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Appendix B

DESCRIPTION OF SIMULATION TECHNIQUE

IN SIMULATING depreciation for the individual firm the problem was regarded as having two parts: (1) simulating the depreciation of assets acquired after the passage of the 1954 Internal Revenue Code. Here the problem was to apply double declining balance depreciation to the value of newly acquired assets as indicated by company data for annual capital expenditures; (2) estimating the depreciation taken on assets acquired prior to the 1954 Internal Revenue Code, and which were thus depreciable only on a straight-line basis.

Simulation of depreciation of assets acquired since 1954 was carried out as follows. Assets were assumed to have a twenty year life, to be acquired in the middle of each year (and thus to be depreciable for one-half of the year of acquisition and thereafter), and to be depreciated on the basis of a double declining balance formula. It was assumed that no assets acquired after 1954 were written off or disposed of between 1954 and 1963.

To accurately estimate the depreciation on assets acquired prior to 1954, information would be required relating to amount of depreciable assets (as distinguished from land and fully depreciated assets) and appropriate service lives. Such information was not available; however, balance sheet data was available for a number of firms. Some insight was gained by subtracting the value of capital assets acquired since 1954 from total fixed assets (before reserve for depreciation) for each of these firms.[67]

[67] Firms that had experienced mergers were not used.

The net amount of fixed assets at the end of each year after deduction of cumulated capital expenditures from 1954 and thereafter was presumed to reflect the effect of write-offs and disposals.

The next step was to observe the rate of decline of the "pre-1954" assets. Although there was considerable variation, the typical rate of decline was 3.5 per cent per year. This rate of decline was then applied to each company's 1953 depreciation charge to provide an estimate of depreciation on pre-1954 assets for the years 1954 and thereafter.

The final step was to combine the simulated depreciation (based on twenty year DDB) on accumulated capital expenditures for each year beginning with the year 1954 with the above estimate of depreciation on pre-1954 assets. Such an estimate provides only a crude simulation but has the advantage of providing a standardized simulation which gradually reduces the importance of old assets and reflects the effect of DDB on the new.