent employers substitute TJTC-eligible individuals for other potential workers, there is no net increase in jobs created. This could be viewed as merely a shift in employment opportunities from one group to another. However, this substitution of credit-eligible workers for others may not be socially undesirable. For example, it might be considered an acceptable trade-off for a targeted group member to displace a secondary earner from a well-to-do family (e.g., a spouse or student working part-time).

In addition, windfall gains to employers or employees may accrue when the TJTC is received for workers that the firm would have hired even in the absence of the credit. When windfall gains are received, no additional employment has been generated by the credit. Empirical research on the employment gains from the TJTC has indicated that only a small portion of the TJTC-eligible population find employment because of the program. One study indicates that net new job creation was between 5 and 30 percent of the total certifications. This finding is consistent with some additional employment as a result of the TJTC program, but with considerable uncertainty as to the exact magnitude.⁹⁵

A necessary condition for the credit to be an effective employment incentive is that firms incorporate TJTC eligibility into their hiring decisions. This could be done by determining credit eligibility for each potential employee or by making a concerted effort to hire individuals from segments of the population likely to include members of targeted groups. Studies examining this issue find that some employers make such efforts, while other employers do little to determine eligibility for the TJTC prior to the decision to hire an individual.⁹⁶ In these latter cases, the TJTC provides a cash benefit to the firm, without affecting the decision to hire a particular worker. To be fully effective as a long-term employment incentive, employers need to retain eligible employees in their work force after the expiration of the TSTC eligibility period.

⁹⁵ Macro Systems, Inc., *Impact Study of the Implementation and Use of the Targeted Jobs Tax Credit: Overview and Summary*, U.S. Department of Labor, 1986.

⁹⁶ For example, see U.S. General Accounting Office, *Targeted Jobs Tax Credit: Employer Actions to Recruit, Hire, and Retain Eligible Workers Vary* (GAO HRD 91-33), February 1991.

10. Business energy tax credits for solar and geothermal property (sec. 48(a) of the Code)

Present Law

Under present law, nonrefundable business energy tax credits are allowed for 10 percent of the cost of qualified solar and geothermal energy property (Code sec. 48(a)). Solar energy property that qualifies for the credit includes any equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Qualifying geothermal property includes equipment that produces, distributes, or uses energy derived from a geothermal deposit, but, in the case of electricity generated by geothermal power, only up to (but not including) the electrical transmission stage.⁹⁷

The business energy tax credits are currently scheduled to expire with respect to property placed in service after June 30, 1992.

The business energy tax credits are components of the general business credit (sec. 38(b)(1)). The business energy tax credits, when combined with all other components of the general business credit, generally may not exceed for any taxable year the excess of the taxpayer's net income tax over the greater of (1) 25 percent of net regular tax liability above \$25,000 or (2) the tentative minimum tax. An unused general business credit generally may be carried back 3 years and carried forward 15 years.

Legislative Background

Ten-percent tax credits for qualifying solar and geothermal energy properties were enacted in the Energy Tax Act of 1978, effective after September 30, 1978, through December 31, 1982. In the Windfall Profit Tax Act of 1980, the solar and geothermal credits were extended through 1985, and the rates of these credits were increased to 15 percent. In the Tax Reform Act of 1986, the solar and geothermal credits were extended for three additional years (through 1988), at rates which phased down to 10 percent. An additional one-year extension (through 1989) of the solar and geothermal credits was provided in the Technical and Miscellaneous Revenue Act of 1988.

The business energy tax credits for solar and geothermal property were extended for the nine-month period through September 30, 1990, in the Omnibus Budget Reconciliation Act of 1989. In the Omnibus Budget Reconciliation Act of 1990, the solar and geothermal credits were extended for 15 months through December 31,

⁹⁷ For purposes of the credit, a geothermal deposit is defined as a domestic geothermal reservoir consisting of natural heat which is stored in rocks or in an aqueous liquid or vapor, whether or not under pressure (sec. 613(e)(2)).

1991. The Tax Extension Act of 1991 provided an additional six-month extension of these credits, through June 30, 1992.

Analysis

Overview

Tax credits to subsidize the development of alternative energy sources through the Tax Code may be justified if these subsidies provide a more socially desirable allocation of economic resources. These desirable outcomes may include a more efficient use of natural resources or a more equitable treatment of owners of different, but competing, energy sources. In any case, the revenues foregone through the operation of the tax subsidy are analogous to direct expenditures made to accomplish the same social goals. In general, comparisons of the costs and benefits of subsidies such as the business energy credits are necessary to determine if the revenue loss caused by operation of the tax provision is offset by the benefits generated by the credits. In addition, the size of the subsidy provided through the credit should be examined to determine if a similar level of social benefits could be generated in a less costly manner.

It has been argued that the cost of developing alternative sources of energy is often greater than the cost of producing energy from conventional sources. Thus, taxpayers may be more likely to produce energy from less costly conventional sources. The business energy tax credits are intended to provide economic incentives sufficient to cause taxpayers to undertake projects that produce energy from nonconventional sources where they would not otherwise do so. This activity may be socially desirable if renewable energy sources promote environmental goals or lead to decreased dependence on imported fuels. To the extent these social goals are considered valuable and are not reflected in the market price of fuels (for instance, if damage caused by pollution from burning fossil fuels is not reflected in the price of these fuels), government intervention in the private market may be warranted.⁹⁸

The rationale for enactment of the business energy credits implies that private market incentives were insufficient to ensure the technological advance necessary to make renewable energy sources price-competitive with conventional fuels. However, the original expiration date of the business energy credits was intended to permit Congress to review and modify these provisions if it was determined that the subsidy was no longer necessary or if the subsidy could be targeted in a more efficient manner.

The business energy credits provide a subsidy to capital expenses when a firm places the qualified property in service. To the extent that capital costs are a large component of the total costs incurred by investors in renewable energy technologies, the subsidy provided through these credits should provide a substantial reduction in costs and be an effective encouragement for investors. Both geothermal and solar (photovoltaic and thermal) electricity generation

⁹⁸ Of course, the government intervention necessary to reflect the relative social values of different energy sources in the cost to users need not take the form of tax credits for energy sources with higher social value. A similar result could be achieved by placing excise taxes on energy sources that impose social costs or by reducing tax subsidies (e.g., percentage depletion or favorable treatment of drilling costs) that benefit producers of these energy sources.

facilities are capital-intensive projects (that is, the capital investment in these projects is large relative to the operating costs). Accordingly, the credits may be quite valuable to taxpayers who invest in these facilities.

When the business energy tax credits were enacted in 1978, they were intended to increase the demand for alternative energy sources. It was anticipated that this, in turn, would stimulate technological advances in the design and efficiency of property using renewable energy sources. The hope was that providing a temporary subsidy to alternative energy sources would enable them to become cost-competitive with fossil fuels. At this point, the subsidy would no longer be necessary.

Renewable energy sources placed in service

There is little publicly available information regarding the number of renewable energy facilities placed in service since the business energy credits were enacted or the capacity of such facilities to generate energy. Facilities to generate electricity from geothermal sources account for a significant portion of the total amount of business energy credits claimed, with 2,719 megawatts of installed capacity at 70 sites in place at the end of 1990.⁹⁹ Over 90 percent of this total capacity was located in California, with the remainder split between Nevada and Utah. An estimated 15.5 billion kilowatt-hours of electricity was produced from geothermal sources in 1989 (the most recent year for which complete data on this point are available). Solar-energy generating facilities produce smaller amounts of electricity, as an estimated 275 megawatts of capacity is installed in the United States.¹⁰⁰ For both geothermal and solar sources of electricity generation, the data indicate that capacity placed in service has grown substantially over time.

Efficiency of the credits

The social benefit to subsidizing investment in specific facilities can, in principle, be measured by the total benefits generated by the targeted investment in excess of the benefits generated by investment that would have taken place in the absence of the subsidy. To the extent that taxpayers are required (or encouraged) to invest in qualified properties for nontax reasons (e.g., by the Clean Air Act or the Public Utilities Regulatory Policies Act), the tax credit may be an inefficient subsidy to this activity.¹⁰¹ In the context of the business energy credits, the social benefits include the technological advance caused by new investment in renewable fuels projects. One measure of the technological advance in this area is the observed decline in the pre-tax cost of generating energy from

⁹⁹ These figures on geothermal energy are from *Geothermal Energy in the Western United States and Hawaii: Resources and Projected Electricity Generation Supplies*, Energy Information Administration, Department of Energy, September 1991.

¹⁰⁰ These figures are from "The Potential of Renewable Energy: An Interlaboratory White Paper", prepared for the Office of Policy, Planning, and Analysis of the U.S. Department of Energy, March 1990.

¹⁰¹ Some may argue that the business energy credits are a means of offsetting part of the cost of complying with these laws. However, since the credits are available to investors whether or not they are compelled to use renewable sources to meet these other laws, they are not well-targeted as an offset to these costs of compliance.

renewable sources as more efficient technologies are developed, adapted, and adopted.

The cost per kilowatt hour of electricity generated from renewable energy sources has tended to decline over time. Several sources indicate that geothermal technology can, at present, produce electricity at a cost comparable to that of higher-cost conventional sources. In two separate studies, the Department of Energy has estimated that electricity can be produced from geothermal sources at a cost of between 4 and 6.5 cents per kilowatt hour.¹⁰² Publicly available financial information seems to corroborate these cost figures.¹⁰³ Little data exist on the cost of electricity generated from solar energy. However, some analysts claim that solar generated electricity is not yet cost competitive with that from conventional sources. For example, state-of-the-art solar thermal technology for generating electricity is estimated by one source to have a cost of 8 to 12 cents per kilowatt hour.¹⁰⁴

The technology spur of the business energy tax credits may be considered more important for technologies that have substantial uncertainties regarding their commercial development and less important for technologies that have reached a stage of maturity where they are utilized in a large number of commercial applications. The U.S. Department of Energy "White Paper" on renewable energy sources in 1990 distinguished different technologies on the basis of their technology maturity. This classification lists high-temperature geothermal electricity generation, low-temperature geothermal heating, and passive solar heating as mature technologies with widespread commercial uses. Accordingly, the tax subsidy provided to these technologies through the business energy tax credits may be less effective at encouraging technological advances than in other areas (e.g., photovoltaic cells).

A strong argument for extending the business energy credits could be made if it could be shown that large technological advances were possible and that these advances would only occur as a result of the future tax subsidy provided through the credit. However, once the cost of generating energy from renewable sources is roughly equal to the cost of using conventional (nonrenewable) sources, it is expected that private firms will invest in renewable energy projects without governmental subsidy. At this point, subsidy for these investment projects would be inefficient, since a large part would be paid to projects that would have been undertaken even without such subsidy. To the extent the energy credits have been in place for a long time, and the markets for alternative energy sources remain unattractive, it may appear unlikely that

¹⁰² An estimate of 4 to 6 cents per kilowatt hour is provided in *The Potential of Renewable Energy: An Interlaboratory White Paper*, referenced above. An estimate of 6.4 cents per kilowatt hour for electricity generated by a hypothetical average geothermal facility is contained in *Geothermal Energy in the Western United States and Hawaii: Resources and Projected Electricity Generation Supplies*, referenced above.

¹⁰³ For example, California Energy Company, in its 1990 annual report, estimated that its average cost per kilowatt hour of electricity generated (including depreciation, interest, and operating expenses) was 8.73 cents. One should note that electricity generated from renewable sources is often sold at a premium under State regulatory procedures. For example, in 1990, the average revenue per kilowatt hour of electricity sold by California Energy was 10.5 cents. This level is significantly higher than the national average retail price per kilowatt hour.

¹⁰⁴ This estimate is from *The Potential of Renewable Energy: An Interlaboratory White Paper*.

self-sustaining levels of activity in renewable fuels will be attained solely because a tax credit is available.

Since 1986, the business energy tax credits have been extended on a short-term basis. This may have acted as a relative deterrent to investment in qualifying property to the extent qualifying projects have long lead times before completion. For these projects, investors may be uncertain whether the credit will be available when the project is actually placed in service. An extension of the business energy credits on a basis longer than a single year may provide the certainty investors desire for investments in qualified projects with long lead times.

11. Tax credit for orphan clinical drug testing expenses (sec. 28 of the Code)

Present Law

A 50-percent nonrefundable tax credit is allowed for a taxpayer's qualified clinical testing expenses paid or incurred in the testing of certain drugs for rare diseases or conditions, generally referred to as "orphan drugs." Qualified testing expenses are costs incurred to test an orphan drug after the drug has been approved for human testing by the Food and Drug Administration (FDA) but before the drug has been approved for sale by the FDA. Present law defines a rare disease or condition as one that (1) affects less than 200,000 persons in the United States or (2) affects more than 200,000 persons, but for which there is no reasonable expectation that businesses could recoup the costs of developing a drug for it from U.S. sales of the drug. These rare diseases and conditions include Huntington's disease, myoclonus, ALS (Lou Gehrig's disease), Tourette's syndrome, and Duchenne's dystrophy (a form of muscular dystrophy).

The orphan drug tax credit is scheduled to expire after June 30, 1992.

Legislative Background

This provision originally was enacted in the Orphan Drug Act of 1983, and was scheduled to expire after 1987. The Tax Reform Act of 1986 extended the credit for three years, through December 31, 1990. The Omnibus Budget Reconciliation Act of 1990 further extended the credit for one year, through December 31, 1991.

The Tax Extension Act of 1991 extended the orphan drug tax credit for six months (i.e., for qualified clinical testing expenses incurred through June 30, 1992).

Analysis

Overview

The orphan drug tax credit was created to encourage the development of drugs to treat rare diseases by providing a tax subsidy for drug companies to undertake clinical testing for such drugs. Because the potential U.S. market for such drugs is small, and because testing of these drugs may be quite expensive, the private market may not develop and test some of these drugs without a government subsidy. The revenues of producers may be smaller than the total amount of consumer benefit (because producers cannot discriminate among consumers and charge each consumer as much as he or she would be willing to pay), making it possible that the private market produces fewer orphan drugs than is socially optimal. This potential undersupply is not limited to orphan

drugs, or to drugs in general. However, if society values orphan drugs more than other products, perhaps because they prevent deaths or help people with severe disabilities, then the supply of such drugs provided by the private market might be much smaller than the optional amount, and a case for a subsidy could be made.

The credit equals 50 percent of qualified clinical testing expenses, and provides a subsidy for one aspect of the process of bringing a drug to market. By reducing the cost of making the drug available, the expected profitability of the drug is increased, making it more likely that a firm will undertake the necessary investment in research and development of these drugs, despite the small potential market.

Efficiency issues

The efficiency of the orphan drug program can be judged on at least two levels. First, one could determine the cost, both government and private, of developing the drugs per life saved or per life improved. Then one could compare this figure to the maximum that society would pay to save or improve a life.¹⁰⁵ This comparison would provide an indication of the cost effectiveness of the credit. A second analysis could address whether the credit is itself too generous, providing a larger subsidy to firms or individuals (if the subsidy is reflected in the price) than would be necessary to encourage the development of the orphan drugs. This second analysis would compare the amount of orphan drug development that occurs with the present-law credit to the amounts that would occur with various credit levels (including zero). The appropriate credit would provide just enough of a subsidy so that the socially optimal number of orphan drugs is produced.

In general, drug companies can be expected to develop those drugs that yield the highest expected after-tax profits. These are not necessarily the drugs with the highest social value. A tax credit available for all qualifying expenses permits the firm developing the drug to determine which research projects to pursue, based on the available subsidy for qualified testing expenses. In contrast, a program that directly subsidizes the cost of testing specific orphan drugs may better target benefits to those drugs that have the highest social value.

Some commentators have called for a recapture of the tax subsidies provided under the orphan drug tax credit when the recipient firm develops a drug that is unusually profitable. This recapture would treat a company's orphan drug activity much like a regulated utility, where an upper bound is put on the allowable rate of return for certain investments. Reducing the potential profits of firms that successfully market orphan drugs would reduce the incentive of firms to develop and test these drugs. However, this reduced incentive could be offset by an increase in the value of the credit. It is possible that the combination of a higher credit and certain recapture rules would be better able to target the development of drugs that would not be developed in the private market.

¹⁰⁵ While some people may hesitate to address the issue of the value of a life, clearly there is some amount of resources that society would not be willing to pay in order to save lives, although that amount may be hard to determine with precision.

12. Minimum tax exception for gifts of appreciated tangible property (sec. 57(a)(6) of the Code)

Present Law

In computing taxable income, a taxpayer who itemizes deductions generally is allowed to deduct the fair-market value of property contributed to a charitable organization.¹⁰⁶ In the case of a charitable contribution of tangible personal property, however, a taxpayer's deduction for regular tax purposes is limited to the adjusted basis in such property if the use by the recipient charitable organization is unrelated to the organization's tax-exempt purpose (sec. 170(e)(1)(B)(i)).

For purposes of computing alternative minimum taxable income (AMTI), the deduction for charitable contributions of capital gain property (real, personal, or intangible) is disallowed to the extent that the fair-market value of the property exceeds its adjusted basis. However, in the case of a contribution made in a taxable year beginning in 1991 or made before July 1, 1992, in a taxable year beginning in 1992, this rule does not apply to contributions of tangible personal property.

Legislative Background

The Tax Reform Act of 1986 treated the amount by which the value of a charitable contribution of capital gain property exceeded the basis of the property as an alternative minimum tax (AMT) preference item.

The Omnibus Budget Reconciliation Act of 1990 provided that, in the case of any taxable year beginning in 1991, this rule does not apply to contributions of tangible personal property. The Tax Extension Act of 1991 extended this rule to apply to contributions of tangible personal property made through June 30, 1992.

Analysis

Overview

Allowing a fair-market value deduction for donations of appreciated property (without including in income the built-in appreciation) provides an extra subsidy for donations of appreciated property relative to the tax incentive provided for cash gifts. It is argued that this extra subsidy is justified to induce additional charitable giving. In particular, Congress decided in 1990 temporarily to pro-

¹⁰⁶ The amount of the deduction allowable for a taxable year with respect to a charitable contribution may be reduced depending on the type of property contributed, the type of charitable organization to which the property is contributed, and the income of the taxpayer (secs. 170(b) and 170(e)). Special rules also limit the amount of a charitable contribution deduction to less than the contributed property's fair-market value in cases of contributions of inventory or other ordinary income property and short-term capital gain property.

vide an added incentive for certain gifts of appreciated property (i.e., by allowing a fair-market value deduction when computing AMTI for gifts of appreciated tangible personal property) on the ground that there is a special need to encourage donations to charitable and educational institutions of tangible articles with unique cultural or educational value (such as works of art and manuscripts), which will then be made available for viewing by the general public.¹⁰⁷

The rationale underlying the charitable contribution deduction is that income given to a charity should not be taxed because it does not enrich the giver. However, allowing a charitable deduction for the fair-market value of appreciated property provides a double tax benefit, because the donor not only escapes taxation on the amount of appreciation in the property's value but also shelters an equivalent amount of income which the donor retains for personal use. Thus, allowing a deduction for the fair-market value of appreciated property (without including in income the built-in appreciation) conflicts with basic principles of income measurement, produces artificial incentives for taxpayers to donate property rather than cash, and may lead to taxpayer abuses and administrative problems for the IRS.

As an example of mismeasurement of income and tax sheltering possibilities raised by gifts of appreciated property, consider a taxpayer who purchases two paintings for \$1,000 each. Assume one painting appreciates in value to \$3,000, while the other painting appreciates to \$2,000. As a result of the appreciation, the taxpayer's wealth has increased from \$2,000 to \$5,000.¹⁰⁸ If the taxpayer sells the one painting for \$3,000, he would realize a capital gain of \$2,000. At the same time, if the taxpayer donates the second painting to a museum and claims a charitable deduction for the \$2,000 value of the painting, the deduction would reduce the taxpayer's taxable income to zero. Thus, the taxpayer would have accrued \$3,000 in income, donated property worth \$2,000, but would have no taxable income. Alternatively viewed, by selling the first painting, the taxpayer has recovered his initial investment in both paintings of \$2,000 plus has an additional \$1,000 gain, but owes no income tax. The taxpayer's donation of the second painting has sheltered income that he has retained. In contrast, had the taxpayer sold both paintings, realizing a total capital gain of \$3,000 and then donated \$2,000 in cash to the museum, the taxpayer would owe tax on taxable income of \$1,000 he retained. Consequently, if a fair-market value deduction is allowed, the taxpayer has a clear incentive to donate appreciated property to the museum rather than an equivalent amount of cash.

¹⁰⁷ Without this special AMT rule, the after-tax results for some taxpayers from donating appreciated property (and not obtaining a fair-market value deduction for AMT purposes) compared to selling the property (and paying tax on the built-in gain and retaining the proceeds) would be less advantageous than under pre-1986 law, and this would reduce their financial incentive to donate such property.

Some have argued that it is inappropriate to limit this special rule to tangible personal property, since this tends to assist organizations that maintain collections of such property and not organizations that principally engage in other charitable activities.

¹⁰⁸ Under the Haig-Simon's concept of income, the taxpayer has income of \$3,000. The Haig-Simon's concept measures income as the sum of a person's consumption during the year plus any change in wealth. Since the appreciation in the value of the paintings increases the owner's wealth, he has income in the Haig-Simon's sense.

Efficiency of deductions for gifts of appreciated property

As with any tax deduction or credit, the price of an activity that receives the tax incentive is reduced. For example, for a taxpayer in the 31-percent tax bracket, a \$100 cash gift to charity reduces his taxable income by \$100 and thereby reduces tax liability by \$31. As a consequence, the \$100 cash gift to charity reduces the taxpayer's after-tax income by only \$69. Economists would say that the "price of giving" \$100 cash to charity is \$69. With gifts of appreciated property, if a fair-market value deduction is allowed (while the accrued appreciation is not included in income), the price of giving \$100 worth of appreciated property is as low as \$41.¹⁰⁹

In principle, a lower price of giving should result in more charitable giving. The amount of charitable giving that results from lowering the price of giving determines the efficiency of the tax deduction. If taxpayers do not increase their charitable giving significantly in response to a charitable contribution deduction, the revenue lost to the government because of the tax incentive may exceed the benefits of additional contributions that flow to charitable organizations as a result of the deduction.

Economists have not reached a consensus as to whether the deduction for charitable donations is efficient in the sense that the cost to the government in lost revenue is more than offset by additional funds flowing to charitable organizations.¹¹⁰ The economics literature generally does not specifically address gifts of appreciated property. Moreover, these studies do not include the possibility of the substitutability between lifetime giving and gifts made at death. Substantial tax savings are available to owners of appreciated property if they bequeath such property to qualified charitable organizations. Even if the general AMT rule for donated appreciated property discourages current giving, such giving may not be lost permanently to charitable organizations, but merely may be converted into gifts at death. However, if a policy goal is to speed the donation of such gifts from private collections to museums and universities, there may be additional benefits to inducing gifts prior to death.

The aggregate data on charitable donations also present a mixed picture of the effect of tax deductions on gifts of appreciated property. Although gifts of appreciated property substantially declined after enactment of the Tax Reform Act of 1986, the total value of gifts to charity has continued to grow since that time, despite the

¹⁰⁹ This assumes that the property has a basis of zero and is computed as follows: \$100 minus \$28 (tax avoided from non-recognition of built-in capital gain) minus \$31 (tax saved from deduction for fair-market value). This "price of giving" figure assumes that the taxpayer would sell the appreciated property (and pay tax on the built-in gain) in the same year of the donation if the property was not given to charity. However, a higher "price of giving" would be derived if it is assumed that, had the taxpayer not donated the property, he would have retained the asset until death (and obtained a step-up in basis) or obtained benefits of deferral of tax by selling the asset in a later year.

¹¹⁰ See, Charles Clotfelter, *Federal Tax Policy and Charitable Giving* (Chicago: University of Chicago Press), 1985, for a review of the literature. Martin Feldstein and Charles Clotfelter, "Tax Incentives and Charitable Contributions in the United States," *Journal of Public Economics*, 5, 1976, argue that the deduction for charitable contributions is efficient in inducing contributions to charitable organizations. More recently, Joseph Daniel, "Price and Income Elasticities of Charitable Contributions: New Evidence from a Panel of Taxpayers," unpublished manuscript, University of Minnesota, 1989, argues the opposite.

fact that the reduction in marginal tax rates should have reduced the incentive to give. The recent reports of *Giving USA*¹¹¹ indicate that total charitable giving rose at a 10-percent rate during 1989, roughly the same rate of increase as before the 1986 Act, and at a 5.75-percent rate during 1990. (In fact, *Giving USA* reports that total charitable giving as a percentage of GNP was higher in 1989 and 1990 than for any other year since 1955.) Thus, to the extent that gifts of appreciated property have declined, the decline has been largely offset by increases in cash gifts.¹¹²

There are, however, a number of limitations on charitable contributions contained in the Internal Revenue Code. For instance, a taxpayer's deduction for a taxable year for gifts of appreciated property to public charities cannot exceed 30 percent of the taxpayer's adjusted gross income (20 percent if the donee is a private foundation). It is not clear the extent to which the additional limitation for AMT purposes enacted in 1986 further reduces charitable giving.

There is another dimension to efficiency. Receipt of gifts of cash by charitable organizations is more efficient in the case where a donated item is not needed for the donee's collection, because a cash gift permits the donee to avoid the transaction costs involved should it wish to convert the appreciated property to cash. Moreover, gifts of appreciated property instead of cash create administrative costs. Cash donations do not require appraisals, generally increase taxpayer compliance, and reduce the burden on the IRS of monitoring the accuracy of valuation of gifts of appreciated property.¹¹³

Equity considerations

The 1986 Tax Reform Act reduced the top marginal income tax rate for individuals to 28 percent (now 31 percent) in exchange for base broadening directed at higher-income taxpayers. One source of base broadening was the tax treatment of donated appreciated property for AMT purposes. Since the AMT generally affects only higher-income taxpayers, allowing a fair-market value deduction for appreciated property for AMT purposes could be viewed as contrary to the spirit of the 1986 law, and generally would benefit higher-income taxpayers. On the other hand, higher-income individuals are often the owners of valuable works of art or manuscripts. If the policy goal is to make such items more accessible to the general public through ownership by museums and other orga-

¹¹¹ *Giving USA* is the annual report on philanthropy published by the American Association of Fund-Raising Counsel (AAFRC) Trust for Philanthropy.

¹¹² The decline in property contributions received by some institutions, such as museums, may be due in part to factors other than the AMT treatment of donated appreciated property. Such factors include the rate reductions enacted in 1986, increased investment in art and higher art prices during the mid-1980's, tougher appraisal rules and penalties enacted in 1984, and competition for gifts from other non-profit organizations, such as environmental groups.

Museum directors report significant appreciated property gifts made during 1991, in response to the temporary special rule for donated tangible personal property. See "Through Loophole In Tax Law, Art Gifts Pour Into Museums," *N.Y. Times*, December 12, 1991, at C15; "A Glorious Year for Museums," *Los Angeles Times*, December 25, 1991, at F1. It is not clear, however, what the sustained level of giving would be if the special rule were permanently extended so that accelerated donations were not induced.

¹¹³ Valuation questions are problematic with gifts of tangible property. For instance, in 1990, the IRS Art Advisory Panel reduced claimed deductions for 76 percent of the donated artworks it reviewed by an average of over 50 percent of the claimed value.

nizations, then a tax incentive to achieve that goal inevitably will benefit higher-income individuals.

Interaction with other preference items

Putting aside the temporary, special rule for tangible personal property, the question arises: At what point will a taxpayer who donates appreciated property be subject to the AMT? The answer to this question depends on the amount of appreciation in the contributed property and the taxpayer's other tax preferences relative to his or her income. The answer also depends on whether the taxpayer's income consists of ordinary income, capital gains, or a combination of both types of income.

The built-in appreciation in contributed property—along with any other preference items¹¹⁴—would have to equal approximately 23 percent of alternative minimum taxable income (AMTI) (14 percent if all income is capital gains) in order for a higher-income taxpayer¹¹⁵ to be subject to the AMT. If, for example, a taxpayer lives in a high-tax State where State and local taxes (which are AMT preference items) approach 10 percent of AMTI, then (assuming no preference items other than State and local taxes and the donated appreciated property) the breakpoint between the regular tax and the AMT would be appreciation in a contributed gift equaling 13 percent of AMTI (4 percent if all income is capital gains).¹¹⁶ Thus, significant built-in appreciation in a donated gift, when treated as a preference item, could (either by itself or in combination with other preference items) result in a higher-income taxpayer becoming subject to the AMT.

¹¹⁴ "Preference items" are amounts that are deductible for regular tax purposes but not for AMT purposes.

¹¹⁵ For purposes of this analysis, a "higher-income taxpayer" means a taxpayer who is entitled to no AMT exemption (e.g., taxpayers filing a joint return with AMTI exceeding \$310,000). With respect to such taxpayers, the AMT exemption amount is completely phased out, thereby simplifying the computations presented in this analysis.

¹¹⁶ The breakpoint between the regular tax and AMT is computed as follows:

Taxable income (TI) X .31	=	AMTI X .24
(AMTI—preferences) X .31	=	AMTI X .24
.31 AMTI—.31 preferences	=	.24 AMTI
.31 preferences	=	.07 AMTI
preferences	=	.07 AMTI
31
preferences	=	.226 AMTI

In a case where all income is capital gain, the 14-percent threshold is derived by the above calculation, except that the .28 top tax rate applicable to capital gains is substituted for the .31 top tax rate applicable to ordinary income.

For purposes of simplicity, this calculation does not take into account the effect of the limitation on itemized deductions applicable to taxpayers with AGI exceeding \$100,000 or the effect of the lower marginal tax rate brackets.

B. Tax Provisions Expiring After September 30 or December 31, 1992

1. Access to tax information by the Department of Veterans Affairs (sec. 6103 of the Code)

Present Law

The Internal Revenue Code prohibits disclosure of tax returns and return information of taxpayers, with exceptions for authorized disclosure to certain Governmental entities in certain enumerated instances (sec. 6103). Unauthorized disclosure is a felony punishable by a fine not exceeding \$5,000 or imprisonment of not more than five years, or both (sec. 7213). An action for civil damages also may be brought for unauthorized disclosure (sec. 7431).

Among the disclosures permitted under the Code is disclosure of certain tax information supplied to the IRS and SSA by third-parties and self-employment tax information to the Department of Veterans Affairs (DVA) to assist DVA in determining eligibility for, and establishing correct benefit amounts under, certain of its needs-based pension and other programs (sec. 6103(l)(7)(D)(viii)). The income tax returns filed by the veterans themselves are not disclosed to DVA.

The DVA disclosure provision is scheduled to expire after September 30, 1992. The U.S. General Accounting Office (GAO) is required to submit a detailed report on the effects of this provision by January 1, 1992.

Legislative Background

The DVA disclosure provision was added by section 8051 of the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508).

Analysis

GAO issued the required report on December 23, 1991 (*Millions in Savings Possible from VA's Matching Program with IRS and SSA* (GAO/HRD-92-37)). It stated that DVA had, in June 1991, completed an agreement with IRS involving data to be matched and confidentiality restrictions to be maintained. DVA received IRS data in July 1991. DVA finalized its agreement with SSA in July 1991, but was not able to obtain data prior to December 1991 (due to computer programming difficulties).

DVA notified pension beneficiaries of this income verification procedure (as required by the statute) in January 1991. The verification to date has involved pension beneficiaries. DVA has not yet notified health care recipients of this income verification procedure, and has therefore been statutorily ineligible to verify income for health care recipients.

The primary benefit to the Government of this verification program is that it enables the DVA to reduce overpayments of needs-based benefits to individuals who have not disclosed to the DVA the correct amount of income they received. GAO states that verification uncovered about \$338 million of income that recipients did not report to DVA. The GAO report did not provide an estimate of the reduction in benefits attributable to this.

There are two major concerns relating to disclosure of tax information to DVA. The first is the impact of disclosure on voluntary compliance with the tax laws. For example, it is possible that a taxpayer who is told that the income that he reported to DVA is being verified by being matched with tax information held by the IRS and SSA, and whose benefits are in fact reduced, could either cease filing a tax return or underreport income to the IRS as a consequence. The GAO report stated that, "because VA's income verification efforts are just beginning, we did not attempt to assess the impact on voluntary compliance with the Internal Revenue Code." GAO also states that "we do not believe VA's use of tax information should have a major effect on taxpayers' filing behavior."

In addition to this specific impact on voluntary compliance, there is also a more general concern that the growing use of tax information for non-tax purposes could cause taxpayers and third parties who report information to the IRS to be less compliant because of the broad use being made of the information.

Some believe that it is appropriate to use tax information for non-tax governmental purposes, while others oppose that type of use out of concern for the privacy of taxpayers, the desire to avoid the use of very detailed tax information for non-tax purposes, and concern about the IRS becoming a central Governmental repository of information on U.S. citizens.

The second concern relates to the protection of the confidentiality of this information. One aspect relates to the ability of DVA to maintain the confidentiality of the tax information. Confidentiality safeguards are an important element of the disclosure agreement with the IRS; generally, the IRS will not enter into an agreement unless it is satisfied that confidentiality will be preserved. A broader aspect is the concern that, in widening the non-tax access to tax information, unauthorized disclosure is much more likely to occur. This concern is attributable in part to the significant numbers of individuals who have access to confidential tax information for non-tax reasons, as well as to the belief that these individuals, who do not work for tax agencies and may have only occasional access to confidential tax information, may not be as sensitive to protecting the confidentiality of the information as tax agency employees are likely to be. Although strict civil and criminal penalties apply to unauthorized disclosures, the penalties may not be totally efficacious in preventing unauthorized disclosures.

2. Placed-in-service date for nonconventional fuels production credit (sec. 29 of the Code)

Present Law

Nonconventional fuels are eligible for a production credit (the "section 29 credit") equal to \$3 per barrel or BTU oil barrel equivalent¹¹⁷ (the credit amount generally is adjusted for inflation, except for gas produced from a tight formation (so-called "tight sands gas")). Qualified fuels must be produced domestically from a well drilled, or a facility placed in service, before January 1, 1993. The production credit is available for qualified fuels sold before January 1, 2003.

Qualified fuels include (1) oil produced from shale and tar sands, (2) gas produced from geopressured brine, Devonian shale, coal seams, a tight formation, or biomass (i.e., any organic material other than oil, natural gas, or coal (or any product thereof)), and (3) liquid, gaseous, or solid synthetic fuels produced from coal (including lignite), including such fuels when used as feedstocks.

Legislative Background

The nonconventional fuels production credit was originally enacted in the Windfall Profit Tax Act of 1980, with a requirement that the property generally be placed in service before January 1, 1990.

In the Technical and Miscellaneous Revenue Act of 1988, the placed-in-service date was extended for one year, from January 1, 1990, to January 1, 1991. The Omnibus Budget Reconciliation Act of 1990 ("1990 Act") extended the placed-in-service date for two years, to January 1, 1993. Additionally, the 1990 Act extended the production credit sunset date so that sales of qualifying fuels occurring before January 1, 2003 would be eligible for the credit.

The 1990 Act reinstated gas produced from certain tight formations as qualifying for the section 29 credit, and repealed the requirement that the price of such gas be regulated.

Analysis

Overview

Tax credits to subsidize the development and production of nonconventional fuel sources through the Tax Code may be justified if the subsidies provide a more socially desirable allocation of economic resources. These desirable outcomes could include a more efficient utilization of natural resources or a more equitable treatment of owners of different, but competing, energy sources. In any

¹¹⁷ A barrel-of-oil equivalent generally means that amount of the qualifying fuel which has a heat content of 5.8 million BTU (British Thermal Unit).

case, the revenues foregone through the operation of the tax subsidy are analogous to direct expenditures made to accomplish the same social goals. In general, a comparison of the costs and benefits of a subsidy such as the nonconventional fuels production credit is necessary to determine if the revenue loss caused by the operation of the tax provision is offset by the benefits generated by the credit. In addition, the size of the subsidy provided should be examined to determine if a similar level of social benefits could be generated in a less costly manner.

One justification for the section 29 credit is that the social value of certain domestic oil and gas production exceeds the market value of the recovered fuels. Because this high-social-value energy production competes directly with fuels produced using conventional methods, without a subsidy too little of the high-social-value production will take place.¹¹⁸ For instance, national security concerns may dictate that relatively small volume or relatively high-cost domestic reserves of oil and gas be tapped instead of relying on imports of similar fuels from abroad.¹¹⁹ In this way, production subsidized by the nonconventional fuels production credit would supplement domestic reserves of oil and gas that could be recovered using conventional techniques.¹²⁰

Alternatively, environmental goals such as concerns with venting methane (a greenhouse gas) from coal deposits or landfills into the atmosphere may dictate that these sources of methane be captured and utilized as a fuel (natural gas).¹²¹ In this case, the market price of the fuel does not take into account the environmental damage the methane may have caused if released into the atmosphere. A subsidy to producers may be warranted to reflect this social benefit in the firm's total receipts for production of the gas.

An original justification for the nonconventional fuels production credit was to subsidize the development of new alternative technologies to recover oil and gas.¹²² Because of the ease with which certain recovery technologies can be copied by others in the field, the originator of the technological advance might be unable to capture all the economic benefit from the advance. Viewed in this light, the credit is intended as a spur to technology. By increasing the expected profitability of these projects, the section 29 credit encourages investors to undertake projects that might have been rejected in the absence of the tax subsidy. To the extent that technological advance is spurred by the credit, the benefits of the newly advanced

¹¹⁸ It should be noted that, in addition to the tax credit, nonconventional fuels production receives the same tax incentives (e.g., percentage depletion, the expensing of intangible drilling costs, etc.) as conventional methods of recovering oil and gas.

¹¹⁹ Under the "national security" argument, the social cost of a fuel such as oil is greater than the market price due to considerations such as the cost of maintaining a strategic petroleum reserve designed to limit the economic dislocation that might be caused by disruptions in markets for these fuels.

¹²⁰ Note that the nonconventional fuels production credit was enacted in the wake of two substantial rises in the world price for oil. In this context, fuels produced from nonconventional sources reduce the need for imported fuels (perhaps leading to a reduced trade deficit), and could have been viewed as having social value in excess of their price.

¹²¹ While burning methane as a fuel source releases carbon dioxide into the atmosphere, to the extent the methane displaces other fossil fuels, the total amount of carbon dioxide generated remains approximately constant. The net reduction in greenhouse gases results from less methane being released into the atmosphere.

¹²² Senate Report No. 96-394, 96th Congress, 1st Session, p. 87.

technology should be included with other benefits (and detriments) and this total compared to the revenue cost of the credit to determine if the revenues foregone have been efficiently spent.

The relevant legislative history indicates that Congress believed some subsidy was necessary to encourage industries attempting to produce alternative energy sources to permit them to develop to the stage where they could be competitive with conventional fuels.¹²³ It was believed that the information gained from the *initial efforts* at producing these sources of energy would be of benefit to the entire economy. Apparently, it was not Congress' intent that the credit would become a permanent fixture in the tax law. The credit was designed to apply only for a limited period of time, after which Congress expected "no special incentive will be needed" since over the life of the credit the affected industries should have matured and become competitive even absent a governmental subsidy.¹²⁴

If it is determined that the subsidized activities have not yet developed into self-sustaining, competitive industries, a decision as to the continuation of the credit as it applies to these fuels may be based on whether or not these producers will ever reach that status. If the production of particular nonconventional fuels will not become competitive in the foreseeable future absent a subsidy, then extending the credit with respect to these fuels would be contrary to the original goals of Congress. On the other hand, if it is anticipated that these fuels will reach a mature and competitive state in the future, then extension of the credit may be warranted up to the point in time when competitive status is achieved. Continuation of the credit beyond such a point would not comport with the original legislative intent and would provide a competitive advantage for those fuels vis-a-vis competing fuels not qualifying for the credit. With respect to qualifying fuels that have already achieved a competitive posture, a similar analysis should lead to the determination that such fuels should no longer receive the tax credit.

Efficiency of the tax credit

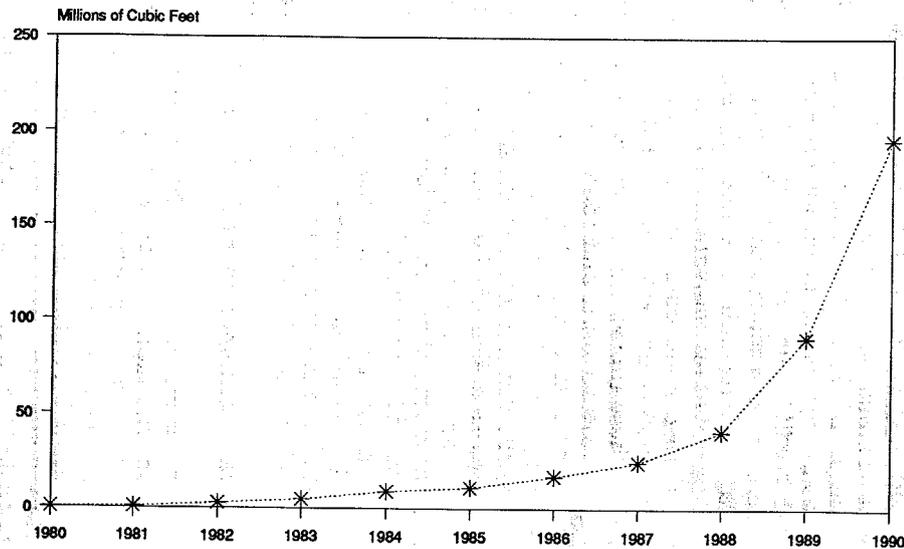
Production data

The success of the section 29 credit at encouraging production of the specified fuels may be evaluated by examining the production data. A time series of methane production from coal seams is presented in Figure 1. The graph indicates that production of gas from coal seams has increased dramatically after the introduction of the credit. The evidence suggests that, at least for this source of natural gas, the credit has been a major spur to production. However, it should be noted that the evidence is only suggestive, since it is not possible to know precisely the amount of coal seam methane production that would have been undertaken in the absence of the credit. Moreover, other energy sources that qualify for the section 29 credit may not have experienced production increases of the same magnitude.

¹²³ Ibid.

¹²⁴ Ibid.

FIGURE 1
Qualified Production
Coal Seam Methane, 1980-1990



Source: Energy Information
Administration

Relative size of the credit

As noted above, the amount of the section 29 credit is adjusted for inflation (except for natural gas produced from a tight formation). The credit amount (in 1979 dollars) is \$3 per barrel of oil or oil equivalent—defined as the amount of fuel that has a heat content of 5.8 million BTUs. In 1991 dollars, the credit has an estimated value of \$5.21 per barrel of oil (or oil equivalent). For natural gas, the 1991 credit figure is estimated to be \$0.93 per thousand cubic feet (mcf). As mentioned above, the credit for natural gas produced from a tight formation is not adjusted for inflation, and equals \$3 per barrel of oil equivalent (or \$0.53 per mcf).

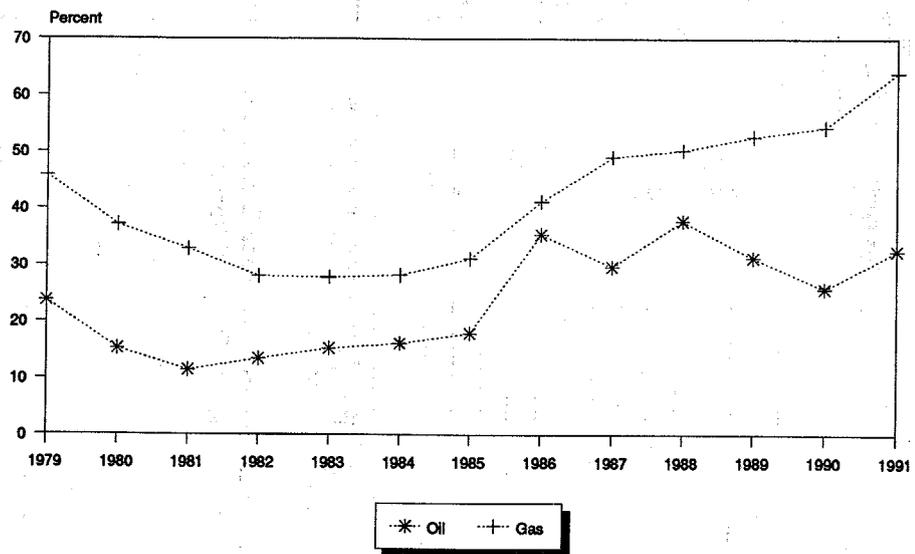
Tables 9 and 10 present data on the size of the section 29 credit relative to the market prices for oil and natural gas, respectively. In constructing these tables, the size of the credit was computed for each year from 1979 to 1991, and then divided by a representative annual average market price for the relevant fuel.¹²⁵ Tables 9 and 10 indicate the relative size of the incentive to production provided through the credit. While there are substantial year-to-year fluctuations in the relative size of the production incentive, there has been a clear upward trend over the life of the credit. In particular, in 1991, it is estimated that the section 29 credit provided producers with a tax subsidy approximately equal to 32 percent of the average domestic price of oil at the wellhead, and 62 percent of the average market price of natural gas at the wellhead. The increase over time in the relative size of the credit results from the credit being indexed to changes in the overall price level combined with a downward trend in the real (inflation-adjusted) price of oil and natural gas. The data contained in Tables 9 and 10 are summarized in Figure 2.

If the section 29 credit were re-characterized as an increase in the sales price of the fuel, the dollar figure to provide the same incentive would be larger. For example, for natural gas in 1991, the \$0.93 tax credit provides approximately the same after-tax benefit to a producer as a \$1.41 increase in the sales price (which would approximately double the wellhead price received by the producer of qualified gas).¹²⁶ (See Table 10.) It should be noted that the price figures presented are merely averages, and may mask substantial regional price differences. However, they are suggestive that the production spur from the section 29 credit potentially is large. These figures, though, do not directly address the issue of whether the credit is larger than necessary to encourage the desired amount of production of nonconventional fuels.

¹²⁵ For oil, the average domestic first purchase price was used, and for natural gas the average wellhead price was used as the representative market price. The actual sales price of oil and gas at the wellhead will deviate somewhat from these average figures. In particular, lower quality oil will fetch a lower sales price, meaning the credit will be a greater percentage of price for lower grades of oil qualifying for the credit.

¹²⁶ This computation assumes a producer facing a 34-percent marginal tax rate on income from production.

FIGURE 2
Section 29 Credit As Percent
Of Fuel Price, 1979-1991



Source: Energy Information
Administration

Table 9.—Nonconventional Fuels Production Tax Credit Relative to the Market Price of Oil, 1979–1991

Year	Tax credit per barrel (dollars)	Average domestic first purchase price (dollars)	Relative size of tax credit (percent)
1979.....	3.00	12.64	23.7
1980.....	3.27	21.59	15.1
1981.....	3.57	31.77	11.2
1982.....	3.80	28.52	13.3
1986.....	3.96	26.19	15.1
1984.....	4.10	25.88	15.8
1985.....	4.26	24.09	17.7
1986.....	4.37	12.51	34.9
1987.....	4.48	15.40	29.1
1988.....	4.64	12.58	36.9
1989.....	4.82	15.86	30.4
1990.....	5.02	20.03	25.1
1991 (estimate).....	5.21	16.50	31.6

Source: Credit amount is from Internal Revenue Service announcements; price data is from *Monthly Energy Review*, various issues, Energy Information Administration, U.S. Department of Energy.

Table 10.—Nonconventional Fuels Production Tax Credit Relative to the Market Price of Natural Gas, 1979–1991

Year	Tax credit per mcf (dollars)	Average wellhead price (dollars)	Relative size of tax credit (percent)
1979.....	0.53	1.18	45.2
1980.....	.58	1.59	36.5
1981.....	.63	1.98	32.1
1982.....	.68	2.46	27.5
1983.....	.70	2.59	27.2
1984.....	.73	2.66	27.4
1985.....	.76	2.51	30.2
1986.....	.78	1.94	40.0
1987.....	.80	1.67	47.7
1988.....	.83	1.69	48.9
1989.....	.86	1.69	50.7
1990.....	.89	1.71	52.2
1991 (estimate).....	.93	1.50	61.8

Source: Credit amount is from Internal Revenue Service announcements; price data is from *Monthly Energy Review*, various issues, Energy Information Administration, U.S. Department of Energy.

Equity of credit

Concern has been raised with the possible inequity in the treatment of different fuels under the nonconventional fuels production credit. Because certain fuels that qualify for the credit directly compete in local and national markets with fuels that do not qualify for the credit, producers who do not receive the subsidy may claim that they are subject to unfair competition from credit recipients.¹²⁷ To the extent this claim is true, it may be the case that there is less justification for the tax subsidy provided to this class of nonconventional fuels.

Certification procedures

In general, the section 29 credit is claimed by taxpayers who certify that their production qualifies for the credit. This self-certification procedure has not applied to gas produced from a tight formation, where the Federal Energy Regulatory Commission (FERC) has been charged with the certification process. However, with the deregulation of the energy industry, FERC's responsibilities have been significantly curtailed. In particular, the certification process has devolved to the State government agencies responsible for natural resource management. While FERC was responsible for certifying formations as qualifying for the credit, it might be expected that Federal direct expenditures and tax expenditures through the credit received some comprehensive oversight. With responsibility for the granting of this specific tax expenditure given to State agencies, it might be the case that the concern for the efficient use of Federal tax expenditures may be diluted (relative to the situation when FERC provided certification for the credit). Accordingly, it may be preferable to centralize the responsibility for the development of procedures to certify all types of properties that qualify for the section 29 credit in a single agency (e.g., the Treasury Department, perhaps in consultation with the Department of Energy).

¹²⁷ Some natural gas producers have asserted that the nonconventional fuels production credit has led to a glut of natural gas in certain local markets, driving down the price received for all gas sold in those markets. In these cases, unsubsidized producers claim they cannot profitably explore for gas in these areas, while producers receiving the credit may be able to earn a competitive return.

3. Excise tax on certain vaccines for the Vaccine Injury Compensation Trust Fund (secs. 4131 and 9510 of the Code)

Present Law

The Vaccine Injury Compensation Trust Fund ("Vaccine Trust Fund") provides a source of revenue to compensate individuals who die or who are injured as a result of the administration of certain vaccines: diphtheria, pertussis, and tetanus ("DPT"); diphtheria and tetanus ("DT"); measles, mumps, and rubella ("MMR"); and polio. The Vaccine Trust Fund provides the funding source for the National Vaccine Injury Compensation Program ("Program"), which provides a substitute, Federal "no-fault" insurance system for the State-law tort and private liability insurance systems otherwise applicable to vaccine manufacturers.

Under the Program, all persons who were immunized with a covered vaccine after the effective date of the Program, October 1, 1988, are prohibited from commencing a civil action in State court for vaccine-related damages unless they first file a petition with the United States Claims Court, where such petitions are assigned to a special master and governed by streamlined procedural rules designed to expedite the proceedings.¹²⁸ In these cases, the Federal Government is the respondent party in the proceedings, and the claimant generally must show only that certain medical conditions (or death) followed the administration of a covered vaccine and that the first onset of symptoms occurred within a prescribed time period.¹²⁹ Compensation under the Program generally is limited to actual and projected unreimbursable medical, rehabilitative, and custodial expenses, lost earnings, pain and suffering (or, in the event of death, a recovery for the estate) up to \$250,000, and reasonable attorney's fees.¹³⁰ Only if the final settlement under the Program is rejected may the claimant proceed with a civil tort action in the appropriate State court, where recovery generally will be governed by State tort law principals¹³¹, subject to certain lim-

¹²⁸ Persons who received vaccines before the Program's effective date of October 1, 1988 ("retrospective cases") also may be eligible for compensation under the Program if they had not yet received compensation and elected to file a petition with the United States Claims Court on or before January 31, 1991. Under the Program, awards in retrospective cases are somewhat limited compared to "prospective cases" (i.e., those where the vaccine was administered on or after October 1, 1988). Awards in retrospective cases are not paid out of the Vaccine Trust Fund but are paid out of funds specially authorized by Congress. See 42 U.S.C. sec. 300aa-15(i), (j) (appropriating \$80 million for fiscal year 1989 and for each subsequent year).

¹²⁹ Compensation may not be awarded, however, if there is a preponderance of the evidence that the claimant's condition or death resulted from factors unrelated to the vaccine in question.

¹³⁰ 42 U.S.C. sec. 300aa-15.

¹³¹ In most State proceedings, significant issues arise whether injuries suffered by a child after immunization were, in fact, caused by the vaccine administered and whether the manufacturer was at fault in either the manufacture or marketing of the vaccine.

itations and specifications imposed by the National Childhood Vaccine Injury Act of 1986.¹³²

The Vaccine Trust Fund is funded by a manufacturer's excise tax on DPT, DT, MMR, and polio vaccines (and any other vaccines used to prevent these diseases). The excise tax per dose is \$4.56 for DPT, \$0.06 for DT, \$4.44 for MMR, and \$0.29 for polio vaccines.

The vaccine excise tax will expire after the later of: (1) December 31, 1992; or (2) the date on which the Vaccine Trust Fund revenues exceed the projected liabilities with respect to compensable injuries from vaccines administered before October 1, 1992. Amounts in the Vaccine Trust Fund are available for the payment of compensation under the Program with respect to vaccines administered after September 30, 1988, and before October 1, 1992.

Legislative Background

The National Vaccine Injury Compensation Program was created by the National Childhood Vaccine Injury Act of 1986¹³³, which became effective following enactment of a Federal funding source. This funding source was provided by the enactment of the vaccine excise tax in the Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203), with the excise tax imposed on sales of covered vaccines on or after January 1, 1988. The Program for administering claims became effective on October 1, 1988.¹³⁴

Analysis

The Program and the Vaccine Trust Fund were created as a substitute insurance system for the State-law tort and private insurance systems, because of the perception that civil judgments against vaccine manufacturers in the case of injury or death relating to vaccination often were unreasonably large and uncertain. The prices of vaccines were rising rapidly, reflecting surcharges imposed by manufacturers to fund liability reserves. Congress was concerned that the combination of significantly higher prices and uncertain compensation for injuries could result in reduced compliance with the nation's childhood immunization program.¹³⁵ Furthermore, there was concern that the potential for unlimited damage awards would discourage manufacturers from producing childhood vaccines.

Creating a substitute insurance program is justified if the private market and the court system do not efficiently provide such insurance. This could happen if court awards effectively provided a higher level of insurance than the vaccine recipient would choose to purchase. For instance, a vaccine recipient might be willing to

¹³² This Act preempts State tort law to a limited extent by imposing limits on recovery from vaccine manufacturers. Among the limitations are a prohibition on compensation if the injury or death resulted from side effects that were unavoidable; a presumption that manufacturers are not negligent in manufacturing or marketing vaccines if they comply, in all material respects, with Federal Food and Drug Administration requirements; and limits on punitive damage awards.

¹³³ Title III, P.L. 99-660.

¹³⁴ Several procedural aspects of the Program were amended by section 6601 of the Omnibus Budget Reconciliation Act of 1989.

¹³⁵ All States generally require children to be immunized with the DPT, MMR, and polio vaccines prior to attending school, although some States allow exceptions for medical, religious, or philosophic reasons.

pay \$4 per dose for an insurance package that would provide \$100,000 in the case of injury. If the courts regularly awarded an injured party more than this amount, then the price of the insurance would be higher than \$4 per dose. Because consumers could not commit to only asking for \$100,000 in the case of injury (because once they were injured, it would be in their interest to ask for more), the private market for insurance against vaccine-related injuries would not work efficiently. Setting up a substitute compensation scheme that limits awards, while restricting the ability to sue manufacturers in State courts, provides consumers with the ability to commit to more fixed compensation and, by reducing manufacturers' need to fund reserves against potentially large damage awards, should result in lower prices for vaccines.¹³⁶ Furthermore, the Program also provides more certain compensation in the case of vaccine-related injuries.¹³⁷ This also should increase the value of the insurance to consumers.

This substitute compensation scheme would be more efficient than the private market if the level of insurance provided was closer to that desired by consumers than the level implicitly provided by the court system.¹³⁸ For instance, if the compensation scheme provided a very low award in cases of injury and death, the price of vaccines also might be quite low. However, consumers might not want to purchase such a vaccine (unless they could also purchase private insurance), because they would not want to face the risk that they would be injured or die without receiving the desired level of compensation.

Evaluating the success of the Program and the Vaccine Trust Fund is quite difficult. Because the initial justification for the Program was to reduce the cost of the implicit liability premium imposed on the vaccines, one could observe what has happened to the prices of vaccines. However, if the compensation provided by the Vaccine Trust Fund is perceived as too low, then although vaccine prices might be lower, consumers might not be better off. If this were the case, the expected result might be for consumers to reduce purchases of vaccines. However, because children generally are required to be vaccinated in order to attend school, consumers often do not have this choice. It would therefore be difficult to determine from data about prices or quantities of vaccines whether consumers were made better off by the Program.

¹³⁶ Although excise taxes generally increase the prices of products, the combination of an excise tax and a substitute insurance program could lower prices if the effect of the program is to reduce the cost of insurance. As an alternative, the Program could have been funded by general revenues, which would have been expected to further lower the prices of vaccines.

¹³⁷ Under the Program, recovery for damages following the administration of a vaccine is made more certain since direct proof of causation or fault generally is not required; however, the total amount potentially recoverable (such as for pain and suffering) is limited. If a claimant rejects the settlement under the Program in favor of pursuing a civil action in State court, then causation-in-fact and fault on the part of the manufacturer generally will have to be proven; and although the total amount potentially recoverable is greater than under the Program, State law has been preempted to some extent by the National Childhood Injury Act of 1986, which establishes certain presumptions in favor of vaccine manufacturers and limits their liability for punitive damages.

¹³⁸ The most efficient insurance mechanism might be to permit individuals to purchase any level of insurance they desire, while limiting their ability to sue manufacturers in court. However, this would require individuals to have available at the time of vaccine purchase more information regarding the probability of injury and potential damages than many individuals currently have or may want.

Another objective of the Program is to lower overall administrative costs by reducing areas of potential dispute when petitions are filed with the United States Claims Court and thereby deterring prospective litigants from pursuing costly litigation in State courts. Data on the administration of the Program is only beginning to be collected, however, because the Program did not begin to operate fully until February 1, 1989, and most of the dispositions to date involve so-called "retrospective cases,"¹³⁹ which are governed by separate procedures and are not compensated through Vaccine Trust Fund revenues.¹⁴⁰

51-566 (120)

¹³⁹ See footnote 128 supra. A large influx of such cases were filed with the United States Claims Court in late 1990 and early 1991.

¹⁴⁰ See Mariner, Wendy K., *Innovation and Challenge: The First Year of the National Vaccine Injury Compensation Program*, May 1991, report prepared for consideration by the Administrative Conference of the United States.