7 THE TREASURY DEPRECIATION MODEL

Geraldine Gerardi, Hudson Milner, Leslie Whitaker,
and Roy Wyscarver

I. INTRODUCTION

Depreciation reform was a controversial issue during the tax reform debate with numerous depreciation systems proposed. The debate over depreciation concentrated primarily on the proper balance between lower statutory rates and greater depreciation allowances, and secondarily on improvements in the measurement of income through both more realistic measures of depreciation and adjustments for inflation. The principal model the Office of Tax Analysis used to evaluate the revenue consequences of depreciation proposals was the Treasury Depreciation Model.

For any proposed tax system the depreciation model calculates depreciation deductions based on investment estimates by type of asset within a set of industries. These estimates enable the model to operate between the micro level of the firm, where investment is difficult to forecast, and the macro level, where detail is inadequate to evaluate alternative tax proposals. The investment estimates are derived primarily from data on investment by industry and type of asset for 1970 through 1985 from the Bureau of Economic Analysis (BEA). The BEA data are modified for use in the depreciation model to exclude investment that is not eligible for depreciation, to extrapolate investment to 1992, to allocate investment to depreciation categories, and to allocate investment to the corporate and non-corporate sectors. The model currently considers 72 assets in 55 industries.

Although these investment estimates provide the basic data to the model, they must be supplemented by other data to calculate changes in deductions and tax revenues. For example, tax return data from the IRS Statistics of Income are used to estimate the amount of investment depreciated by each depreciation method and the amount of tentative depreciation and investment credit changes carried back or forward as a result of inadequate taxable income.

The authors would like to express their appreciation to Donna Harrell for preparation of the manuscript and tables.

To compute total changes in calendar year tax liabilities as a result of alternative depreciation proposals, the model calculates the change in depreciation claimed in the current year by adding to the tentative current change the carryforward deductions from prior years, subtracting the amounts not usable in the current year and adding the amounts carried back to prior years. Calendar year tax liabilities are then computed by multiplying the change in deductions for the year by each sector's effective tax rate (calculated from both statutory tax rates and simulations of the Treasury's corporate tax model) to determine the relationship between depreciation deductions and taxable income. The depreciation model also computes the investment tax credit (ITC) claimed for each year in the simulation period, including the interaction of depreciation deductions and ITC carrybacks and carryforwards.

The depreciation model was used to estimate the revenue effect of the changes in the ITC and depreciation provisions under the Tax Reform Act of 1986. The Act generally repealed the ITC for equipment, which under prior law generally was 10 percent of qualified investment. In addition to repealing the ITC, the Act reduced the amount of tax credits that could be carried over to future years. The Act changed the provisions governing depreciation allowances by replacing the six recovery period classes under prior law with eight classes–six for personal property and two for real estate. The Act also modified expensing provisions.

Based on the Administration's August 1986 investment forecast, the model shows that the changes in the ITC and depreciation would increase calendar year tax liabilities by approximately $256 billion through 1992. After certain "off model" adjustments, the estimates were approximately $260 billion over this calendar year period and about $231 billion over the fiscal year period ending with fiscal year 1992.

The results described in this paper illustrate one use of the depreciation model–estimating the revenue effect of a change in the tax law over a certain period of years. The model is also used to devise depreciation proposals with a targeted revenue cost, which may then be evaluated for their reduction in the cost of capital (see Chapter 5). Alternatively, a proposal that meets a given cost of capital objective can be evaluated for its revenue consequences. Finally, a joint goal for the cost of capital and revenue cost could be specified and depreciation proposals devised to achieve that goal.

The remainder of this paper is organized as follows. Section II describes the changes in the investment tax credit and depreciation provisions under the Tax Reform Act of 1986. Section III continues with a description of the data used by the depreciation modeling system; section IV addresses the actual model in some detail. Finally, section V presents the model's estimated revenue effects from simulating the tax reform changes in depreciation allowances and investment tax credits and discusses the results.

II. A DESCRIPTION OF ITC AND DEPRECIATION CHANGES

This section describes the changes in the investment credit and depreciation provisions under the Tax Reform Act of 1986 that were evaluated in part by the use of the depreciation model. Each change is discussed in the order it was evaluated by the model: (1) repeal of the ITC for equipment; (2) reduction of carryforwards of investment tax credits; (3) changes in expensing; and (4) changes in the depreciation provisions.

Prior to the Tax Reform Act a 10 percent ITC was generally allowed for investment in new equipment (and used equipment up to $125,000). Short-lived equipment in the 3 year Accelerated Cost Recovery System (ACRS) depreciation class was permitted a 6 percent credit. Assets that took more than one year to construct could receive credits on qualified progress expenditures (QPE's) made during the period of construction before the asset was completed and placed in service. After 1982 the basis against which depreciation allowances were permitted was adjusted down by one-half of the investment credit earned unless the credit percentage was reduced by two percentage points. Investment in buildings was not allowed an investment credit.

The Tax Reform Act of 1986 abolished the ITC after December 31, 1985, unless transition rules apply. Some property will continue to receive the investment credit for various periods through 1990 depending upon the asset depreciation range (ADR) life of the asset, provided it satisfies certain binding contract criteria or was specifically identified in the Act as transition property. The depreciable basis of assets that qualify for transition treatment are reduced by the full amount of the credit and continue to use pre-reform depreciation schedules.

Accompanying repeal of the investment credit is the elimination of basis adjustments to depreciable assets associated with investment credits and the reduction of carryforwards of investment credits. Under prior law, investment credits not usable in the current year because of inadequate tax liability were carried back 3 years and forward 15 years. Under the Tax Reform Act, tax credits carried forward from prior years and newly earned credits are allowed in full for 1986, but are reduced by 17.5 percent in 1987 and by 35 percent after 1987.

The Tax Reform Act also changed expensing provisions. Under prior law $5,000 of investment could be directly expensed (i.e., deducted in full) in 1986. This amount was scheduled to increase to $7,500 in 1988 and to $10,000 in 1990 and thereafter. The new law expands the amount eligible for expensing to $10,000 in 1987, subject to certain restrictions. The restrictions generally limit the amount expensed to taxable income derived from any trade or business. Thus, expensing deductions cannot be used to offset income from other sources. Also, the $10,000 deduction is reduced dollar for dollar as the amount of annual investment exceeds $200,000.

The Tax Reform Act also replaced the prior ACRS depreciation system with a new depreciation system. The prior ACRS system depreciated assets over 3, 5, 10, 15 and 19 years. Assets in 3, 5. 10 and 15 year classes were depreciated by a method similar to 150 percent declining balance (DB) with an switch to straight line to maximize depreciation allowances. Low-income housing and assets in the 19 year class were depreciated at 200 percent and 175 percent DB, respectively, with a switch to the straight-line method to maximize the present value of depreciation deductions.

The new depreciation system uses 200 percent DB for assets in the 3, 5, 7 and 10 year classes and 150 percent DB for assets in the 15 and 20 year classes with an optimum switch to straight line to maximize depreciation allowances. Real estate is depreciated using the straight-line method over 27.5 years for residential real estate and over 31.5 years for other real estate. The new system applies in 1987, but is optional for assets placed in service between July 31 and the end of 1986. The ADR midpoint life primarily determines the assignment of property to a class as follows:

New Life	For ADR Lives
3	4 or less
5	4.5 to 9.5
7	10 to 15.5
10	16 to 19.5
15	20 to 24.5
20	25 or more

However, certain equipment is treated differently. Autos and light trucks, research and experimentation property, and certain technological property are placed in the 5 year class. Other assets are assigned new ADR lives by statute. Assets without ADR midpoint lives are treated as 12 year ADR midpoint life assets. The Appendix contains a more detailed comparison of pre-reform and reform depreciation systems according to ADR midpoint life and asset type or industry where applicable.

The Tax Reform Act of 1986 provides an alternative depreciation system for property used predominantly outside the United States, for determining the proportion of property financed by tax-exempt bonds, and for computing earnings and profits and depreciation for minimum tax purposes. The alternative depreciation system uses the ADR midpoint life and is 40 years for structures and 27.5 years for low-income housing financed with tax-exempt bonds and the straight-line method (except for purposes of the minimum tax). The minimum tax allows the 150 percent declining balance method switching to the straight-line method for property other than real property, which continues to use the straight-line method.

Under prior law several alternative tax systems applied. The minimum tax

did not apply to depreciation on ACRS personal property. However, for real property straight-line depreciation was required for minimum tax purposes over the applicable ACRS life of 15, 18 or 19 years. Leased property was required to use the straight-line method over the somewhat longer tax lives of 5, 8, 15 and 22 years for personal property and 40 years for real property except low income housing which used 18 years. Property placed in service abroad was able to use the double declining balance depreciation method with an optimum switch to the straight-line method over the ADR midpoint life for equipment. Real property placed in service abroad was limited to 150 percent declining balance with a switch to straight line over 35 years. For computing earnings and profits the straight-line method applied to the longer tax lives of 5, 12, 25 and 35 years for equipment and 40 years for real property.

III. A DESCRIPTION OF THE DATA

This section discusses the data inputs for the depreciation model. The model processes: (a) investment data disaggregated by industry, asset type, and asset depreciation range (ADR) and (b) other data which supplements the investment data to enable calculation of revenue effects.

A. The Investment Data File

The investment data file is the basic data for the depreciation model. The Office of Tax Analysis (OTA) created this file from investment data supplied by Bureau of Economic Analysis (BEA). This process consisted of four steps: (a) adjusting the investment data to investment allowed tax depreciation, (b) extrapolating the data through 1992, (c) mapping the BEA industries and asset classes into OTA industries and asset classes, and (d) splitting the data file into a corporate and non-corporate sector. The subsections below provide background about the BEA data file and describe each step of the process used to create the investment data file. A detailed discussion of BEA's estimation procedure is contained in Gorman, et.al. (1985).

B. The BEA Data

The BEA investment estimates by industry were obtained from three major sources. The first data source, BEA's plant and equipment expenditure survey, provides annual data on investment in nonresidential capital by nonfarm industries. These data are classified on a company basis and provide a two-way split by type of asset: total equipment and total structures. The second source of information is on investment in structures and durable equipment by sector (mining, construction, manufacturing, etc.), which is collected by the Census Bureau. These data are available every five years. The third source of data is the capital flow tables prepared by BEA from input-output tables for

1963, 1967, and 1972, which provide distributions of investment by asset for each industry. In those instances where data were nonexistent, adjustments were made using interpolation and extrapolation procedures calibrated to established benchmarks.

The investment flows were derived for investment in new capital by type of asset for each industry and for transfers of used assets between private business and other types of owners. The flows for each industry for investment in new and used assets were distributed by legal form of organization.

The BEA data provides estimates of investment by industry and by type of asset for 1970 through 1985. For years following 1985, investment was calculated from detailed industry growth rates obtained from long-term forecasts by Data Resources, Inc. (DRI).

C. The Data Adjustment Process

In order to use the BEA data to compute tax depreciation, several adjustments were required. In order to concentrate on depreciation deductions of taxable firms, all tax-exempt co-operatives were removed (rural electric power, telephone and wholesale trade). Similarly, all investments of non-profit institutions were removed from the real estate industry. (BEA classified these investments in the real estate industry in order to maintain consistency with the National Income and Product Accounts, NIPA). Non-depreciable oil wells, gas wells, and mine shafts were removed from their corresponding industries. The assets of Federal Reserve Banks are also removed since they do not pay income tax.

A time series for used investment was created using basic scrap equations found in Winfrey (1935). Adjustments were made for replacement railroad tracks and major structural improvements. Special purpose agriculture structures, railroad tank cars, public utilities, coal fired burners, and other asset types were also adjusted to achieve benchmark targets.

These adjustments to the BEA data produced the basic data for the depreciation model.

D. Extrapolation

The BEA data file provides data for the years 1970 through 1985. Since the depreciation model must simulate proposals for 1981 through 1992, the years beyond 1985 were extrapolated in two steps: (a) investment was grown from 1986 through 1992 based on estimated growth rates for each industry from DRI, and (b) the data was subsequently scaled to conform with the Administration's forecast for gross private domestic investment in producers durable equipment, residential structures, and non-residential structures. This extrapolation procedure provides a consistent basic data set that covers the years for which revenue estimates are calculated.

E. Mapping

Mapping of industries and asset classifications is required because BEA industries and asset classifications are not the same as those used by OTA. Since BEA uses more detailed industries than OTA, the 61 BEA industries were mapped into 55 industry classifications used by OTA. ADR mapping also is necessary because not all of the investment attributed to each of BEA's 65 asset types corresponds to one and only one ADR classification. Consequently, the investment in certain asset types are allocated among several different ADR classes depending on the asset type and industry. Investment in other asset types are allocable to one and only one ADR class.

F. The Corporate/Individual Split

The investment data file was split into two separate data files, for the corporate and individual (non-corporate) sectors, so that revenue estimates could be calculated for each sector. The investment data file was split by computing the percentage of total investment by industry that is non-corporate and applying that percentage to the investment in each asset within the industry. This percentage is the weighted sum of the percentage of non-corporate investment in equipment and structures obtained from statistics of income data.

G. Other Data Inputs

Although the adjusted investment data file provides the basic information needed for the computation of tax depreciation, it is incomplete and must be supplemented by data from other sources. For example, it does not contain the amount of investment that received straight line depreciation or sum of the years digits, or the amount of depreciation deductions claimed for the current year or deductions carried forward to future years. The corporate tax model with published corporate statistics of income (SOI) data was used either to extract, or where necessary, generate the additional data in a form that could be used with the investment data. These data include:

- Percent of corporate and non-corporate investment qualifying for bonus depreciation by industry. These amounts are used to determine the amount of corporate and non-corporate investment that is expensed, respectively.
- Growth factors to inflate or deflate expensing and bonus depreciation. These data are used to estimate real growth in the number of businesses by industry and year.
- Depreciation deductions on structures "in place" as of 1981 estimated through 1992 for each industry. These amounts are added to new depreciation to yield total depreciation.

- Depreciation deductions on equipment "in place" as of 1981 estimated through 1992 for each industry. These amounts are added to new depreciation to yield total depreciation.
- Interpolation parameters (by percent change in depreciation) by industry for the a) effective tax rate; b) percentage of depreciation deductions in net operating losses (NOL); and c) ratio of tentative ITC to claimed ITC.
- Percentage of carryback and carryforward that apply to the ITC computations.
- Percentage of NOLs carried back and forward that apply to the depreciation computations.

These additional data complete the input data used in the current version of the depreciation model.

IV. A DESCRIPTION OF THE SIMULATION MODEL

This section summarizes the operation of the depreciation model program. The first subsection highlights the functional operation of the model. A subsection follows that provides a more detailed explanation of selected computations. The last subsection illustrates how the depreciation model is used with other modeling systems to expand the capabilities of those systems.

A. The Simulation Process

The data for each asset in each industry is processed for each year in the simulation for present law (Plan X) and proposed law (Plan Y). For each plan, the model computes by year an investment tax credit and depreciation deductions by proceeding through the following steps:

- The asset tax classification is determined.
- Transition rules are applied, if applicable.
- Expensing is computed and, if appropriate, the expensed amount is subtracted from the cost of property to obtain the adjusted basis.
- The allowable investment tax credit is computed and, if appropriate, the adjusted basis is modified again.
- Regular depreciation deductions are computed for investment that does not receive straight line.
- Straight-line depreciation deductions are computed for investment that is eligible for and chooses to use straight line.

The results are summed for each industry across all asset classifications to obtain total investment, total depreciation, and total "tentative" investment tax credit for the industry by year.

Next, the difference between present law and proposed law depreciation deductions and ITC and the corresponding difference in calendar year tax liabilities and fiscal year receipts are computed. (These computations are described in greater detail later in the subsection on credit computations.) The industry results are available for the corporate sector, non-corporate sector, and both sectors combined.

B. Explanations of Selected Computations

This section provides detailed explanations of the model's computations for expensing, qualified progress expenditures, tax liability, and tax credits.

1. Expensing

A firm can elect to deduct the cost of property up to some maximum in the year the property is placed into service in lieu of recovering the cost under the depreciation rules currently in effect. Only personal property is eligible for expensing. Because the investment data was collected by industry and expensing rules apply to the firm, a procedure was developed to estimate expensing on a industry basis for both the corporate and non-corporate sectors.

Corporate tax model simulations were performed to determine, by industry, the percentage of cumulative investment less than or equal to expensing limits in $5,000 increments up to $50,000. Similar simulations were also performed using the sole proprietorship file to obtain percentages for the non-corporate sector. These percentages, applied to the investment across an industry in a given sector for a specific expensing limit, yield an estimate of expensing. Based on the results of regressions, allowances were made to expensing for the growth in the number of business over time.

2. Qualified Progress Expenditures

Qualified progress expenditures (QPE) are calculated so that their associated ITC can be computed. By looking ahead in the time series, the amount of investment that will be put in place in the future is distributed backwards through time (the construction period) according to an industry-specific pattern. The industries that are affected by qualified progress expenditures rules are chemical and petroleum refining equipment, coal and non-nuclear power plants, and nuclear power plants.

Table 7.1 provides an example of this estimation method for QPEs for chemical and refining equipment. It is assumed that QPEs in the current year are 34 percent of total investment and that this amount was actually spent over the prior 4 years of the construction period. The pattern of this distribution assumes that 7 percent of the cost occurred one year ago, 20 percent two years ago, 48 percent three years ago, and 25 percent in the first year of the construction (four years ago). Once these computations have been completed, the qualified progress expenditures for each year of the simulation

Table 7.1 **Assumptions Underlying Qualified Progress Expenditures**

	Number of Years Past	Chemical Refining Equipment[a]	Coal and Non-Nuclear Power Plants[a]	Nuclear Power Plants[b]
Construction period		4.00	7.00	11.00
Total QPE as a percent of current year investment		34.00	30.28	30.28
	1	7.00	4.00	16.00
	2	20.00	14.00	14.00
	3	48.00	33.00	12.00
	4	25.00	34.00	12.00
	5		11.00	11.00
	6		3.00	11.00
	7		1.00	12.00
	8			6.00
	9			4.00
	10			1.00
	11			1.00

[a] CONCEPT-5, Oak Ridge National Laboratories, Phase VI Update (1983) Report for the Energy Economic Data Base Program, EEDB-VI, September, 1984.

[b] Based on Energy Information Form 254 and Federal Energy Regulatory Commission Form 1. The data are based on a specific 1120 megawatt pressurized-water reactor unit that is considered to be representative of nuclear units.

are summed so that the series will be available for the computation of the investment tax credit.

The same procedure is applied to the other eligible industries. Since the construction period for nuclear power plants is 11 years, the computations cover the period 1971 (1982, when QPE rules were enacted, minus 11 years) to 2006 (1995, the last year the model estimates, plus 11 years). In years where no actual investment data exists, data was generated by assuming that investment continues to grow at the same rate exhibited by the last two periods of actual data.

3. Tax Computations

For each industry the depreciation model computes the following changes for each year in the simulation:

- Tentative total depreciation,
- Tentative current year depreciation,
- Tentative deductions carried back,
- Tentative deductions carried forward,
- Claimed total depreciation,
- Claimed current year depreciation and deductions carried back,
- Claimed deductions carried forward,

- Outstanding carryforward (NOL).
- Calendar year tax liability, and
- Fiscal year receipts.

To compute these changes, summations are required for total depreciation deductions under present law (Plan X) and under proposed law (Plan Y). The tax calculator begins by computing the tentative change in depreciation as the difference between Plan Y and Plan X depreciation deductions. In-place depreciation for equipment and structures is added to present law depreciation to yield total present law depreciation.

Next, the model computes the percentage change in depreciation deductions with respect to total present law depreciation. Both the percentage change in depreciation deductions and industry classification are used to determine three exogenous tax parameters: (a) the effective corporate tax rate for depreciation deductions, (b) the percent of total depreciation deductions in NOLs, and (c) the ratio of claimed ITC to tentative ITC (used in the computation of tax credits). These tax parameters are used to calculate the change in current year depreciation deductions and to allocate the total depreciation change between current year deductions and additions to carryback and carryforward deductions. Tentative changes are computed in four steps.

First, the tentative change in current year taxable income is computed by multiplying the total change in depreciation deductions by one minus the percent of total depreciation deductions in NOLs. Second, the tentative change in carryback deductions is computed by multiplying the tentative change in NOLs by the percentage of NOLs carried back (obtained from data extracted from the corporate SOI). Third, the tentative change in carryforward deductions is a residual obtained by subtracting the tentative change in carryback deductions from the tentative change in NOLs.

The change in current year taxable income is computed as the sum of the tentative change due to current year depreciation deductions, the tentative change in carryback deductions, and the claimed change in carryforwards from prior years (accumulated during prior years of the simulation). For each year remaining in the simulation, the claimed change in carryforward deductions is computed by multiplying the tentative change in NOLs by the percentage of NOLs carried forward. These carryforwards are accumulated for each year remaining in the simulation so that claimed carryforwards will already be computed when the simulation reaches a future year.

Calendar year tax liabilities are computed by sector because effective tax rates differ by sector. The effective corporate tax rates are adjusted for the rate reductions enacted in the Tax Reform Act of 1986 by simple proportional adjustment. Thus, the corporate tax rate (derived from corporate tax model simulations) is multiplied by (0.40/0.46) for 1987 and by (0.34/0.46) for 1988 and the years that follow. The individual tax rates are computed as a base rate adjusted to reflect bracket creep that existed prior to indexing enacted under the Deficit Reduction Act. In addition, the individual tax

rates were adjusted further to capture the rate reductions enacted by the Economic Recovery Tax Act. Changes in tax liabilities are then computed by multiplying the change in deductions claimed by the effective tax rate for the appropriate sector.

4. Credit Computations

Following the tax computations, the depreciation model computes the ITC for each year in the simulation. The model computes the following changes:

- Tentative total ITC,
- Tentative current year ITC,
- Tentative ITC carried back,
- Tentative ITC carried forward,
- Claimed total ITC,
- Claimed current year and carryback ITC,
- Claimed ITC carried forward,
- Outstanding carryforward,
- Calendar year tax liability, and
- Fiscal year receipts.

The procedure for these calculations is similar to that for the tax computations for changes in depreciation. Consequently, it will not be discussed further here except to note two differences. First, the allocation of tentative total ITC to carryforward and carryback credits is more complicated than the same computation for depreciation deductions because the model must account for the fact that a change in gross tax will change ITC carried back or forward. In other words, if the ITC does not change between present and proposed law but depreciation deductions do change, then more or less ITC will be carried back or forward. Second, the tax liability computation is different because ITCs are applied directly against tax.

C. Relationship to Other Models

1. Corporate Model

The depreciation model is used to supply three categories of data to assist simulations made with the corporate model: (a) estimates that adjust depreciation deductions by industry on the corporate SOI file, (b) computations of preference amounts that are allocated to corporate returns for computing the alternative minimum tax, and (c) estimates that are used to construct an earnings and profit (E&P) net depreciation adjustment for 1990 and beyond.

For the regular tax, depreciation in the corporate tax model is recomputed by multiplying the base year depreciation by an adjustment ratio. This ratio is the target depreciation, as estimated by the depreciation model, divided by the total base year depreciation on the corporate data base.

For the alternative minimum tax under the Tax Reform Act (TRA), two simulations using the depreciation model are required to produce the appropriate estimates. The first simulation yields depreciation claimed under the TRA for assets put in place after the law becomes effective; the second simulation produces the minimum depreciation generated by these assets.

The adjustment for earnings and profit depreciation requires a series of depreciation model simulations to capture the nuances of the interactions of book income and taxable income within the depreciation system.

2. Supplemental Model

The results of the depreciation model are adjusted using a supplemental model to take into account changes in the tax treatment of research and development property. The adjustment provided by this model is described in detail in section V.B.

V. RESULTS OF SIMULATING THE EFFECTS OF TAX REFORM

This section discusses one use of the depreciation model: determining the revenue effects of changes in depreciation allowances and investment tax credits in the Tax Reform Act of 1986.

A. Simulation Results

The depreciation model evaluated reform proposals in the following order: repeal of the investment tax credit, reduction in existing investment credits, changes in expensing, and changes in depreciation. The order of consideration affects the revenue estimate for a particular provision. For example, the revenue estimate for changes in expensing is different if it is considered before rather than after depreciation provisions. The "stacking order" followed for the Tax Reform Act estimates was statutory tax rate reduction first, followed by investment credit repeal, reduction in existing credits, increase in expensing, and depreciation changes. Stacking order issues are discussed in Nester "Interpreting Revenue Estimates: Macro-Static Micro-Dynamic" in Chapter 1 of this volume. The effect of general rate reduction, which is considered before depreciation and investment credit provisions for revenue estimating purposes, is not discussed here. In addition, the effect of other provisions which were stacked later, such as the minimum tax, are not described here.

1. Summary

The revenue estimates produced by the depreciation model after adjustments are summarized in Table 7.2. The tax reform changes in the ITC and depreciation increase calender year tax liabilities by $260 billion through

Table 7.2 **Revenue Changes From The Capital Cost Recovery Provisions in The Tax Reform Act of 1986, 1986 – 1992***

	1986	1987	1988	1989	1990	1991	1992	1986-1992
				($ Millions)				
Individual	3,320	3,802	5,332	6,729	9,080	11,807	13,138	53,208
Corporate	10,533	15,069	22,408	29,452	36,880	46,254	46,358	206,954
Total	13,853	18,870	27,741	36,181	45,961	58,062	59,496	260,163

*These estimates may differ from other published estimates, because they are based on a different economic forecast and include only selected capital cost recovery provisions.

calendar 1992. Calendar year liabilities increase from $13.9 billion in 1986 to $59.5 billion in 1992 as transition provisions phase out, the economy grows, and a larger fraction of investment becomes eligible for the new depreciation schedules.

The change considered first, investment credit repeal, provides revenue increases roughly proportional to investment in equipment. The changes considered second and third, the reduction in existing credits and increases in expensing, have relatively small effects concentrated in the early years. Depreciation provisions, which were considered last, first reduce and then increase revenue after a few years as the revenue increase from the less rapid depreciation schedules for structures overtakes the revenue loss from the more rapid depreciation schedules for equipment.

Results of the depreciation model are adjusted to produce the final set of revenue estimates. These adjustments take into account current data for the 35 percent cutback of ITCs, the elective 15 year carryback for certain taxpayers, the treatment of R&D property, and recapture provisions for auto and truck leasing. These adjustments are necessary to produce a final set of revenue estimates for the tax reform proposals. Several adjustments made using the supplemental model are described in section B.

2. Investment Credit Repeal

The first change evaluated by the model is repeal of the investment tax credit. Tentative investment credits before reform are calculated according to the classification of the asset. Three-year property receives a 6 percent investment credit and longer lived personal property receives a 10 percent credit unless the property is expensed.

The translation of tentative credit changes to actual tax changes requires adjustments for the interaction of credits with depreciation and adjustments for restrictions on the use of credits and deductions. The computation of revenue changes associated with repeal of the investment credit is described in more detail below.

The baseline investment series for 3, 5, 10, and 15 year personal property eligible for the credit under prior law for calendar years 1986 through 1992 is shown on Table 7.3. Within each asset class the amount of investment is shown that is adjusted in basis for investment credits, is expensed, is allowed ACRS depreciation, and selects straight-line depreciation. Investment expenditures fall primarily in the 5 and 19 year classes. For 1986, $284 billion or 49 percent of investment was accounted for by 5 year equipment. Buildings, which received a 19 year depreciation period, accounted for $153 billion or 27 percent of total investment. Based on the estimates of investment shown on Table 7.3, the model calculates tentative depreciation deductions before repeal of the investment credit. These estimates for calendar years 1986 through 1992 are shown on Table 7.4.

Table 7.5 summarizes the computation of actual tax changes from repeal of the investment credit and shows the total change in calender year liabilities and fiscal year receipts. These totals include various interactions between credits, depreciation allowances and the other tax provisions shown on the table. After a presentation of total investment for reference in lines 1 to 3 of Table 7.5 and total tentative depreciation deductions in the base and revised cases in lines 4 and 5, respectively, the differences in tentative depreciation deductions from repeal of the ITC are presented in line 6. Tentative depreciation deductions increase by approximately $16 billion per year by 1992 from the elimination of the basis adjustment.

Based on simulations of the corporate tax model, the tentative depreciation allowance change is divided into three parts: the portion used in the current year, the portion carried back to one of the previous three tax years, and the portion carried forward to future years. Because some deductions not usable against current year tax liability (carrybacks) are assumed to reduce tax liability for a prior year, any permissible reduction in prior year tax liability from the carryback is a reduction in tax liability affecting Federal government revenue for the current year. These current and carryback deductions from lines 7 and 8 are totaled in line 11. The third portion of depreciation deductions, the position that cannot be used currently or carried back to a prior year due to inadequate tax liability, is carried forward to a future year, perhaps to be usable later as a carryforward (line 9).

Line 12 takes into account the stock of net operating loss carryforwards that some firms have from the past that are usable in the current year. Thus, the current year change shown in line 10 is the sum of current and carryback use of currently earned tentative depreciation deductions plus the amount of carryforwards from previous years used in the current year. The change in the stock of outstanding carryforwards of net operating losses maintained by the model is presented in line 13.

The "bottom line" effect on tax receipts of depreciation related changes induced by repeal of the investment credit is presented in line 14 by calendar year and in line 15 by fiscal year. The tax rate applicable to depreciation allowances is calculated by the model from the basic statutory rates of 40

Table 7.3 Total Investment by ACRS Depreciation Class Before TRA 86, 1986-1992

ACRS Class	1986	1987	1988	1989	1990	1991	1992
			($ Millions)				
3 Year Personal Property							
Basis Adjustment	1,319	1,460	1,638	1,928	2,156	2,341	2,546
Expensing	1,606	1,616	2,466	2,652	3,268	3,273	3,288
Regular	63,187	69,711	78,161	91,889	102,739	111,542	121,252
Straight Line	2,292	2,528	2,835	3,333	3,726	4,046	4,398
5 Year Personal Property							
Basis Adjustment	7,834	8,807	9,934	11,634	13,071	14,353	15,282
Expensing	6,039	6,187	9,461	10,144	12,596	12,843	13,129
Regular	260,463	292,510	329,779	387,067	436,020	480,215	529,839
Straight Line	9,447	10,609	11,961	14,039	15,814	17,417	19,217
10 Year Personal Property							
Basis Adjustment	296	328	366	412	451	489	207
Expensing	10	10	15	16	19	19	20
Regular	11,012	11,801	12,784	14,037	15,174	16,352	18,099
Straight Line	399	428	465	509	550	593	656
15 Year Personal Property							
Basis Adjustment	813	908	1,011	1,160	1,282	1,378	959
Expensing	12	12	19	20	24	24	25
Regular	27,426	30,033	33,240	38,090	42,068	45,238	49,617
Straight line	995	1,089	1,206	1,382	1,526	1,641	1,800
15 Year Real Property Except Low Income							
Basis Adjustment	95	0	0	0	0	0	0
Expensing	0	0	0	0	0	0	0
Regular	11,967	0	0	0	0	0	0
Straight Line	8,974	0	0	0	0	0	0
15 Year Real Property Low Income							
Basis Adjustment	0	0	0	0	0	0	0
Expensing	0	0	0	0	0	0	0
Regular	6,737	7,483	8,282	9,015	9,708	10,582	11,520
Straight Line	237	264	292	318	342	373	406
19 Year Real Property							
Basis Adjustment	0	0	0	0	0	0	0
Expensing	0	0	0	0	0	0	0
Regular	88,335	110,392	122,234	133,177	144,435	157,944	172,574
Straight Line	64,758	80,633	89,173	97,077	105,453	115,342	126,089
Total	574,254	636,809	715,320	817,898	910,419	996,004	1,090,932

Table 7.4 **Total Deductions by ACRS Depreciation Class Before TRA 86, 1986-1992**

ACRS Class	1986	1987	1988	1989	1990	1991	1992
			($ Millions)				
3 Year Personal Property	56,162	57,518	62,340	70,327	80,411	89,722	97,899
5 Year Personal Property	242,233	257,821	285,559	315,311	354,163	399,006	447,296
10 Year Personal Property	5,899	7,077	8,335	9,730	11,250	12,100	13,144
15 Year Personal Property	10,146	12,255	14,575	17,206	20,200	23,392	26,841
15 Year Real Property Except Low Income	37,566	35,259	32,505	30,301	28,679	27,084	25,721
15 Year Real Property Low Income	2,669	3,222	3,793	4,402	5,033	5,699	6,416
19 Year Real Property	15,614	27,554	40,859	54,700	68,996	83,878	99,617
Total	370,290	400,706	447,966	501,977	568,732	640,881	716,933

percent in 1987 and 34 percent thereafter with adjustments to these statutory tax rates calculated within the model based on the results of simulations of the corporate model. Fiscal year receipts are calculated from the calendar year figures from a rule of thumb division of calendar year liabilities between fiscal years. All amounts are calculated for the corporate and non-corporate sectors separately and aggregated to the totals presented. A similar set of calculations is then performed by the model for investment credit changes, shown starting on line 16. The difference between baseline and tax reform tentative investment credits in lines 16 and 17 is presented in line 18 as the tentative change. The portions of the tentative change used in the current year or carried back to one of the previous three years shown in lines 19 and 20 are summed in line 23. The portion of the outstanding investment credit carried forward from previous years shown in line 24 is added to determine the actual change in line 22. The stock of outstanding carryforward is adjusted for the difference between past carryforward used or lost and current year additions to the carryforward in line 25. Changes in fiscal year receipts in line 27 are calculated from calendar year receipts in line 26.

The total change in line 28 is the sum of depreciation induced changes in tax liability in line 14 and investment credit changes in tax liability in line 26. Similar sums are calculated for fiscal year receipts in lines 15, 27, and 29. The total tentative revenue change in investment credits through 1992 of $337 billion becomes a $230 billion dollar change after carryforwards, carrybacks and associated depreciation adjustments. These are the amounts associated with repeal of the investment credit before the reduction in investment credits that will be discussed next.

3. Reduction in Investment Credits

The second set of tax reform changes evaluated by the depreciation model is the reduction in investment credits allowed. Investment credits allowed under

Table 7.5 Summary of the Effects of the Proposal to Repeal the Investment Tax Credit of TRA 86, 1986-1992*

	1986	1987	1988	1989	1990	1991	1992
			($ Millions)				
Investment							
1 Total	574,254	636,809	715,320	817,898	910,419	996,004	1,090,932
2 New	494,894	551,343	618,800	707,067	783,012	849,835	924,278
3 Used	79,360	85,466	96,520	110,831	127,407	146,170	166,653
Depreciation							
4 Tentative Plan X (ACRS)	370,290	400,706	447,966	501,977	568,733	640,881	716,933
5 Tentative Plan Y (Repeal)	371,940	404,797	454,406	510,939	580,531	654,835	732,674
6 Tentative Change	1,650	4,091	6,440	8,962	11,799	13,954	15,742
7 Current Year	966	2,466	3,974	5,624	7,473	8,939	10,144
8 Carryback	185	439	666	9012	1,168	1,354	1,511
9 Carryforward	499	1,186	1,800	2,437	3,158	3,661	4,086
10 Actual Change	1,151	2,939	4,756	6,763	9,047	10,915	12,528
11 Current Year + Carryback	1,151	2,905	4,640	6,525	8,641	10,293	11,655
12 Carryforward Used	0	34	115	239	406	622	873
13 Outstanding Carryforward (NOL)	499	1,651	3,336	5,534	8,286	11,325	14,538
14 Calender Year Tax Liability	-408	-957	-1,352	-1,872	-2,514	-3,046	-3,506
15 Fiscal Year Receipts	-218	-699	-1,168	-1,643	-2,222	-2,806	-3,297
Investment Tax Credit							
16 Tentative ITC Plan	36,124	40,405	45,353	52,635	58,873	64,508	63,368
17 Tentative ITC Plan	12,110	6,057	3,608	1,322	1,119	0	0
18 Tentative Change	-24,013	-34,348	-41,746	-51,313	-57,754	-64,508	-63,368
19 Current Year	-15,155	-21,824	-26,791	-33,219	-37,486	-42,222	-41,110
20 Carryback	-443	-626	-748	-905	-1,013	-1,114	-1,113
21 Carryforward	-8,415	-11,898	-14,207	-17,189	-19,255	-21,171	-21,145
22 Actual Change	-15,598	-24,665	-32,530	-41,201	-47,874	-54,578	-55,034
23 Current Year + Carryback	-15,598	-22,450	-27,539	-34,124	-38,499	-43,336	-42,223
24 Carryforward Used	0	-2,215	-4,991	-7,077	-9,374	-11,242	-12,811
25 Outstanding Carryforward (ITC)	-8,415	-18,098	-27,314	-37,426	-47,306	-57,235	-65,569
26 Calender Year Tax Liability	14,540	23,021	29,671	36,734	42,694	48,766	48,641
27 Fiscal Year Receipts	7,937	19,194	26,796	3,747	40,055	46,110	48,484
Total Change							
28 Calender Year Tax Liability	14,132	22,064	28,319	34,862	40,181	45,720	45,135
29 Fiscal Year Receipts	0	26,213	25,628	32,103	37,833	43,304	45,187

*These estimates may differ from other published estimates because they are based on a different economic forecast.

transition rules or carried forward from previous years could be used in full in 1986, but were scaled back 17.5 percent for 1987 and 35 percent for 1988 and thereafter. Marginal revenue changes from this provision are calculated by taking the difference between depreciation model runs that add the investment credit cutback provision to the investment credit repeal provision discussed above and the depreciation model run for investment credit repeal alone. This difference is concentrated in calendar years 1987 through 1990 when unused credits are their maximum and some investment credits are being earned on transition property.

4. Increase in Expensing

The Tax Reform Act of 1986 increases expensing of personal property to $10,000 in 1987; under pre-reform law the increase phases in over a 4 year period. The Act also limits the amount eligible to be expensed to taxable income derived form the active trade or business in which the property is used and phases out the ceiling dollar for dollar on taxpayer investment in excess of $200,000. The revenue cost of this provision totals about $5 billion as shown in Table 7.6, concentrated in the early years when current law allows expensing of only $5,000 or $7,500.

Because limitations on expensing take place at the firm rather than industry level, adjustments to the depreciation model for these changes are based on simulations of the corporate tax model to obtain "rules of thumb" cutbacks to apply to expensing.

5. Depreciation Changes

As described in Section II, TRA completely changed the tax treatment of depreciable assets. The ADR system classified assets by their average useful

Table 7.6 **Revenue Estimates for Expensing Provision Changes in TRA86***

	1987	1988	1989	1990	1991	1992	1986-1992
Calendar Year Liability							
Individual	-1,161	-586	-393	-123	5	-48	-2,306
Corporate	-1,386	-641	-487	-148	7	-62	-2,717
Total	-2,547	-1,227	-880	-270	12	-110	-5,023
Fiscal Year Receipts							
Individual	-436	-946	-514	-292	-75	-15	-2,276
Corporate	-831	-939	-549	-283	-55	-35	-2,692
Total	-1,267	-1,885	-1,062	-575	-130	-49	-4,968

*These estimates may differ from other published estimates because they are based on a different economic forecast.

life in the hands of the purchaser. Most equipment was classified as 5-year ACRS property under pre-reform law. The Tax Reform Act moves this property primarily into the 5 and 7 year double declining balance classes. Thus, most personal property obtains approximately equal or more rapid depreciation from the tax change because 5-year ACRS depreciation is approximately equivalent to 150 percent declining balance (all with an optimum switch to the straight-line method). The depreciation lives of structures are lengthened from 19 to 27.5 or 31.5 years and their depreciation is reduced from the 175 percent declining balance method to straight line.

The amount of investment in each of the eight new classes is given in Table 7.7 for calendar years 1986 through 1992 using the Administration's August 1986 forecast. The distribution of investment by the new depreciation categories is most clearly seen in 1991 and 1992 when transition treatments have ended. (Transition property is shown as an aggregate rather than by class at the bottom of Table 7.7.) The largest class is 5 year property. The next two largest classes are the real property classes for residential and nonresidential building followed by the 7 year personal property class as the fourth largest investment category.

Total deductions for each class by calendar year are presented in Table 7.8. These deductions when adjusted and converted to tax changes are compared with pre-reform law to obtain the summary of differences in Table 7.9 for the depreciation changes alone.

Table 7.9 shows the effect of two factors on revenue changes associated with depreciation provisions in the Tax Reform Act. First, the more rapid depreciation method for most equipment combined with the large amount of investment in the 5 year class produce a revenue loss for 1987 and 1988 as well as for 1986 (when the new schedules were optional for the last five

Table 7.7 **Total Investment by TRA 86 Depreciation Class, 1986-1992**

Depreciation Class	1986	1987	1988	1989	1990	1991	1992
			($ Millions)				
Class 1 (3 year)	40,355	13,663	15,389	17,933	20,042	21,609	23,368
Class 2 (5 year)	207,128	240,314	288,544	353,903	398,487	436,010	477,113
Class 3 (7 year)	2,317	86,299	110,717	141,709	160,903	177,601	196,606
Class 4 (10 year)	11,580	5,168	6,563	8,209	9,023	9,829	10,769
Class 5 (15 year)	56,351	22,521	29,780	37,020	44,196	65,340	70,989
Class 6 (20 year)	4,924	860	1,020	1,155	1,273	1,376	1,486
Class 7 (27.5 year)	45,110	67,252	75,920	82,793	89,301	97,494	106,293
Class 8 (31.5 year)	0	98,307	124,744	147,032	168,550	186,746	204,306
Transition	206,490	102,425	62,642	28,143	18,645	0	0
Total	574,254	636,809	715,320	817,898	910,419	996,004	1,090,932

Table 7.8 Total Depreciation Deductions by TRA 86 Depreciation Class, 1986-1992

Depreciation Class	1986	1987	1988	1989	1990	1991	1992
			($ Millions)				
Class 1 (3 year)	49,630	34,429	20,619	14,776	17,369	19,225	20,917
Class 2 (5 year)	234,107	257,076	281,379	293,319	298,512	325,573	370,567
Class 3 (7 year)	5,174	21,191	44,778	69,757	94,397	116,204	138,841
Class 4 (10 year)	9,306	9,577	9,882	10,479	11,325	12,150	13,082
Class 5 (15 year)	39,319	39,682	39,176	39,698	41,223	43,867	47,620
Class 6 (20 year)	2,541	2,529	2,249	2,020	1,875	1,777	1,731
Class 7 (27.5 year)	11,545	13,672	15,362	17,379	19,663	22,215	25,162
Class 8 (31.5 year)	0	1,560	5,083	9,341	14,246	19,717	25,676
Prior Year & Transition	21,280	41,679	49,327	50,004	50,695	31,581	20,733
Total	372,902	421,396	467,854	506,773	549,303	592,308	664,328

Table 7.9 Revenue Estimates for Depreciation Schedule Changes in TRA 86, 1986-1992*

	1986	1987	1988	1989	1990	1991	1992
			($ Millions)				
Calendar Year Liability							
Individual	-84	-335	-362	573	1,830	3,463	3,908
Corporate	-312	-1,356	-2,126	-77	3,448	8,672	9,879
Total	-396	-1,692	-2,487	497	5,278	12,135	13,787
Fiscal Year Receipts							
Individual	0	-210	-345	-11	1,045	2,443	3,630
Corporate	0	-1,126	-1,818	-896	2,038	6,583	9,396
Total	0	-1,336	-2,163	-907	3,083	9,025	13,026

*These estimates may differ from other published estimates because they are based on a different economic forecast and include only selected capital cost recovery provisions.

months). These revenue losses total about $4.6 billion for the three calendar year period. These effects dissipate with time as smaller depreciation deductions in later years offset faster deductions in earlier years. Second, the large investment category of structures that receive smaller annual depreciation allowances under the Act increase revenue enough over a few years to dominate the revenue reductions on equipment. The revenue loss becomes a half billion dollar gain in 1989 which increases to over $5 billion in 1990. The total estimated revenue gain from the depreciation provisions exceeds $20 billion over the seven year period.

The combined effect of all depreciation and investment credit changes calculated by the depreciation model is presented in Table 7.10 The dominant effect of the repeal of the investment credit insures a revenue gain in all years despite early period losses from increased expensing and depreciation allowances for many assets. These estimated revenue increases total about $231 billion using the post reform statutory tax rates. The Tax Reform Act lowered statutory tax rates which offsets much of this revenue increase.

B. Adjustments to Depreciation Model Results

Four adjustments to the results from the depreciation model produce the final set of revenue estimates. The first adjustment concerns the 35 percent cutback of investment credit carryforwards which are phased in over a two-year period. To estimate the effects of the reduction, more recent historical data than are contained in the depreciation model were used to determine the amount of unused investment credits available for carryforward at the end of 1985. Separate more refined estimates, including results from the Treasury corporate tax model, were used to determine the pattern of carryover usage, and the extent to which the reduction would restrict credit usage.

Adjustments were also made to the results for the elective 15-year carryback for certain taxpayers, in particular, certain steel companies and qualified farmers. The corporate and individual tax models and an analysis of specific tax returns were used to determine the amount of ITC's affected by the provision, and the extent to which individuals and corporations would be able to utilize the carryback option.

The third adjustment accounts for the tax treatment of equipment used for research and development (R&D) purposes. Under pre-reform law R&D equipment investments were depreciated as three year property. Under tax reform these investments are treated as five year property. Because the depreciation model does not separately identify investment for R&D purposes, it cannot provide estimates that adequately reflect changes in tax depreciation rules that apply to this use of investment. A supplemental model was employed to obtain an estimate of the change in revenue from the altered treatment of R&D.

Table 7.10 **Summary of the Revenue Changes Associated with Capital Cost Recovery Provisions of TRA 86, 1986-1992***

	1986	1987	1988	1989	1990	1991	1992
	($ Millions)						
Calender Year Tax liability	13,853	18,870	27,741	36,181	45,961	58,062	59,496
Fiscal Year Receipts	0	23,997	23,886	30,617	41,490	52,592	58,615

*These estimates may differ from other published estimates because they are based on a different economic forecast and include only selected capital cost recovery provisions.

which is added to the results of the depreciation model. A forecast of investment in R&D property is depreciated according to both pre-reform and reform rules. A marginal tax rate is applied to the difference in annual depreciation deductions and the resulting tax change added to the model results for depreciation-related revenue changes. These adjustments add approximately $4 to $5 billion to revenue through 1992.

This adjustment is an approximation because information on the distribution of tax lives of R&D property is not available. Under pre-reform law almost all R&D equipment would be classified as 5 year ACRS property in the depreciation model. Under post-reform tax rules most R&D investment would be classified as 5 year property (computers and high technology instruments) and a smaller portion would be classified as 7 year (or longer lived) property. On average it is assumed that because of the faster depreciation method under reform (200 percent declining balance versus 150 percent) tax depreciation would not be substantially slower (or faster) under reform than before in the absence of special treatment of R&D property. Thus, no net revenue increase would be shown in the depreciation model from the change in tax treatment of R&D property. The supplemental model calculation then approximately adjusts revenue for the change in R&D equipment depreciation rules. If all R&D property under the new rules is 5-year property the adjustment understates the additional revenue from longer tax lives on R&D equipment.

The fourth adjustment is for auto and truck leasing. Although the depreciation model makes some provision for the retirement of assets or sales to nonbusiness sectors, it does not adjust depreciation allowances for recapture of excess depreciation when an asset is sold on the difference between the sale price of assets and the depreciable basis. Recapture increases revenue when depreciation schedules overstate depreciation and reduces revenue when depreciation is understated. In effect, recapture adjusts depreciation allowances to the correct total amount (neglecting inflation) when the asset is sold.

The Tax Reform Act changes the depreciation schedule for autos and light trucks from 3 years, which would generally overstate depreciation, to 5 years. The depreciation method also is changed from approximately 150 percent declining balance to 200 percent declining balance (with an optimal switch to straight line). For automobile and truck leasing, where the holding period is short in many cases and assets are often systematically resold, an adjustment is made to the depreciation model results for recapture. The series for investment in autos and trucks are divided into a leased fraction subject to depreciation recapture. Proportions of auto and truck investments are assumed to be sold each year at a price determined by a depreciation rate, assumed to be 33 percent for autos (Hulten and Wycoff (1981)), and an inflation rate, assumed to be 3 percent over the forecast period. The value of depreciation deductions is calculated twice both assuming no sales and assuming sales distribution patterns for autos and for trucks. The difference between these sale and no sale calculations of $4 billion over the period is subtracted from revenue estimates. The net change from this adjustment is a reduction in the

estimated revenue increase in autos and light trucks that would otherwise be calculated for the forecast period from a lengthening of tax depreciation lives.

APPENDIX

Table 7.11 compares depreciation systems under prior law and the Tax Reform Act of 1986.

Table 7.11 **Comparison of Depreciation Systems**

Asset (ADR Midpoint Life or Description)	Pre-Reform Law	Tax Reform Act
2-4	3-yr ACRS	3-yr DDB/SL
R&D equipment (various ADR midpoint lives)	3-yr ACRS	5-yr DDB/SL
Autos & light trucks (3,4)	3-yr ACRS	5-yr DDB/SL
Race horses over 2 years old	3-yr ACRS	3-yr DDB/SL
13-year and older horses	3-yr ACRS	3-yr DDB/SL
4.5-6.5	5-yr ACRS	5-yr DDB/SL
Semi-conductor manufacturing equipment (reassigned to 5-year from 6-year ADR midpoint life)	5-yr ACRS	5-yr DDB/SL
Qualified technological equipment (various and no ADR lives)	5-yr ACRS	5-yr DDB/SL
Renewable energy property (various and no ADR midpoint lives)	5,15-yr ACRS	5-yr DDB/SL
7-9.5		
Rental clothing (9)	5-yr ACRS	5-yr DDB/SL
Computer based central office-switching equipment (reassigned to 9.5 from 18-year ADR midpoint life)	5-yr ACRS	5-yr DDB/SL
10-12.5	5-yr ACRS	7-yr DDB/SL
Breeding and work horses (10)	5-yr ACRS	7-yr DDB/SL
No ADR life personal property	5-yr ACRS	7-yr DDB/SL
Railroad track (assigned 10-year ADR midpoint life)	5-yr ACRS	7-yr DDB/SL
13-15.5	5-yr ACRS	7-yr DDB/SL
Railroad tank cars (14-15)	10-yr ACRS	7-yr DDB/SL
Single purpose agricultural structures (reassigned to 15-year from 34-year ADR midpoint life)	5-yr ACRS	7-yr DDB/SL
16-19.5	5-yr ACRS	10-yr DDB/SL
20-24.5	5-yr ACRS	15-yr 150DB/SL
Telephone distribution plant (reassigned 24-year from 35-year ADR midpoint life)	5,15-yr ACRS	15-yr 150DB/SL
Sewage treatment plant (assigned 24 year ADR midpoint life)	5-yr ACRS	15-yr 150DB/SL
25-27	5-yr ACRS	20-yr 150DB/SL
27.5-29.5	5-yr ACRS	20-yr 150DB/SL

Table 7.11 **Comparison (continued)**

Asset (ADR Midpoint Life or Description)	Pre-Reform Law	Tax Reform Act
27.5-29.5 real property	19-yr ACRS	31.5-yr SL
30-35.5	5-yr ACRS	20-yr 150DB/SL
30-35.5 real property	19-yr ACRS	31.5-yr SL
36 and over ADR midpoint life	5-yr ACRS	20-yr 150DB/SL
Sewer pipes (assigned 50-year ADR midpoint life)	15-yr ACRS	20-yr 150DB/SL
36 & over ADR midpoint life real property	19-yr ACRS	31.5-yr SL
Less than 27.5 real property	19-yr ACRS	20-yr 150DB/SL
Residential housing	19-yr ACRS	27.5-yr SL
Low-income housing	15-yr DDB/SL	credit provided
Manufactured homes	10-yr ACRS	10-yr DDB/SL
Public utility property (18.5-24.5)	10-yr ACRS	by ADR life
Public utility property (25+)	15-yr ACRS	20-yr 150DB/SL

REFERENCES

Fullerton, Don, Robert Gillette, and James Mackie, *Investment Incentives Under the Tax Reform Act of 1986*. Chapter 5 in this volume.

Gorman, John A., Musgrave, John C., Silverstein, Gerald and Comins, Kathy A., *Fixed Private Capital in the United States*, Survey of Current Business. Washington, D.C. (July), pp. 36-47, 1985.

Hulten, Charles R., and Wykoff, Frank C., *The Measurement of Economic Depreciation*, In C.R. Hulten (Ed.), Depreciation, Inflation and The Taxation of Income From Capital, Washington, DC: The Urban Institute Press 1981.

Nester, Howard W., *A Guide to Interpreting the Dynamic Elements of Revenue Estimates*. Chapter 1 in this volume.

Winfrey, Robley, *Statistical Analyses of Industrial Property Determinants* Bulletin 125, Iowa Experiment Station, Iowa State College of Agricultural and Mechanical Arts, Symmetrical No. 3, p. 100, 1935.