

It is complicated by the need to recognize the value of money to the Government over a span of years, the net earnings rate of a pension fund, the gross earnings rate of the employer's business and the period of years over which investment earnings are realized or recognized; i.e., the average date from which funding contributions would be made to the average date of pension payments.

These considerations are encapsulated by algebraic formulas contained in appendix III hereof. There are also shown, using such formulas, numerical illustrations of the extent of the advantage or disadvantage to the Federal Government of advance funding versus pay-as-you-go financing. The value of money to the Government is the rate paid on borrowed funds less the proportion, recovered in taxes, of the interest paid on such borrowed funds. Three values are assumed. The first, 3 percent, assumes that money is borrowed at $4\frac{1}{2}$ percent and the interest is taxed at an average rate of $33\frac{1}{3}$ percent, the mean of $18\frac{2}{3}$ percent by individuals and 48 percent by corporations. (This assumes a 50-50 division of holdings by individuals and corporations which seems reasonable in the absence of specific information.) A second value of 2.67 percent is based on a borrowing rate of 4 percent and a one-third recovery from taxes. The third rate of 2.08 percent also assumes a borrowing rate of 4 percent, but the corporate tax rate of 48 percent. A range of rates of return of a pension fund and the gross rate of earnings of a business are used. For the period of years over which investment earnings are realized or recognized, two values are used—25 and 30 years. It is probable that a typical average accumulation period before retirement age is 20 years and after retirement age is $7\frac{1}{2}$ years, a total of $27\frac{1}{2}$ years.

The numerical illustrations are in the form of the ratio of—

- (a) The value of taxes receivable by the Federal Government on a pay-as-you-go basis, to
- (b) The value of taxes foregone by the Federal Government under advance funding.

Certain conclusions may be drawn from these illustrations:

(i) Where the rate of investment earnings of a pension fund is high in relation to the gross earnings rate of a business, there is a decided tax advantage to the Government by advance funding. This high rate of investment earnings of a pension fund will affect taxes either by materially reducing deductible amounts (and hence increasing the taxes collected on an advance funding basis) or by materially increasing the amount of benefit that are not deductible during the payout period on a funded basis; i.e., the employer is at a disadvantage since he cannot deduct these enhanced amounts which would have been deductible on the pay-as-you-go basis.

(ii) The longer the investment earnings period, generally speaking, the larger is the area that is favorable to the Government under advance funding.

(iii) There is a middle area where advance funding is to the advantage of the employer and not to the Government. This disadvantage may be represented by 10 to 20 percent less in the value of taxes collected.

(iv) Where the rate of investment earnings of a pension fund is quite low in relation to the gross earnings rate of a business, advance