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AN ANALYSIS OF TAX PROVISIONS AFFECTING BUSINESS INVESTMENT: DEPRECIATION AND THE INVESTMENT TAX CREDIT

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TABLE OF CONTENTS

INTRODUCTION

This paper is an examination of the provisions of the Federal income tax law affecting capital cost recovery. The primary provisions considered are accelerated depreciation methods, the asset depreciation range (ADR), and the investment tax credit. The paper does not deal with depletion, which is a major aspect of capital cost recovery in the extractive industries. The first section describes these provisions in the context of the income tax. The second examines the history of depreciation and the reasons advanced for changes in each stage of the evolution of this policy. The third section examines the arguments for liberalized capital cost recovery and the reasoning behind these arguments, along with evidence in the literature bearing on these questions. In some cases, particularly in presenting the results of econometric studies, the findings and assumptions are necessarily oversimplified and the reader may wish to examine these studies. A brief evaluation of these arguments, based on the presentation in the body of the paper, may be found in the conclusion to Section III.

A selected bibliography is included.

I. DESCRIPTION OF CURRENT LAW

A. Depreciation

The Federal income tax is conceptually a tax on net income, although in practice taxable income deviates from net income through specified deductions (such as the deduction for charitable contributions.) Thus, provision is made for deducting costs of earning income from gross income. Business costs may be said to fall into two categories--those which are expensed and those which are capitalized. Generally the treatment of business deductions is the same for corporations and individuals.

Expensed items are deducted in one year and are generally limited to items which are useful for that year, such as wages. Items which are capitalized are generally assets of a permanent nature which yield services for more than one year. A capitalized item is one such as land, a building, or a machine. If the item is one which declines in value through use its cost may be deducted over a determinable period of time in the form of depreciation deductions. Thus, depreciation is allowed for buildings and machines, but not for land (although land containing natural resources such as oil may be considered a depletable asset). In practice, some items may be deducted currently which are in the nature of a depreciable cost.

Useful Life and Rate

There are two aspects of depreciation which must be considered: (1) What is its useful life, that is, what is the period of time over which the cost of an asset should be deducted? and (2) At what rate should the deductions be taken (that is, should there be greater or smaller deductions in the earlier years?)

In regard to the first question, the Internal Revenue Service prescribes tax useful lives through the Asset Depreciation Range (ADR) system, where industry wide class lives are provided. The taxpayer can depreciate all property in that class at the life provided and may vary by 20 percent in either direction. If he wishes to use a different class life, he must substantiate the deduction as reasonable.

There are several methods of depreciation deductions which are specifically authorized by the Internal Revenue Code. The simplest method is the straight line method. Under this method the taxpayer deducts an equal amount of the cost (less salvage value) 1/

1/ Salvage value is included in the basis if the declining balance method is used but not if straight line and sum-of-years digits is used. This treatment is shown in the examples. However, if the asset depreciation range is elected, salvage value is included under all methods.

in each year of the useful life. For example, if he has an asset worth $5,500, with $500 of salvage value and a useful life of five years, his yearly deduction will be one-fifth of $5,000 or $1,000.

A second method authorized is the declining balance method, where a rate not to exceed twice the straight line rate is applied in each year to the balance of the cost. Salvage value is not considered. In the example described above, the first year deduction under a double declining balance would be $2,200 (40 percent of $5,500). In the next year, the deduction would be $1,320 (40 percent of $3,300). Eventually, under this method deductions would be smaller than they would be under straight line and the taxpayer can switch over and take deductions as if he had used straight line previously. 1/

A third method authorized is the sum of years digits. Under this method a varying fraction is applied to the cost of the asset (less salvage value) each year, with the numerator the remaining useful life of the property and the denominator the sum of the numbers representing the successive years of useful life. In the example described above, the first year fraction would be 5/15 ($\frac{5}{1+2+3+4+5}$) and the first year depreciation would be $1,666 (5/15 times $5,000). The second year depreciation would be $1,333 (4/15 times $5,000).

The law also allows any other consistent method if the deduction at the end of each year during the first two-thirds of useful life does not exceed the amount allowable under double declining balance.

There are limitations on depreciation methods in certain cases. The second owner of an asset is limited to a 150 percent declining balance method (so that the rate applied to the remaining balance is only one and one half times the straight line rate). There are also particular limits on real estate depreciation. New construction, other than residential housing, is limited to a 150 percent declining balance. Used real property other than residential housing is limited to straight line. Used residential housing with a useful life of 20 years or more is limited to 125 percent declining balance.

Recapture

When depreciable property is sold, gain on the sale of the property is generally treated as a capital gain and the lower capital gains tax applies if the property has been held for six months. Often property, particularly buildings, may be sold at a price in excess of its depreciated value or even in excess of the original cost. Since

1/ The deductions can never reduce the basis below salvage value.

depreciation deductions reduce ordinary income taxed at regular rates, the combination of depreciation on the property and capital gains treatment on the sale of the property can result in the conversion of ordinary income into capital gains and tax savings.

Accordingly, there are provisions to recapture some or all of the depreciation (i.e. treat a portion of the gain as ordinary income) under certain circumstances. The application of these recapture rules is different for personal property (referred to as Section 1245 property) such as trucks and machines and for real property (referred to as Section 1250 property) such as buildings.

In the case of personal property gain on the sale is taxable as ordinary income to the extent of all post 1961 depreciation. That is, the lesser of all post 1961 depreciation or the total gain is treated as ordinary income.

In the case of real property, depreciation in excess of straight line taken after 1963-1969 is recaptured in full if the property is held for 20 months or less. After 20 months the precentage recapture declines one percent for each month the property is held; thus, there would be no depreciation recapture for property held for more than 10 years. For non-residential real property, any post 1969 excess depreciation is recaptured in full. For residential property, post 1969 depreciation recapture is reduced one percent a month after the property has been held 100 months or less. For certain other property, including certain Federally subsidized housing, the rules for 1963-1969 depreciation continue to apply. If any real property is held for 12 months or less, all depreciation, straight line as well, is recaptured in full.

Special Provisions

There are a number of provisions in the tax law which provide special treatment of depreciation including rapid amortization provisions, the additional first year depreciation, treatment of natural resources and expensing of certain items.

1. Rapid Amortization

The tax law provides special treatment of depreciation for certain types of property by allowing rapid amortization. Amortization involves, in this context, the use of a straight line method over a shorter period of time than the specified useful life. Amortization provisions which allow a write-off in equal installments over a five year period apply, with various limitations, to the following types of property:

(1) railroad rolling stock
(2) pollution control facilities (for cost attributable first 15 years of useful life)

(3) rehabilitation expenditures on low income housing
(4) employer expenditures on child care and on-the-job-training facilities
(5) coal mine safety equipment

The law also provides for fifty year amortization of railroad grading and tunnel bores. (Otherwise these items might never be deductible). In the case of any property where the investment credit would apply, it is not available if amortization is taken, except in the case of pollution control facilities, where it is available for cost attributable to portion of useful life over 15 years.

2. Additional First Year Allowance

The law provides for an additional first year depreciation allowance of 20 percent of the cost of tangible personal property up to $10,000 ($20,000 for a joint return). Although this allowance is available to all taxpayers it is aimed primarily at small businesses. The allowance is based on cost without considering salvage value, but the allowance is subtracted from the basis before determining regular depreciation.

3. Natural Resources

Although depletion allowances are another issue, they may be considered the equivalent of depreciation deductions for natural resources. Cost depletion, which allows the deduction of a portion of the cost of the asset based on yearly production, is similar in concept to depreciation. Percentage depletion is an alternative to cost depletion based on a percentage of gross income from production and is unrelated to cost. Percentage depletion is not considered in this study.

4. Options to Expense or Defer

In certain cases the income tax law allows taxpayers an option in the treatment of items which may be considered capital expenditures. While such treatment may in some cases be considered as incentives or subsidies, optional treatment often applies to expenditures with an indeterminable useful life and thus might never be deductible (or may be only accounted for when the item is sold as is currently the case with land).

Among the items for which optional treatment is allowed are certain research and experimental expenditures, intangible drilling costs (such as labor, supplies and repairs), mining exploration and development expenditures and certain farming expenditures (e.g. expenses of clearing land). In addition, some items such as interest

on a construction loan could be considered a capital expenditure but may be expensed because the tax law generally allows the deduction of these items (the building must still be depreciated).

The law also allows certain items to be treated as deferred expenses and thus amortized over a period of years. For example, research and experimental expenditures may be written off over a period of five years or more. Expenses of organizing a corporation, while they may not be written off currently may be deferred in a similar manner. If deferral were not allowed such expenses might never be deductible (as in the case of an on-going corporation).

B. The Investment Tax Credit

The investment tax credit might be more properly termed the equipment tax credit since it applies generally to machinery and equipment but not to structures. The provision allows a credit against tax liability for 7 percent of the cost of investment (4 percent in the case of public utilities). The credit does not change the basis for computing depreciation. The allowable credit cannot exceed $25,000 plus one half of taxable income in excess of $25,000. There is a provision for a three year carryback and five year carryforward of unused investment credits.

Certain property is not eligible or not fully eligible for the investment credit. Property with a useful life of less than three years does not qualify. One third of the cost of property with a useful life of three to five years is eligible for the credit, two-thirds of the cost of property with a useful life of five to seven years is eligible and the full cost of property with a useful life of seven years or more is eligible. Items not eligible in general for the credit include buildings and structural components (except for certain storage facilities), property used outside the United States (with certain exceptions such as offshore drilling rigs, telephone cables, etc.), furnishings in lodgings, certain livestock (such as race horses), and property amortized under the special amortization provisions.

C. The Minimum Tax

The U. S. tax law imposes a minimum tax on certain items of preference income. The tax is levied at 10 percent on both corporations and individuals and a taxpayer is allowed to deduct his regular taxes paid plus $30,000 from his preference base before applying the tax. Certain items of accelerated depreciation are considered preference items, including accelerated depreciation and amortization on real property in excess of straight line and amortization in excess of accelerated depreciation in general.

II. HISTORY OF DEPRECIATION POLICY AND THE INVESTMENT TAX CREDIT

To understand current issues and problems in depreciation policy it is useful to examine how this policy developed. Much of current tax depreciation practice derives from administrative policy rather than legislation and much of the statutory law on tax depreciation was added as a result of prior administrative changes.

This history will concern the major developments in overall depreciation policy which are significant in contributing to current treatment. Developments of specialized provisions or minor treatment will be noted in footnotes.

For purposes of general depreciation policy under the income tax, the history can be divided into five phases: 1913-1934, 1934-1954, 1954-1962, 1962-1970 and 1971-present.

Although the present income tax law dates from 1913, there were earlier forerunners of the income tax. Civil war income taxes were imposed in 1861 and lasted until 1872, but these laws were vague and made no mention of depreciation. Another income tax law in 1894 specifically excluded depreciation as a deduction. This law was subsequently struck down by the courts which found a tax on income unconstitutional.

The precedent for allowing the deduction for depreciation was set in the corporate excise tax of 1909, which allowed "a reasonable allowance for depreciation of property, if any." Regulations indicated that this provision included accounting for obsolescence as well as wear and tear and exhaustion.

A. 1913-1934: Depreciation at the Taxpayer's Discretion

The Sixteenth Amendment to the Constitution allowed taxes on income without apportionment among the States and an income tax was subsequently imposed in 1913 upon ratification of the amendment. This law, which taxed individual and corporate net income, allowed "a reasonable allowance for depreciation by use, wear and tear of property, if any." Again obsolescence was included in the regulations. The 1916 Act permitted "a reasonable allowance for the exhaustion, wear and tear of property arising out of its use or employment in the business or trade." Under this law, no consideration was made for obsolescence unless the property was withdrawn from use.

In 1918, the House draft of the Revenue Act of 1918 allowed exhaustion and wear and tear, but did not use the terms depreciation or obsolescence; the Senate version substituted depreciation and

in conference the provision was changed to read "a reasonable allowance for the exhaustion, wear and tear of property used in the trade or business including a reasonable allowance for obsolescence." This act clearly established at least normal obsolescence as a factor in depreciation. 1/

From the first law in 1913 until 1934, the taxpayer was generally allowed to determine his own useful life for purposes of depreciation and the then Bureau of Internal Revenue rarely challenged the deduction unless there was clear and convincing evidence that it was unreasonable. The official attitude of the Bureau was summarized in the first Bulletin "F" issued in 1920, following the Revenue Act of 1918: 2/

> It is considered impractical to prescribe fixed definite rates of depreciation which would be allowable for all property of a given class or character... The taxpayer should in all cases determine as accurately as possible according to his judgment and experience the rate at which his property depreciates.

At the same time the Bureau indicated that it only approved the straight-line method (or unit of production method generally used in natural resources), as opposed to declining balance and other accelerated methods of depreciation. Undepreciated balances were charged off as an expense in the year of retirement. Normal obsolescence was to be taken into account in determining useful life; extraordinary obsolescence would be reflected only at the time of retirement.

The Bureau issued a second version of Bulletin "F" in 1931 and while it continued to let taxpayers determine their own useful lives, the statement noted: 3/

> Past experience, which is a matter of fact and not of opinion, coupled with informed opinion as to the present condition of the property, and current developments within the industry, and the particular business, furnish a reliable guide for the determination of the useful life of the property.

1/ The existence of extraordinary obsolescence might also have been said to be recognized since the 1918 act also allowed a five-year write-off for certain war-related facilities.

2/ The 1920 Edition of Bulletin "F" is reproduced in E. A. Saliers, Depreciation-Principles and Applications, 2nd Ed., N.Y. - The Ronald Press, 1922. See p. 494 for this excerpt.

3/ The 1931 Edition of Bulletin "F" is reproduced in Saliers, op. cit., 3rd Edition, 1939. See p. 411 for this excerpt.

This edition of Bulletin "F" was accompanied by a separate pamphlet, the "Preliminary Report on Depreciation Studies" which listed probable useful lives of 2,700 industrial assets. The policy of favoring straight-line depreciation was unchanged.

B. 1934-1954: The IRS Prescribes Useful Life

An era in depreciation policy ended in 1934 by shifting the burden of proof as to the reasonableness of the deduction to the taxpayer. This change was stimulated by a report of a House Ways and Means Committee subcommittee on December 3, 1933 which revealed a substantial increase in depreciation deductions and showed that in 1931 corporate depreciation deductions were larger than corporate taxable income. In view of the revenue needs at a time of depression and what the report considered an alarming increase in depreciation deductions, the report recommended a reduction of 25 percent in depreciation deductions in the following three years. The Secretary of the Treasury proposed that such reduction could be accomplished more equitably by shifting the burden of proof as to the reasonableness of the deduction to the taxpayer. The Ways and Means Committee agreed.

The result was Treasury Decision 4422 which was published in 1934. This decision required the taxpayer to furnish facts regarding his deductions and laid the burden of proof of showing the reasonableness of the deduction on the taxpayer.

Thereafter, taxpayers tended to follow the useful lives prescribed in Bulletin "F." 1/ A third and last edition of this document was issued in 1942 providing the average useful life of about 5,000 assets and providing longer lives (and thus lower deductions) for a substantial number of assets.

In 1946 the first change from IRS policy favoring the straight line method occurred when the Service allowed the use of the 150 percent declining balance method.

1/ There were some departures from the lives through use of special provisions. Five year amortization was available for certified national defense facilities and was used during World War I and World II and the Korean War (authorization existed from 1940-1960). Five year amortization was also provided for grain storage facilities from 1952-1957.

There was considerable controversy after the 1934 revision concerning depreciation policy between taxpayers and the Internal Revenue Service. In 1953 a new IRS Policy, Revenue Ruling 90, provided: 1/

> It shall be the policy of the Service generally not to disturb depreciation deductions and Revenue employees shall propose adjustments in the depreciation deduction only where there is a clear and convincing basis for a change. This policy shall be applied to give effect to its principal purposes of reducing controversies with respect to depreciation.

It is questionable how effective this policy actually was in reducing disputes.

C. 1954-1962: Accelerated Depreciation Methods

The 1953 regulations were written into regulations under the Internal Revenue Code of 1954 which re-codified the tax law. However, the major change in 1954 was the writing into the law of accelerated depreciation methods. The 1954 act sanctioned the use of double declining balance, sum-of-years digits or any other method of depreciation which would not result in larger deductions during the first two-thirds of useful life than under double declining balance.

The reasons for the authorizations of the accelerated methods appeared to involve both questions of more accurate reflections of economic depreciation (particularly depreciation as a result of obsolescence) and questions of stimulating business investment.

The Ways and Means report states: 2/

> In many cases present allowances for depreciation are not in accord with economic reality, particularly when it is considered that adequate depreciation must take account of the factor of obsolescence. The average machine or automotive unit actually depreciates considerably more and contributes more to income in its early years of use than it does in the years immediately preceding its retirement.

1/ Rev. Rul. 90, 1953-1 C.B. 43.

2/ U.S. Congress, House. Internal Revenue Code of 1954. Report of the Committee on Ways and Means, House Report No. 1337. March 9, 1954. p. 22.

> There is evidence that the present system of depreciation acts as a barrier to investment, particularly with respect to risky commitments in fixed assets. Comparatively slow rates of write-off tend to discourage replacement of obsolete equipment and the installation of modern, up-to-date machinery. Under long-run peacetime conditions, in the absence of inflationary pressures existing in the forced-draft economy of the postwar period, present tax depreciation methods might depress business capital expenditures below the level needed to keep the economy operating at high levels of output and employment.

The Senate Finance Committee Report indicated similar reasons.

It is also interesting to note that the concept of a depreciation range in useful lives appeared during the 1954 deliberations. The bill as passed by the House provided that the life used by the taxpayer would not be challenged by the IRS unless it differed by more than 10 percent from the useful life determined by the Service. This provision was deleted by the Senate partially because they felt that the new policy in Revenue Ruling 90 (noted above) would be sufficient to reduce taxpayer disputes.

Changeovers to the use of the accelerated methods proceeded somewhat slowly, particularly in the case of small businesses. In 1954, 89 percent of depreciation was under the straight-line method and by 1960, 58 percent of depreciation was still claimed under the straight-line method (although part of this reflected pre-1955 assets).

D. 1962-1971: Reduction in Lives and the Investment Tax Credit

Although criticism of depreciation policies was developing in the late 1950's no major changes were made until the introduction of Rev. Proc. 62-61 in 1962. 1/ In late 1961 the Treasury Department issued results of a survey of depreciation practices which indicated the need for depreciation revision. The Treasury subsequently issued Revenue Procedure 62-21 which made substantial changes in depreciation policy and useful life. First, the procedure substituted 75 industry-wide class lives for the 5,000 or so Bulletin "F" lives for individual assets. Secondly, it effectively shortened useful lives by 30 percent to 40 percent. Finally it instituted the reserve ratio test, a procedure which required taxpayers to compare their own actual replacement experience with replacement assumed by the guideline lives, and adjust their lives accordingly.

1/ However during this period, the additional first year depreciation allowance, which primarily benefits small business, was added to the law by the Small Business Tax Revision Act of 1958.

Taxpayers had a three year period of grace in which they could use the new lives without applying the test. In 1965 the test was modified and the moratorium on using it effectively extended since it was felt that the test had defects and that a substantial number of taxpayers could not meet the test.

The Revenue Act of 1962, which also added the investment tax credit, also provided for recapture of depreciation in certain cases. These recapture rules were further tightened in 1964.

The reasons expressed for the 1962 class life system again appeared to be a combination of economic and equity issues. The following excerpts from a statement made by Secretary of the Treasury Dillon illustrate the reasoning behind the new policy; and behind the investment tax credit: 1/

> The new guidelines and procedures for determining depreciation on machinery and equipment used by all American business constitute a fundamental reform in the tax treatment of depreciation that will provide a major stimulus to our continued economic growth.
>
> Our depreciation practices have not been realistic for a great many years. Based essentially on taxpayers' past replacement practices, they have inadequately reflected the fast-moving pace of economic and technological change.

In discussing the so-called "depreciation gap" due to ever increasing prices for replacement of assets, Secretary Dillon said:

> ...the fact is that our depreciation reform standing alone goes much of the way towards closing the so-called "depreciation gap." Coupled with the investment tax credit, now pending before the Senate Finance Committee, the reform will close the gap entirely...
>
> This is not, however, the only reason why enactment of the credit is essential. Depreciation reform, important as it is, will not put American business on a comparable footing with its foreign competitors so far as tax treatment of investment is concerned.

1/ Statement by Secretary of the Treasury Dillon, July 11, 1962, on the issuance of the new Depreciation Guidelines and Rules, Reproduced in the 1962 Annual Report of the Secretary of the Treasury on the State of the Finances, pp. 335-336.

The introduction of the investment tax credit, in 1962, was adopted for the reasons expressed above. The credit adopted then contained a basis adjustment; i.e. it reduced the basis for depreciation by the amount of investment credit taken. This meant that the value of the credit (ignoring the discount rate) was only half (with a 48 percent tax rate), or about 3.5 percent since the amount of the credit would have been taken as depreciation were it not for the credit.

The Revenue Act of 1964 removed the requirement that the basis for depreciation be adjusted to reflect the investment tax credit. The Senate report stated: 1/

> To remove the recordkeeping and accounting problems which have arisen in connection with the basis adjustment provisions and also to provide a greater stimulus with respect to the investment credit, the bill, both as passed by the House and as reported by your committee, repeals the basis adjustment.

Although the investment credit was originally viewed as a permanent part of the tax code, it then entered a period of suspension and restoration. In 1966 the President proposed that the credit (and certain accelerated depreciation on real property) be temporarily suspended. 2/ In a statement to the Ways and Means Committee, Secretary of the Treasury Fowler stated: 3/

> The proposal is basically an anti-inflationary measure designed to relieve the pressures, clearly observably in the money markets and capital goods sector, which are producing unusual strains, the highest interest rates in 40 years, and a perceptible trend toward a general condition of economic instability.

The credit was originally to be suspended from October 10, 1966 through December 31, 1967. However, in March of 1967 the President proposed the immediate restoration of the credit, which was subsequently approved effective March 10, 1967.

1/ U.S. Congress. Senate. Committee on Finance. Revenue Act of 1964. Report No. 830, 88th Congress, 2nd Session, January 28, 1974, p. 41.

2/ The act exempted $20,000 of property from the suspension of the credit; and a $50,000 exemption from the suspension of accelerated depreciation as long as the cost of the building did not exceed $50,000.

3/ U.S. Congress. House. Committee on Ways and Means. Hearings on President's proposal on suspension of the investment credit and application of accelerated depreciation, 89th Congress, 2nd Session, September 12, 1973, p. 10.

The Ways and Means Committee report stated in reference to the reinstatement of the credit and accelerated depreciation on real property: 1/

> The inflationary forces which the suspension of these provisions was designed to moderate have abated... The suspensions have played an important part in reducing the volume of new orders of capital goods to levels that can be sustained without inflationary strain on available capacity. The suspensions have also helped to ease pressures in the money markets and, in particular in the home mortgage market. Restoration of these provisions now will encourage a resumption of balanced, economic growth with high levels of employment and stable prices.

Although the credit was restored in 1967, it was repealed by the Tax Reform Act of 1969. The reason for repeal appeared to be the contribution of the credit to inflation: 2/

> After careful consideration of the sources of the current inflationary pressures, the Congress concluded that the stimulus to investment provided by the credit contributed directly to these pressures. In addition to its effect on inflationary pressures, it concluded that the 1969 level of investment could not be maintained for more than a short period of time, and that it was important for the long-run vitality of the economy to keep the level of investment on a steady growth path.

The choice to repeal rather than suspend the credit was apparently taken because the previous suspension became such a dramatic deterrent to investment as the end of the suspension period approached, and because of administrative complexities.

1/ U. S. Congress. House. Committee on Ways and Means. Report on H. R. 6950. 90th Congress, 1st Session, Report No. 131.

2/ U. S. Congress. General Explanation of the Tax Reform Act of 1969, H. R. 13270, 91st Congress, Prepared by the Staff of the Joint Committee on Internal Revenue Taxation, December 3, 1970, p. 188.

Broadly applicable depreciation policy had been unchanged until 1971 (except for the modification in the reserve ratio test in 1965). However, the Tax Reform Act of 1969 made significant revisions in certain areas of depreciation.

First, the act tightened depreciation policy with respect to real estate by limiting the available methods, tightening recapture rules and adding the minimum tax which applied to real estate depreciation and depreciation on certain leased property. These changes were generally in response to what was felt to be abuses in this area.

The Act also provided 5-year amortization for pollution control facilities, coal mine safety equipment, rehabilitation expenditures on low income housing and railroad rolling stock and fifty year amortization of railroad grading and tunnel bores. The Act also added the minimum tax.

The purpose of the five-year amortization provisions was to provide incentives for and in some cases to reduce the impact of the repeal of the investment tax credit and other provisions on these expenditures. The fifty-year amortization of railroad grading and tunnel bores was apparently added because of the uncertainty of the useful life of these items and the fact that such deductions might never be taken in absence of a special provision.

E. 1971-present: The Asset Depreciation Range and Reinstatement of the Credit

1971 saw yet another era in depreciation policy. Early in January the Treasury Department announced the introduction of a new depreciation policy. Proposed regulations were written and hearings were held, with the regulations adopted in June. The new system, the Asset Depreciation Range (ADR) system, made two major changes. First, it allowed taxpayers to vary class lives up to 20 percent (in effect, reducing lives by 20 percent). Secondly, it repealed the reserve ratio test.

The Treasury indicated two major considerations in providing the new policy:

(1) The ADR system was expected to greatly simplify the administration of depreciation and reduce the controversy between taxpayers and the IRS. The reserve ratio test was particularly felt to have a number of defects -it was complex, created numerous administrative problems and was a major source of taxpayer disputes. In addition, it reflected historical experiences of the taxpayer which the Treasury felt to be a questionable guide to future depreciation in an era of technological change. The taxpayer could fail the test

if he kept overage equipment on a stand-by or non-productive basis which encouraged premature retirement. The test was felt by the Treasury to be so complex as to be virtually unworkable and a heavy administrative burden on the taxpayers.

Secondly, the ADR system according to the Treasury was an attempt to recognize the obsolescence factors due to technological change, pollution requirements, foreign competition and the high rate of capital formation since 1962.

In addition to these reasons, the ADR was expected to have a beneficial economic impact by increasing economic growth and thereby reducing unemployment, stimulating investment in modern equipment and thus increasing productivity and dampening inflation, and improving the competitive position of American producers in the World market.

The ADR system was included with minor modifications in the Revenue Act of 1971. 1/ This act also restored the investment tax credit, as part of the President's new economic policy. The reasons again appeared to be primarily to stimulate economic growth.

Conclusion

F. The history of depreciation policy clearly reflects that a number of factors have influenced depreciation policy -- economic effects, equity, revenue needs administrative complexity, foreign competition and possible abuses. The various arguments in these areas will be considered in the next section. It should also be noted that the much higher tax rates in the later periods gave greater significance to these provisions as compared with earlier periods.

1/ The 1971 act also provided for five-year amortization of child-care and job training facilities, designed to encourage investment in these areas.

III. ISSUES IN THE TAX TREATMENT OF CAPITAL COST RECOVERY

A Overview

The basic issues in capital cost recovery may be examined in the framework of the criteria by which one evaluates a tax system. These generally accepted criteria of a "good" tax system may be summarized as (1) a tax system which is fair and equitable, (2) a tax system which is neutral in its impact on the economy (3) a tax system which contributes to, or at least does not hamper, goals of government policy, such as economic stability and growth, or international trade, and (4) a tax system which is administratively feasible. Obviously a tax provision which meets one criterion may be unable to meet another.

The issues in depreciation policy derive from these criteria. The history of depreciation and investment tax credit policy show a steady trend, at least in the post-World War II period, towards more liberal depreciation policy, allowing faster recovery at an accelerated rate. One view is that such allowances are too liberal in general and are a proper subject of tax reform. Another is that present policy should be retained and perhaps even be further liberalized. Others suggest that while current depreciation policy may be proper in general, certain aspects, particularly those which contribute to tax shelter operations, should be revised, since they may generate inequities and inefficiencies.

The major questions surrounding capital cost recovery policy may be summarized as follows: (1) What is the proper measure of depreciation, that will truly reflect income and what are the equity implications of a measure which does not? (2) Does the tax system contain a bias against savings and investment which justifies liberalized depreciation methods? (3) Does the existence of inflation affect the equity and neutrality of depreciation allowances in measuring income and justify more liberal methods of depreciation? (4) Are revisions in capital cost recovery methods an effective tool of fiscal policy? (5) Can liberalized capital recovery methods be justified as a means of encouraging long term growth? (6) Are liberalized methods justified because other countries provide such liberal methods and are they necessary for U.S. companies to compete in international trade?

In addition to these major questions there are some additional questions: (1) Are certain methods of depreciation justified to reduce administrative complexity? (2) Does the role of liberal depreciation policy in tax shelter operations, which may distort the allocation of resources, require some revision?

B. The Measurement of Depreciation: Fairness and Equity

A major issue in depreciation policy is the question of how accurately tax depreciation provisions actually reflect the decline in the value of the capital. This argument is not concerned with the investment tax credit as it is presently constituted since it is in addition to depreciation although the investment credit has some equity implications. The two questions involved here are (1) what sort of rate of decline properly reflects the decline in value and (2) what is the proper estimated useful life of the property?

Rates of Decline

The straight line method of depreciation was used in tax accounting until 1954 and is still generally used in financial accounts. When the accelerated methods were introduced the arguments accompanying them indicated in some cases that they were viewed as incentives and in some cases as a reflection of how the value of an asset actually declines. For example, the case of automobiles was cited which decrease much faster in the earlier years. It was also noted that repair and maintenance was likely to be greater in later years Technological improvements may occur and make a machine obsolete. An older machine may not be as likely to operate full time.

Critics charge that the reference to automobiles whose decline in value is highly influenced by yearly style changes is an inappropriate one. They suggest that in the cases of most assets there is no greater decline in the earlier years. The difficulty is that different types of assets are likely to decline at substantially different rates A machine made obsolete by new technology, and used in its later years on a part time basis may actually decline at a faster rate in earlier years. However, if a machine stays in full use and produces over its entire life then it is not declining at a faster rate.

In addition, it was argued by Brown 1/ that the straight line method itself has built into it an assumption that an asset's usefulness declines at a faster rate in the earlier years, unless the discount rate is 0. This is true because money in the present is more valuable than money in the future due to the discount rate (or interest rate). At a 10 percent rate of return, a dollar earned next year is worth only about 91 cents today (or in other words, 91 cents invested today will yield

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1/ E. Cary Brown, The new depreciation policy under the income tax: an economic analysis, National tax journal, Vol. VIII, March, 1955 pp. 81-98

a dollar in one year). A dollar deducted after one year is worth more than a dollar deducted five years later. Thus, under a straight line method of depreciation the earlier deductions are worth more than the later ones. A depreciation system which actually reflected equal contributions to earnings would have smaller dollar deductions in earlier years than in later ones. Thus, Brown suggests that simply asserting that an asset declines faster in its earlier years is not sufficient to suggest that the straight line method is too slow.

The primary difficulty in assessing rate of decline is simply that it would be almost impossible to demonstrate any general rule Many observers would suggest that accelerated methods constitute a subsidy. Faster methods are more advantageous to a taxpayer since a savings in tax now is worth more than a savings in the future (due to the interest rate). If the taxpayer is continually replacing his assets he enjoys a continuing tax reduction, and if he is increasing his assets he enjoys a growing tax reduction.

The Determination of Useful Life

The second major question is whether the allowable useful lives appropriately reflect the actual useful lives of assets. If a test such as the reserve ratio test exists, then it may be possible to measure useful lives allowed for tax purposes against actual practices However, since the reserve ratio test has never actually been in effect there is no way of determining how closely the 1962 guideline lives approximate true lives. There is some evidence however that they were substantially shorter. The Treasury Department 1/ surveyed audit depreciation practices prior to the proposal for the 1971 revision. One question asked revenue agents and engineers was whether most, some, or a few taxpayers were receiving more favorable depreciation benefits than they might otherwise be able to justify. 1,573 indicated most, 1,333 indicated some, and only 904 indicated a few. An industry comment generally supported this finding, 2/ stating in reference to the reserve ratio test:

> As the end of the grace period approached, the Treasury realized few companies would pass the test and set up a "Brownie points for improvement" system.

1/ Department of the Treasury, Asset depreciation range (ADR) system, June, 1971, p. 17.

2/ The great depreciation hoax. Industry week. May 10, 1971. pp 28.

Thus, it would follow that if the 1962 guidelines were shorter than actual practice, the 20 percent shorter lives allowed by the ADR system would clearly be substantially shorter. Shorter lives, like the accelerated methods are of benefit to a taxpayer because he can defer taxes.

Equity Implications

If asset lives are shorter than actual practice, if accelerated methods are faster than true economic decline, and if an investment credit is allowed, taxpayers who use these methods will benefit over other taxpayers who are unable to avail themselves fully of this liberal tax treatment. While the income impact of the reduction, that is, the incidence, 1/ is dependent on the extent to which corporate income taxes and income taxes on unincorporated businesses are shifted to consumers and workers rather than owners, certain types of businesses (and their consumers and workers) would likely benefit. The most obvious beneficiary is more capital intensive industry as opposed to more labor intensive industry.

Secondly, only those taxpayers who are able to use the accelerated methods will be benefitted. This category would include of course only firms which are making a profit and thus may be of little benefit initially to new and growing enterprises. In practice, it is also likely to mean larger firms will be benefitted relative to smaller ones. For a number of reasons smaller firms have been less likely to adopt accelerated methods, guideline lives and even the investment tax credit. For example, a survey showed that in 1959, 28.6 percent of assets of businesses with under $1 million in total assets were in accelerated accounts compared to 38.1 percent of assets of businesses with $1 to $25 million total assets and 54.6 percent of assets of businesses with $25 million or more total assets. 2/ A survey in 1963 of all manufacturers showed that 78 percent of companies with assets of $100 million or more were using the 1962 guideline lives compared to 69 percent of those with $10 million to $100 million and 47 percent of those with less than $10 million. 3/ A survey in 1971 of 626 businesses in Wisconsin, Illinois, Indiana, Michigan, and Minnesota, with 254 replies, showed that 39.4 percent of the firms with assets of under $1

1/ The question of incidence is discussed in the following section.

2/ Tax foundation, Depreciation allowances: Federal tax policy and some economic aspects, 1970, p. 22.

3/ The great depreciation hoax, op. cit., p 28.

million were using guideline lives compared to 58.7 percent with $1 million and over. 1/ The same survey showed that 61.0 percent of firms with assets of under $1 million were using the investment tax credit while 92.3 percent of those with $1 million and over were using the credit. Similar results were found if firms were divided by size of gross sales or number of employees.

A number of factors may explain the failure of smaller firms to take advantage of these provisions. The accounting expenses, particularly the costs of keeping two sets of books, may be too large in relation to the benefits. A smaller business may also be less sure about future investments and reluctant to use accelerated methods when they may have to pay more taxes later. There may be simply a lack of understanding and awareness of the advantages of the provisions. Two additional factors may be noted, however. First, smaller businesses may be less likely to be as capital intensive as larger ones and the expected benefits much smaller in any case. Also they may be more likely to be operating at a loss. Secondly, for very small businesses the existence of the first year allowance may counteract the failure to realize benefits under accelerated depreciation and the investment tax credit.

Thirdly, the use of tax lives shorter than real economic lives will provide a relatively greater benefit for taxpayers whose actual lives deviate most from tax lives. This category of beneficiaries may include firms who more carefully maintain their equipment and are able to keep it in service longer. However, it will also benefit relatively, less efficient firms who use obsolete equipment. In other words, the use of shorter lives may reduce the cost of capital, but may provide no direct incentive to modernize for firms who use outmoded equipment. On the other hand, firms who use obsolete equipment because they lack the cash flow to replace equipment may be better able to do so with more liberal depreciation allowances.

C. Tax Neutrality and Capital Consumption Allowances

The use of liberalized depreciation methods and the investment tax credit have been defended on the grounds that they restore neutrality to a tax system which is biased against capital. A neutral tax or neutral tax system would be defined as one which would affect the costs of all

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1/ Archie J. Bakay and Irving K. Christiansen, The role of accelerated depreciation and the investment credit in stimulating business growth, Akron Business and Economic Review, Vol. 4, Summer, 1973, p. 23.

goods, services and activities in the same manner. All taxes depart from this criterion in some manner--a tax on wages may affect work more than leisure, a tax on consumption affects consumption more than savings, etc. A non-neutral tax will have an allocational effect on resources, that is, it will divert resources from a non-taxed to a taxed area, relative to the situation without the tax.

There are a number of features of the income tax which may be said to result in a bias against capital formation. The first is that since all savings come out of income, both savings (i.e. including it in the tax base) and the return to savings are taxed. Thus, while all income is reduced by an income tax, initially, the income tax reduces the future flow of benefits from savings more than the benefits from consumption. In other words, the income tax reduces the net rate of return on after tax savings (which may be viewed as future consumption) but does not reduce the enjoyment of current after tax income on consumption. It is argued that consumption would become relatively more attractive than savings, and the relative level of savings would be less than in the absence of a tax. The actual impact, however, would be dependent on how elastic saving is to the rate of return.

The second reason is that the income tax is progressive, taking a larger share of a richer person's income than a poorer person's (the actual effect varies because there are so many modifications in the tax rate). Since the average rate of savings increases as one moves up the income scale, a progressive tax would be expected to produce a heavier burden on savings than a proportional one would.

The third reason is the existence of a separate corporate income tax. This means that at least some corporate income (dividends) are taxed twice. Capital gains taxes on corporate stock might also be viewed as taxes on corporate income. This double taxation means a heavy tax on corporate earnings.

The question of tax neutrality is very difficult to deal with. However, the tax neutrality argument as a basis for liberalizing capital cost recovery allowances can be examined from two standpoints. First, how non-neutral is our tax system? That is, to what degree is our tax system biased against capital? Secondly, is liberalized depreciation a proper response to an alleged bias against capital?

A tax is likely to have non-neutral effects on economic activities. The major ways in which an income tax is likely to affect capital investment are first that it may affect the average level of savings in the economy and thus the supply of capital. Second, by taxing the returns to capital it may affect the demand for capital.

A tax on income may first be expected to affect the allocation between work and leisure. However, there are two effects to be considered--the income effect and the substitution effect. A worker may be encouraged to work less since the return to work is less and leisure becomes relatively more attractive (the substitution effect) or to work harder to restore his original level of income (the income effect). For many workers the choice would not be so available since there are institutional constraints (he may have to work a 40-hour week). There may be other reasons for working hard (prestige). However, studies of work effort among those who have choice (self-employed, professionals, the wealthy) and who also tend to be subject to high rates of income taxes indicate that taxes have very little impact. 1/ This would suggest that taxes have little impact on the supply of labor.

Given a certain level of income, a decision will be made as to what portion to save and what portion to consume. Here the effect is the taxation of income from investment as opposed to no additional income taxes if income is used for consumption. Taxes would thus reduce the return to savings. Here also there may be both income and substitution effects. The tax reduces the rate of return to savings. The response may be to substitute consumption for savings (the substitution effect) or the response may be a greater degree of saving to yield the same after tax return (the income effect).

Studies of the elasticity of savings to the rate of interest have provided varying results. 2/ Empirically, the observation that savings tend to remain consistent through substantial changes in the interest rate have led many to believe that the savings rate is not particularly responsive to rate of return, or that the income and substitution effects balance. If savings are not responsive to the rate of return, then this feature of the tax system would not involve an anti-capital bias.

The second major feature of the tax system that has been charged to create a bias against capital is the progressive rates. Even if the relative rates of saving disposable income are not affected by the tax

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1/ See George Break, Income taxes and incentives to work, American Economic Review, September, 1957 and Thomas Henry Sanders, Effect of taxation on executives, Cambridge, Mass., Harvard University Press, 1951.

2/ See for example, Colin Wright, Saving and the rate of interest, In The taxation of income from capital, Arnold C. Harberger and Martin J. Bailey, Ed., Washington, The Brookings Institution, 1969, pp. 223-300.

structure, the aggregate rate of saving may be affected by a tax structure with progressive rates because higher income individuals have a relatively higher propensity to save.

Several points may be noted here. First, progression in the tax system may create a necessary "evil" as far as optimal allocation of resources is concerned if a tax system is to be equitable (assuming equity is defined as a tax system based on ability to pay). This same argument can be applied to the necessity of taxing both income saved and income from savings, since reducing this source of revenue might require a less progressive tax structure.

The second point which may be noted is that the income tax is not the only tax. The U.S. tax system--Federal, State and local--is composed of a variety of taxes. Many of these taxes are of a regressive nature (sales, social security). Most studies of the burden of taxation using commonly accepted assumptions of incidence, 1/ suggest that the overall tax burden in the United States is roughly proportional for the vast majority of families, 2/ even though at very high income levels effective rates are higher. Thus, the anti-capital bias of the U.S. tax system as a whole may not be that significant.

In addition, the savings of the government should also be considered since a portion of the taxes collected by government is saved. One

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1/ The incidence of a tax refers to the question of who actually bears the burden of the tax, i.e. whose income is actually reduced because of the tax. One of the most difficult questions of incidence is that of the corporate income tax, which may be reflected in higher prices, lower returns, lower wages, etc. Depending on which of these reflect the tax, the burden may be progressive or regressive. For example, to the extent that the tax is reflected in prices, the corporate income tax may be regressive: to the extent it is reflected in return to capital, it is progressive. Similar questions of incidence are involved with other taxes such as property taxes on businesses and landlords, the social security tax, etc.

2/ See the recent study by Joseph A. Pechman and Benjamin A. Okner, Who bears the tax burden? Washington, Brookings Institution, 1974. Also see Roger A. Herriot and Herman P. Miller, The taxes we pay, Conference board record, May, 1971, pp 31-40, and Tax burdens and benefits of government expenditures by income class, 1961 and 1965, Tax Foundation, 1966.

investigator 1/ suggested that a proportional tax reduces savings by 3 percent overall if a "bricks and mortar" definition of saving is used and increases savings by 5 percent if the definition of savings includes expenditures on human capital (education, health).

The third feature of the tax system is the imposition of a separate tax on corporate income. The central question again here is the incidence of the corporate tax. Several views of this question may be taken.

The initial case may be taken as that of either perfect competition or monopoly. A profits tax imposed on the corporate sector would lower the rates of return and capital would migrate to the non-taxed (non-corporate) sector. Rate of return would return to equilibrium with a lower rate of return on all capital. Assuming a constant rate of savings, the burden would fall on all capital.

The difficulties are that the assumptions here are not likely to be typical of American industry. The corporate sector has in fact grown substantially in the face of higher rates of corporate tax. While there are many factors at work here, this may suggest that there are substantial barriers to migration of capital from the corporate to the non-corporate sector. Certain industries may find it difficult to operate in non-corporate form. Or a firm could be enjoying very high profits, and reduced rates of after tax profit may be preferable to foregoing market power. In such a case, the corporate income tax may fall on corporate capital rather than all capital.

In addition, all corporations may not be operating to maximize profits. There may be a situation of administered pricing where a price is established by a price leader and profits are not maximized but rather a target profit rate is established. Or a firm may try to maximize sales or market share with a profits constraint. The testimony of businessmen themselves indicate that they may be setting prices while viewing the tax as a cost. Thus, there may be an immediate attempt to pass on a tax in the price of the output (or not to accept labor demands). In such a case the tax may be shifted in all or in part forward to prices and backward to labor. It can also be shifted backward, in part, on wholesalers (by retailers), manufacturers (by wholesalers), raw material suppliers (by manufacturers), etc. Depending on the elasticity of demand for corporate products, the tax then may not necessarily fall on capital.

1/ Lester C. Thurow, The impact of taxes on the American economy, New York, Praeger, 1971, p. 28.

There is considerable disagreement as to the incidence of the tax. Theory, while helpful in framing the questions cannot provide conclusive results. Historical examination of net rates of return, although they do indicate a relatively consistent net rate of return in the face of substantially different tax rates, cannot provide conclusive answers since there are numerous other factors which had an influence on rates of return. Econometric studies have produced differing conclusions. 1/

D. The Impact of Inflation

A case for liberalized depreciation has commonly been made on the grounds that a depreciation system based on original cost exaggerates income in an inflationary economy. If prices are rising then a depreciation deduction based on original cost will be insufficient to provide for replacement of the asset. The asset will generate greater income, which is taxed, because of rising prices, while depreciation deductions remain the same. Rapid depreciation deductions are said to counter this effect because earlier tax reductions provide an increase in the present value of the depreciation deduction. One analysis has shown that for an asset with a 10-year life with the cost of capital 12 percent, the use of double declining balance depreciation and the use of ADR will be sufficient to offset inflation of 7-1/2 percent, 2/ through increases in the present value of tax savings from depreciation. Suggestions have been made that depreciation allowances should be increased each year to reflect inflation.

There is no question that inflation produces distortions in the economy which may be aggravated by an income tax. But it seems difficult to make a case for increasing depreciation deductions in particular because of inflation. Owners of real assets are relatively protected from inflation because of the prices they can charge as compared

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1/ Summaries of the literature on the incidence of the corporate income tax may be found in Richard A. Musgrave and Peggy B. Musgrave, Public finance in theory and practice, Chapter 17, Incidence of the corporation income tax, New York, McGraw-Hill, 1973, pp. 396-411, and Joseph A. Pechman and Benjamin A. Okner, Who bears the tax burden? Washington, Brookings Institution, 1974, pp. 25-37.

2/ James L. Wittenbach, Using present value analysis to explain inflation offset provided by accelerated depreciation. Taxes, Vol. 51, October, 1973, pp. 610-613.

to owners of fixed financial assets. 1/ If one views an asset as producing a stream of net income over its life (gross income minus the wearing out of the machine) then income produced by a capital asset could actually benefit from inflation because prices are rising while the cost of the machine remains fixed.

This result can be illustrated through an arithmetical example. Consider a $100 machine with a useful life of 10 years depreciated under the straight line method and earning an after tax profit of 10 percent with a tax rate of 50 percent. In the first year after tax income would be $10 ($30 gross price of the product before depreciation and income taxes minus $10 equals $20, times 50 percent equals $10), for a 10 percent return. Assume that in the next year prices increase by 10 percent across the board. The new price will be $33, the after tax profit $11.50 ($33 gross price minus $10 equals $23 times 50 percent equals $11.50). Because of inflation, however, the $11.50 is now worth only $10.45 in year one dollars. Thus, the machine has earned in the second year a higher rate of return--10.45 percent In the second year, assuming another 10 percent inflation, after tax profit will be $13.15 which is $10.87 in year one dollars for a return of 10.87 percent.

From an accounting standpoint, at the end of 10 years there will not be enough in the capital account to finance a replacement for the machine. This argument is acceptable only if depreciation is viewed as being for the purpose of providing the funds to replace the machine. From an economic standpoint, however, the machine will have earned a higher rate of return than in a world of no inflation.

The preceding illustration was highly simplified. 2/ In practice, each manufacturer would have a mix of new and old machines and prices, assuming competition will reflect this cost mix. In addition, different manufacturers will have different average costs for capital equipment. If prices are competitive, the manufacturer of the older machine will realize a relatively larger profit while new producers will suffer. Depreciation allowances liberalized to reflect replacement value will benefit those producers with older machines who are already realizing greater profits, rather than new producers whose cost basis is higher. However, present liberalized methods and the investment tax credit

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1/ This view was discussed by William F. Hellmuth, Jr., Depreciation and changing price levels: fundamental economic issues, In Depreciation and taxes, Tax institute, Princeton. 1959. pp. 55-69.

2/ Inventory practice may, for example, have some effect.

will benefit new producers since the advantages are concentrated in the early years of useful life. But this result is simply because they benefit from purchasing of capital equipment, not to account for the impact of inflation on machine values, and they will benefit whether the producer is replacing assets, adding assets or is a new producer.

Of course, the impact of inflation is unlikely to fall evenly on all sectors. A case could be made for attempting a complete correction under the tax law for all inflation. Such an approach could be very difficult. For example, if corporations were to increase their depreciation deductions, then they should also increase their income due to gains from paying back debt in cheaper dollars. Even if a general approach could be devised, the actual reduction in taxes would be likely to encourage further inflation.

E. Liberalized Capital Cost Recovery as an Incentive: Economic Growth and Stability

Two major arguments for liberal capital cost recovery policy involve the use of such policy to encourage economic growth and its use as a counter-cyclical tool to provide stabilization. The growth argument says that government policy which reduces the cost of capital will encourage a greater level of investment in capital goods which will thereby lead to a greater level of output than in the absence of such policy. The fiscal policy argument suggests that tax provisions which affect the cost of capital can be used as a counter-cyclical stabilizing device. This use is most commonly associated with the investment tax credit. For example, by reducing capital costs in a time of recession, more investment will be encouraged thus increasing output and reducing unemployment. In times of inflation, discouraging investment through tax provisions will reduce the pressure on prices and interest rates, although some argue that investment incentives should be increased in some types of inflation to encourage greater productivity.

These goals of growth and stability appear to be inherently contradictory since the first implies a continuing incentive and the second a varying one. However, it is possible to have a continuing incentive such as liberalized depreciation and a varying one such as the investment tax credit. Both arguments, however, rest on the assumption that these devices will be effective in changing the level of investment. although timing is more important with the latter.

Some evidence exists on the impact of these provisions, including econometric studies and surveys of business behavior, which are discussed in the following pages.

Quantitative Analyses of Liberalized Capital Cost Recovery

Since the middle of the 1960's there have been a number of efforts to analyze the impact of the investment tax credit and accelerated depreciation through the use of models The following discussion summarizes the findings of a number of these studies and the criticisms which have been made of them.

One of the best known of these studies is the model developed by Hall and Jorgenson. 1/ They examined the impact of the 1954 and the 1962 depreciation revisions and the 1962 investment tax credit. Their model assumes that firms are maximizing profits and measures how much they would be expected to increase investment because of the decreased costs of capital. The model assumes that the elasticity of substitution between labor and capital is 1. 2/ Output was held constant.

Their findings showed that gross investment in the 1954-1963 period was increased (deriving from accelerated depreciation methods) for structures 11.4 percent in manufacturing and 9.8 percent for nonfarm nonmanufacturing. For equipment the increases were 7.1 percent and 6.8 percent prespectively. They found the 1962 depreciation revisions to be limited to equipment, increasing gross investment (for 1963) in manufacturing by 3.7 percent and in nonfarm nonmanufacturing by 3.7 percent. The most significant impact they found, however, was on equipment through the investment tax credit which for 1963 increased by 10.2 percent for manufacturing and 10.1 percent for nonfarm nonmanufacturing. From these results, they concluded that tax incentives have a substantial impact on investment.

In later studies, 3/ Hall and Jorgenson updated their estimates

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1/ Robert E. Hall and Dale W. Jorgenson, Tax policy and investment behavior, American economic review, June, 1967, Vol. LVIII, No. 3, pp. 391-414.

2/ The elasticity of substitution is a numerical measure of the relative degree of substitutability of labor and capital. The higher this measure, the greater would be the impact on investment in capital from any given provision which reduces the relative cost of capital.

3/ Robert E. Hall and Dale W. Jorgenson, Tax policy and investment behavior: reply and further results, American economic review, June, 1969, Vol. LIX, pp. 388-400 and Application of the theory of optimum capital accumulation, In Tax incentives and capital spending, Gary Fromm (Ed.), Washington, Brookings Institution, pp. 9-60.

to cover additional changes. They found the revised investment credit for 1964 (which did not reduce the basis) and the temporary suspension of the credit in 1966 to have a substantial impact on the level of investment. They also found the cut in the corporate tax rate in 1964 to have a slightly negative impact on the level of investment.

The Hall and Jorgenson approach has been criticized on several grounds. One criticism suggests that the elasticity of substitution between labor and capital is in fact substantially less than one. Criticisms along these lines were made by Coen 1/ and by Eisner 2/ who argued that these assumptions resulted in substantial overstatements of the impact of tax depreciation policy on investment. Eisner suggested that the impact was probably only about one-sixth as much as the Hall-Jorgenson estimates. Another criticism was that interest rates were held constant 3/ (interest rates may be expected to rise if there is a greater demand for capital). Hall and Jorgenson, 4/ in response, cited a substantial number of studies showing the elasticity of substitution between labor and capital to be around 1. However, there is by no means argument among economists on this question. 5/ The assumption of this elasticity will have substantial effects on the results. 6/

1/ Robert M. Coen, Tax policy and investment behavior: comment, American economic review, June, 1969, Vol. LIX, pp. 370-379.

2/ Robert Eisner, Tax policy and investment behavior: comment, ibid., pp. 379-388.

3/ Gerard M. Brannon, The effects of tax incentives for business investment: a survey of the economic evidence. In The economics of Federal subsidy programs, Joint Economic Committee, 92nd Congress, 2nd session, July 15, 1972, p. 251.

4/ Robert E. Hall and Dale W. Jorgenson, Tax policy and investment behavior: reply and further results, op. cit.

5/ For a brief discussion of studies on the question of the elasticity of substitution between labor and capital, indicating that findings varied from 0 to slightly more than 1, see Gerard M. Brannon, The effects of tax incentives for business investment: a survey of the economic evidence, op. cit. pp. 252-253.

6/ Robert Eisner pointed out that the findings of Coen showed that an estimate of $6.7 billion for 1954 to 1963 (1954 dollars) attributable to investment incentives would be reduced to under $2 billion if an elasticity of .2 was used. See Tax policy and investment behavior: further comment, American economic review, September, 1970, Vol. LX, No. 4, pp. 746-752.

Numerous other studies of the effects of tax incentives have been done, some confirming the Hall-Jorgenson results and some finding these tax incentives to be not very effective. While space does not allow a complete discussion of these studies, a few will be noted. Bischoff, 1/ using a model which assumed a constant but unspecified elasticity of substitution between capital and labor, found that the effects of these incentives were significant. However, his findings showed that while the stimulus due to the investment tax credit exceeded the revenue loss from the credit, the stimulus from accelerated depreciation was considerably less. Coen 2/ found that accelerated depreciation increased expenditures by $2 billion (1954 dollars) from 1954 to mid-1962, while revenue losses were $5.1 billion. For all incentives expenditures were increased by $2.8 billion from mid-1962 through the third quarter of 1966, while revenue losses were $8.6 billion. The incentives would thus not appear to be effective in relation to revenue foregone based on his analysis. Klein and Taubman 3/ looked at the effect of a temporary tax credit suspension using the Wharton School model (which allowed the inclusion of feedbacks from the national economy). They found that the suspension of the credit would have reduced investment by $2.3 billion in 1967, with about half the impact due to feedback effects, while a permanent reduction would have reduced investment by $1.6 billion (both 1958 dollars). A study by Aaron, Russek and Singer 4/ looked at the effects of the Tax Reform Act of 1969 (which reduced investment incentives) and the Revenue Act of 1971 (which increased incentives using the Federal Reserve Board-MIT model). While their findings were consistent with Hall and Jorgenson in the relative impacts, the magnitudes were considerably less. While Jorgenson 5/ using the DRI (Data Resources, Inc.) model forecast an

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1/ Charles W. Bischoff, The effect of alternative lag distributions, In Tax incentives and capital spending, op. cit., pp. 61-130.

2/ Robert M. Coen, The effect of cash flow on the speed of adjustment, Ibid., pp. 131-196.

3/ Lawrence W. Klein and Paul Taubman, Estimating effects within a complete econometric model, Ibid., pp. 197-242.

4/ Henry J. Aaron, Frank S. Russek, Jr. and Neil M. Singer, Tax changes and composition of fixed investment: an aggregative simulation, Review of economics and statistics, Vol. LIV, November, 1972, p. 343-356.

5/ Dale W. Jorgenson, Statement in Long term economic implications of current tax and spending proposals, Hearings, Subcommittee on Fiscal Policy, Joint Economic Committee, 92nd Congress, 1st session, May 24, 1974, pp. 176-192.

increase in equipment investment of $6-$7.5 billion in 1973 through 1975, Aaron, Russek and Singer forecast an increase of about $1-2 billion. They also found that the increased investment in one component comes at the expense of other components since they assumed that the supply of investible funds was inelastic with respect to the interest rate.

Taubman and Wales 1/ criticized earlier studies such as Hall and Jorgenson because they were concerned with a partial equilibrium 2/ model in a short run framework. While they conceded this analysis may be useful for measuring the effectiveness of these tax provisions for counter-cyclical purposes, they suggested that a general equilibrium analysis would be more appropriate if the provisions were used to encourage longer term growth. Using such a model, they found that the impacts of the tax provisions are substantially smaller than in a partial equilibrium analysis. They note that investment can only increase if the aggregate level of savings increases, either as a response to the interest rate or because of a redistribution of income to those who have a higher propensity to save. As noted earlier, there is some evidence that savings rates are not very responsive to rates of return. They also indicate that the gains from the increase in output due to increased investment after a new equilibrium has been reached is likely to accrue to capitalists rather than workers.

In an examination of the impact of the investment tax credit in the Revenue Act of 1971, Paul Taubman 3/ suggests that the investment tax credit had limited usefulness as a counter-cyclical device. He presented results from the Wharton Economic Forecasting Model which showed the annual impact of the credit on investment to be none in the first quarter, $.1 billion in the second and rising gradually to $1 billion in the eighth. Overall impact was $.2 billion in the first year and $.7 billion in the second year. The Data Resources Incorporated (DRI) model found investment to remain unchanged in the first three quarters, but rising to $5.7 billion in the last quarter. The first year effect

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1/ Paul Taubman and Terence J. Wales, Impact of investment subsidies in a neoclassical growth model, Review of economics and statistics, Vol. LI, No. 3, August, 1969, pp. 287-297.

2/ A partial equilibrium analysis examines a small sector of the economy. The general equilibrium analysis examines the entire economy.

3/ Paul Taubman, The investment tax credit, once more, Boston College industrial and commercial law review, Vol. 14, May, 1973, pp. 871-890.

was none, the second year $2.9 billion. GNP was expected to increase by $.4 billion in the first year and $1.3 billion in the second (Wharton) and by $.1 billion in the first and $.3 billion in the second (DRI). The Wharton model showed a .05 percentage point increase in the Consumer Price Index in both years and a .02 and .07 decline in the unemployment rate for the first two years. The DRI model showed no effect on the Consumer Price Index, no effect on unemployment in the first year and a .1 reduction in unemployment in the second.

Although the two models predicted quite different impacts on investment in the second year, they both show little stabilizing value in the first year and relatively minor impacts on unemployment and inflation in the second. These results, Taubman concludes, indicate that the credit was a failure as a stabilizing device. He also suggests that actual changes in investment observed since then support this conclusion.

The results of these studies show conflicting results but tend to suggest that the Hall-Jorgenson results may be high. The studies do raise some questions about the effectiveness of the tax provisions in stimulating investment.

Tax Incentives and Investment Decisions: Surveys of Businesses

The preceding section has looked at some economic analyses of the impact of tax liberalized capital cost recovery. These studies, among other things, assume that businessmen will make investment decisions in a certain way (i.e., that they wish to maximize profits, that they have knowledge to make rational decisions, and that they will respond to such incentives). Another approach to examine the impact is to ask businessmen themselves how these tax provisions affected them. This approach may be particularly useful in examining the usefulness of the incentive as a counter-cyclical device, since such a use requires a relatively rapid response.

A summary article 1/ reported the results of several industry surveys. McGraw-Hill's survey in the Spring of 1962 indicated that businesses as a whole would increase their 1962 expenditures by only 1 percent in response to the investment tax credit. Nine out of ten of the companies responding indicated that it would not have an effect. The National Industrial Conference Board survey of the 1000 largest manufacturing corporations, taken in March and April of 1962, suggested

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1/ John W. Cook, The investment credit: investment incentive and counter-cyclical tool, Taxes, March, 1967, pp. 227-233.

that the increase in 1963 expenditures would be small. In more than half the cases the difference was less than 1 percent. In a 1965 article Woodward and Panichi 1/ reported that out of 42 firms surveyed, only 4 indicated that the credit exerted a slight influence, 1 a moderate influence, and 31 no influence at all. The National Industrial Conference Board survey of the 1,000 largest manufacturing corporations indicated that there would be only moderate cutbacks from the suspension of the credit--1.3 percent in the first half of the year and 2.8 percent in the second half.

A survey by Castellano 2/ of 40 businesses in the Dayton, Ohio area found that out of the 27 responding only 4 indicated that they were strongly influenced by the tax credit, 8 that they were mildly influenced and 15 not at all. A survey by Bakay and Christiansen 3/ of 626 firms, with 254 replies, in the Wisconsin, Illinois, Indiana, Michigan and Minnesota areas showed that 150 firms reported no difference due to accelerated depreciation, 145 no difference due to the investment credit and 168 no difference due to the guideline lives. There was some influence reported by 63, 60 and 30 of the firms respectively, and no answer for 41, 49, and 56.

In May of 1972, Rinfret Boston Associates 4/ added questions about the effect of tax provisions to their regular survey of businesses (which had a 75 percent response rate and accounted for over 50 percent of private capital investment). Of the total, including public utilities, 75.2 percent reported no change in capital spending plans due to the investment tax credit and 90.1 percent reported no change due to ADR.

1/ F. O. Woodward and Vincent M. Panichi, Investment influences of the tax credit program, National tax journal, Vol. 18, September, 1965, pp. 272-276.

2/ Joseph F. Castellano, The effect of the investment tax credit: an emprical study, Akron business and economic review, Vol. 3, Winter, 1972, pp. 31-33.

3/ Archie J. Bakay and Irving K. Christiansen, The role of accelerated depreciation and the investment credit in stimulating business growth, Akron business and economic review, Vol. 4, Summer, 1973, pp. 22-25.

4/ Statement of Pierre A. Rinfret, General tax reform, Panel discussions before the Ways and Means Committee, Part 3 -- Tax treatment of capital recovery, 93rd Congress, 1st Session, February 7, 1974, p. 433.

Excluding public utilities, the results were 72.1 percent and 89.9 percent respectively.

The results of these surveys suggest that businessmen themselves are not directly influenced by tax incentives to a substantial degree in their decisionmaking about capital investment.

Qualitative Criticisms

These econometric analyses and surveys tend on the whole to suggest that the impact of tax provisions on investment may be limited. However, even if they do have a substantial impact, they can be criticized on other grounds. For example, Robert Eisner 1/ criticizes the use of tax provisions to encourage long term growth on both efficiency grounds and on normative grounds. He suggests that in the absence of such provisions consumers are making choices about whether they wish to consume in the present or consume in the future (i.e. invest). Investment stimulated in the present means less consumption. The question then is whether it is a proper role of the government to make these choices for consumers. The acceptance of a goal of induced growth may be a questionable proposition. He also criticizes the use of tax incentives to encourage growth on efficiency grounds. If one assumes that an additional machine will be acquired only if the discounted value of its future production to consumers is equal to its cost, then a subsidy may encourage capital expenditures which would not be freely accepted by consumers. Economic theory suggests that if a firm is maximizing profits it may invest in a marginal unit which will yield discounted income equal to cost. A subsidy to investment may encourage a firm to invest in a machine which yields discounted income less than cost (disregarding the income attributable to the additional deduction for accelerated depreciation).

The goal of stability, that is, of using capital cost recovery provisions for counter-cyclical purposes is a widely accepted role of government policy. If tax provisions can be used effectively in this manner, then they may be justified. The greatest difficulty here, aside from the question of impact, is whether such incentives can be properly timed. If a government response is to be made to a need for investment there are a number of delays encountered. First, the existence of the need must be recognized. The lag in economic data on which to base a decision is one of the most serious problems. Then, government must take legislative action, which could involve a substantial

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1/ Robert Eisner, Business investment preferences, George Washington law review, Vol. 42, No. 3, March, 1974, pp. 486-500.

amount of time while policy is debated. After enactment, firms must respond. Since many capital investments require a substantial lead time, the reaction of the firm must also take time. It is quite possible, that by the time the firms reacted and the impact of investment was felt, business conditions may have changed so much that it becomes an improper policy. A stabilizing move which has an impact at the wrong time may be worse than no action at all.

F. Tax Policy and International Trade

An important argument for liberalized capital cost recovery methods is that such provisions are necessary in order for American firms to compete abroad with firms in countries which have similar liberalized methods of depreciation. For example, a Treasury study 1/ reported in 1962 showed that U.S. depreciation policies were more restrictive than other major countries both before and after the 1962 revisions in depreciation and the imposition of the investment tax credit. A study by Rinfret Boston Associates 2/ showed the cost recovery provisions in the United States to be more restrictive than in the U.K., West Germany, Japan, Italy, Sweden and Belgium. However these studies did not take account of the corporate tax rates.

A study prepared by Treasury 3/ and presented in 1971 did take account of the rates by showing comparative costs of capital. Comparing the United States with several countries they showed capital costs without ADR and the investment tax credit were greater in the U.S. than in other major countries. With the investment tax credit and ADR U.S. capital costs were still higher than those in the U.K., Japan, Italy, West Germany, Sweden and Belgium, and lower than those in Canada, the Netherlands and France. Another difficulty with even a study which takes account of rates is that other countries may ignore other aspects of the country's tax policy which may have a bearing (indirect taxes, regional taxes, etc.). However, it should be noted

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1/ Tax Foundation, Depreciation allowances: Federal tax policy and some economic aspects, New York, 1970, pp. 44-52.

2/ Statement of Pierre Rinfret, General tax reform, panel discussions before the Committee on Ways and Means, Part 3, Tax treatment of capital recovery, 93rd Congress, 1st Session, February 7, 1973, pp. 427-460.

3/ Statement of Secretary of the Treasury John B. Connally, The Revenue Act of 1971, Hearings before the Committee on Finance, United States Senate, Part 1, 92nd Congress, 1st Session, p. 8.

that indirect taxes, such as the value added tax common in European countries, are rebated on exports.

The argument for liberalized depreciation to compete with other countries' methods may be criticized on several grounds. Eisner and others 1/ point out that the argument ignores the basic principle of comparative advantage in international trade. This principle shows that countries will export those goods in which they have a comparative advantage, i.e. which they can produce cheaply relative to other goods. 2/ Assuming flexible exchange rates, these rates would adjust to reflect changes in prices, as a nation cannot consistently export more than it imports. The only way in which a country can increase its exports is by increasing its total output and income. Thus an investment incentive would increase exports only by increasing productivity. However, a government subsidy to one industry might shift the comparative advantage. Thus a provision which reduces capital costs will benefit more capital intensive industries and encourage their exports at the expense of less capital intensive industry.

There may be a case for such provisions if flexible exchange rates do not exist, although again the comparative advantage may shift among industries. However, this argument does not suggest that we necessarily change our capital recovery provisions to match those of other countries. (No one has, for example, suggested that we adopt the income tax rates of other countries in order to compete). The question may be asked whether it is desirable to adopt provisions which will have an impact throughout our economy for the purpose of encouraging exports. It would seem that a more direct approach, if we do not support flexible exchange rates, is to provide subsidy directed specifically at exports such as the Domestic International Sales Corporation

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1/ See for example, Robert Eisner, Business investment preferences, George Washington law review, Vol. 42, March, 1974, pp. 497-498 and Paul Taubman, The investment tax credit, once more, Boston College industrial and commercial law review, Vol. 14, May, 1973 p. 878.

2/ Even if it costs a country more to produce everything relative to other countries, it will still trade those commodities that it can produce cheaply relative to other goods and import those which it produces less cheaply as it will have more goods if it trades. Similarly, a country which produces everything more cheaply than other countries, will trade those items which are relatively less expensive to produce, as it will also have more goods if it trades.

(DISC). 1/

G. Administrative Simplicity

The arguments for provisions based on administrative simplicity have generally been focused on the question of useful life, as illustrated in the history of depreciation policy. This history illustrates the problem encountered in the 1930's in allowing taxpayers to choose their own lives. With tax rates much higher now a taxpayer in his own self-interest would be expected to choose lives much shorter than actual lives.

The result is that regulations must generally prescribe some sort of guide to useful tax lives. Of course, the shorter the allowable tax lives are in relation to real lives the less the likelihood of taxpayer disputes regarding these lives. In addition, while it may be legally possible to allow shorter lives than the taxpayer's actual lives, it is of questionable legality to require longer lives since the result would be an overstatement of net income. Hence, the argument for shorter lives based on administrative considerations.

Administrative simplicity played a major role in the stated reasons for the Treasury's adoption of the ADR system and abandonment of the reserve ratio test. By choosing average industry tax lives which were probably already shorter than real lives and further allowing the lives to be shortened by 20 percent, along with discarding the reserve ratio test, it would be expected that the vast majority of taxpayers would adopt the guidelines without dispute.

The Treasury indicated two major sets of reasons for adopting ADR in 1971. One reason was the recognition of obsolescence which they felt suggested that depreciation allowances should not be tied to an individual taxpayer's circumstances. The other was stated as: 2/

> The necessity from the standpoint of administration of the internal revenue laws for a comprehensive and improved system for dealing with the allowance for depreciation and the integrally related problem

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1/ A DISC's profits are taxed to the shareholder rather than to the DISC itself up to at least 50 percent of earnings. Tax on the remaining 50 percent is deferred as long as reinvested in export activities of the DISC.

2/ Department of the Treasury. Asset depreciation range, June, 1971, p. 239.

> of repair and maintenance expenditures; the long history of controversy over Bulletin F; the fundamental defects of the reserve ratio test; the magnitude of the problem of extensive facts and circumstances disputes with a substantial number of taxpayers; the logic, practical importance and greater equity of relying on industry average lives; the need to move towards neutralizing depreciation as a competitive factor; and the necessity of providing a depreciation accounting system which would produce regular, systematic data for use in establishing industry lives and repair allowances--all these factors dictated the adoption of the ADR system.

The Treasury also noted that if the reserve ratio test were applied, taxpayers who failed it would be expected to assert that their lives were proper on a facts and circumstances basis. They estimated that if even 5 percent of taxpayers did this it would require audits of 150,000 returns. They indicated substantial manpower difficulties in dealing with this. 1/

Some critics have charged that the administrative simplicity argument was simply window dressing for a proposal to provide a subsidy for business. It should be noted that the Treasury does not have the authority to reduce taxes and changes in depreciable lives must be on grounds other than incentive ones. Even so, the Treasury discussion noted the expected stimulus to the economy. It might also be noted that there was substantial debate in 1971 over whether the Treasury had the authority to prescribe ADR and the issue was only resolved when Congress adopted the system as part of the Revenue Act of 1971.

Martin David took such a view of ADR. He noted: 2/

> The action was taken because it did not, in the eyes of the Administration, require legislative approval. Had legislation been required the Treasury need not have offered an elective package to the taxpayer. The administration chose the ADR as a means to short-run stabilization policy, not as an end to improving the administration of the tax law. Had fundamental improvements in tax administration formed the heart of this proposal; had the improvements been backed by solid documentation there would have been no reluctance to consider a plan that required legislation.
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> ...

1/ Ibid., p. 243.

2/ Martin David. Discussion. Tax depreciation reform, The journal of finance, Vol. XXVII, May, 1972, p. 538.

> The truth is that the Treasury conceived of simplification as a useful slogan to sell a program that was generated by strong political pressures from industry and the short-term demands of a sagging economy.

He also suggests that the expectation that litigation over the reserve ratio test would have been overwhelming, as suggested by Treasury, is unlikely since there are substantial costs to the taxpayer in proving depreciation under a "facts and circumstances" test. 1/

It is clear that a system such as ADR has superior administrative simplicity. So would allowing taxpayers to choose their own lives without challenge. The administrative simplicity argument must be put in perspective and the administrative costs compared with possible revenue losses from the proposal. However, if other factors support the adoption of ADR, such as economic incentives, the additional administrative superiority of the system must be considered. If ADR and some other incentive such as an increased investment credit seem equally attractive on other grounds, then a proposal such as ADR may be chosen on administrative grounds.

H. The Tax Shelter Problem

The question of tax shelters is a specialized issue in the question of depreciation policy. However, it cannot be denied that accelerated capital cost recovery methods and the expensing of certain items play a major role in the development of tax shelters in real estate, farming, oil and gas and equipment leasing.

Mechanism of the Tax Shelter

A real estate tax shelter may be taken as an example. Such a shelter would be characterized by a limited partnership as the investment vehicle, usually featuring a highly leveraged investment. The deductions generated are a means of sheltering other income from tax liability. For example, an individual with a high income might invest in an apartment complex, borrowing 90 percent of the funds. During the construction and early period he can deduct taxes, interest on the loan and depreciation before any income is received. These deductions reduce his other income which would have been subject to high rates. In the early years, the tax savings from this deduction may actually exceed his equity investment in the project. Thus, in the case of a limited partnership, he may enjoy a riskless investment.

1/ Ibid., p 540.

These provisions figure in tax shelters in other areas as well--the expensing of intangibles in oil and gas drilling, the expensing of farming expenditures in farm shelters and depreciation and investment credit in equipment leasing. The main benefits to the investor are that he may enjoy a relatively riskless investment, that he defers taxes on his regular income and thus enjoys the equivalent of an interest free loan and that there is some possibility of realizing gains reflecting accelerated depreciation when he sells the investment which will be taxed a lower capital gains rate while the depreciation deductions reduced income which would have been taxed at ordinary rates.

The issue of Tax Shelters

Tax shelters develop because certain provisions, such as accelerated depreciation which may have been put in the law because of fairness, simplicity or as incentives are coupled with the desire of high income individuals to shelter income. Depreciation itself is probably most important in the real estate tax shelter. One reason is that, although accelerated depreciation is limited for real estate, it is still quite likely to substantially exceed true decline in value. For example, Taubman and Rasche 1/ suggest that true depreciation in the case of real estate is only about one fourth the rate allowed in the tax law and that a reverse sum of years digits would more appropriately reflect true economic decline.

Tax shelters are likely to reallocate investment capital into particular areas such as real estate. It may be a desirable objective to divert resources, if for example, there is a need for investment in housing. However, to the extent that investments are made in projects whose primary attraction is the tax benefit rather than soundness as an investment, a cost is imposed on society, particularly if these funds are diverted from more productive uses. In addition, the government incurs substantial revenue losses.

Methods of Dealing with Tax Shelter Operations

Some critics of the use of tax shelters argue that the underlying provisions which lead to these shelters should be revised. For example, they suggest that real property be limited to straight line depreciation. Others, however, propose specific provisions aimed at these operations while retaining the provisions in general use.

1/ Paul Taubman and Robert Rasche, Subsidies, tax law and real estate investment, In U. S. Congress, Joint Economic Committee, The economics of Federal subsidy programs. Part 3, Tax subsidies, July 15, 1972, pp. 343-369.

There are provisions in current law which are aimed at these problems. These provisions include the recapture rules for treating capital gains as ordinary income and the minimum tax on preference income. Included in the preference income base are accelerated depreciation on real property in excess of straight line and amortization in excess of accelerated depreciation in general. These provisions have been charged to be ineffective in some instances. For example, the minimum tax has been charged to be of limited impact because of the low rate and high exemptions. However, it should also be noted that depreciation on real property is much more limited than that on machinery and equipment and that the investment credit is not allowed for structures.

One approach to strengthening the provisions is to revise the minimum tax by increasing the rate and reducing the deductions. The Treasury has proposed a Limitation on Artificial Accounting Losses (LAL). This proposal would disallow as a deduction that portion of loss in the investment which derived from accelerated deductions including accelerated depreciation in excess of straight line on real estate, taxes and interest during the construction period and certain other deductions relating to oil and gas, leased property and farming. Another proposal which has been made is to limit losses to the taxpayer's actual equity investment.

I. Revenue Losses

The provisions involving accelerated capital cost recovery result in substantial revenue losses. Table I sets out estimates of these revenue losses for a number of provisions.

One major item missing from the list of losses shown in Table I is that from accelerated depreciation on machinery and equipment and the existence of tax lives which may have been shorter than real lives before the ADR. In the conceptual analysis of the tax expenditure budget the Treasury stated: 1/

> Some items were excluded where there is no available indication of the precise magnitude of the implicit subsidy. This is the case, for example, with depreciation on machinery and equipment where the accelerated tax methods may provide an allowance beyond that appropriate to the measurement of net income but where it is

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1/ The tax expenditure budget: a conceptual analysis. 1968 Report of the Secretary of the Treasury, Washington, U.S. Gov't Print. Off., 1969, p. 322.

Table I

ESTIMATED REVENUE LOSS FOR CAPITAL COST RECOVERY TAX PROVISIONS 1/
(Millions of Dollars)
Calendar Year Unless Noted

	1967	1968	1969	1970	1971	1972	1973	Fiscal Year 1975
Investment credit	2,300	3,000	2,630	910	1,800	3,800	4,300	4,900
Corporations					1,495	3,050	3,500	4,100
Individuals					305	750	800	800
Depreciation on buildings (other than rental housing) in excess of straight line	500	550	550	500	480	500	530	600
Corporations					320	330	350	400
Individuals					160	170	180	200
Asset depreciation range					700	860 2/	1,250	1,500
Corporations					600	850	1,240	1,490
Individuals					100	10	10	10
Depreciation on rental housing in excess of straight line	250	250	275	255	500	600	600	600
Corporations					300	350	350	
Individuals					200	250	250	
Rail freight car amortization				105	45	80 2/,3/	40 3/	10 3/
Housing rehabilitation					25	40	50	65
Corporations					10	15	20	25
Individuals					15	25	30	40
Pollution control amortization			15	15	15	25	35	40
5-year amortization of child care facilities						5	5	5

Table I (Cont.)

	1967	1968	1969	1970	1971	1972	1973	Fiscal Year 1975
Expensing of exploration and development costs 4/	300	330	340	325	325	650 2/	750	860
Corporations					260	580	650	760
Individuals					65	70	100	100
Expensing of research and development costs	500	550	565	540	545	570	580	650

Source: Estimates for 1967-1972 are from U.S. Congress. House. Committee on Ways and Means, Estimates of Federal Tax Expenditures, Prepared by the staffs of the Treasury Department and Joint Committee on Internal Revenue Taxation, June 1, 1973. Estimates for 1973 and fiscal year 1975 are from Tax Analysts and Advocates, Tax Notes, April 15, 1974 and January 21, 1974 respectively.

1/ These estimates are those which have been commonly termed tax expenditures and thus which may be viewed as subsidies. A notable omission is accelerated depreciation on machinery and equipment, for which an estimate is extremely difficult. Also omitted are the items related to farming since they are lumped with capital gains. These estimates are each prepared separately (unless noted), and are thus not additive. Only first order effects are considered. Also omitted are some amortization provisions which involve minimal revenue losses.

2/ Changes in the 1972 figures as compared to 1971 which are due wholly or in part to revised data and/or new sources or data and/or improved estimating methods.

3/ This provision is being superseded by the investment tax credit.

4/ Estimates for years before 1972 consider the provision in conjunction with percentage depletion.

difficult to measure that difference because the true economic deterioration or obsolescence factor cannot be readily determined.

Robert Eisner has proposed a total rough estimate for all accelerated depreciation for 1973 at $11 billion. 1/

Conclusion

Translating these arguments for liberalized capital cost recovery methods into a guide for determining tax policy is difficult. Past experience, while not a sure guide to the future, does at least suggest that in the nineteen sixties tax lives were shorter than real lives. The 1971 changes made these lives shorter. Such a departure from the measurement of true economic decline is increased by accelerated methods of depreciation. The investment tax credit, of course, is clearly a departure from true measurement of capital recovery.

Thus, these measures can be viewed in large part as tax subsidies to business. It is then proper to examine the arguments for reduction in capital cost through tax policy. The arguments involving inflation and tax neutrality appear to provide a weak argument for liberalized depreciation and investment credits per se. Inflation and a possible anti-capital bias in our tax system are very real questions. These arguments seem to be weak not in the fact of their existence as distorting factors, but in the use of liberalized capital cost recovery as a solution. In the case of inflation, it would seem a more direct remedy to develop government stabilization policies which will help to control inflation, or, if inflation is to be institutionalized, reflect the existence of inflation throughout the tax law.

Similarly with the tax neutrality argument. If we wish to decrease a possible anti-capital bias in our tax system the more direct route would seem to be to reduce those aspects of our tax system which are alleged to be responsible for the bias--reduce the top tax rates, reduce the corporate income tax rates, etc. Policy may suggest, however, that we do none of these, that we are willing to accept this bias as a cost of a tax system which will weigh less heavily on the poor.

The same view may be taken of the argument involving international competition. If tax policy is to be used to encourage exports, a stronger argument may be developed for a provision which directly benefits exports than one which reallocates investment throughout our entire economy.

1/ Robert Eisner, Bonanzas for business investment, Challenge, November-December, 1973, p. 40.

Administrative simplicity, to the extent that it is an objective, is a good argument for the ADR system. This objective must, of course, be weighed against other costs, and may suggest the use of ADR as an alternative to provisions such as investment credit and the number of depreciation methods allowed which increase complexity.

This analysis suggests that the major reasons for liberalized capital cost recovery methods must be their use for the purpose of growth and stability, even though induced growth has itself been challenged as a goal on normative grounds. The difficulty is that the impact, efficiency, cost-effectiveness and distributive results of these provisions in attaining such goals have been brought into question and are largely unresolved.

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