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Volume Title: Executive Compensation in Large Industrial Corporations

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Volume Publisher: NBER

Volume ISBN: 0-870-14481-2

Volume URL: <http://www.nber.org/books/lewe68-1>

Publication Date: 1968

Chapter Title: Executive Salaries, Bonuses, and Pensions

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Chapter URL: <http://www.nber.org/chapters/c9343>

Chapter pages in book: (p. 13 - 35)

2

EXECUTIVE SALARIES, BONUSES, AND PENSIONS

Salary and bonus—aggregate direct current remuneration—are the executive's traditional rewards and represent in many instances the largest proportion of his total compensation. For our purposes, it is as important that they also admit readily to measurement, are prominently and fully reported on in corporate proxy statements, and provide a convenient standard around which an examination of the other components of the pay package may be oriented.

While the term "salary" should require no elaboration, it is necessary to spell out what is included in the category of "bonus" payments in the discussions that follow. The definition here encompasses not only those awards made in a given year as remuneration for that same year's services but also the arrangements frequently referred to as "incentive compensation." Under the latter, a specified total amount is promised the executive but is paid to him in a series of cash installments "earned out" over several years rather than in a single lump sum. Since all such payments are taxable to the individual at ordinary personal income tax rates when received, they will be grouped with salary throughout the study.¹

Tax Liabilities

All income recipients can and do take advantage of the numerous provisions of the tax law permitting both personal exemptions and either a standard or an itemized deduction from taxable income for such outlays as personal interest payments, state and local taxes, medical expenses,

¹ As are directors' fees to executives who serve on their respective boards.

charitable contributions, and so on. The senior corporate executives examined here almost certainly fall among the group of taxpayers who itemize. In order to provide a sensible measure of the after-tax value of their direct current remuneration, therefore, it is necessary to estimate the amount of the deductions and exemptions they claim.

The relationship between gross income and taxable income for all taxpayers can be obtained from the annual tax return tabulations provided by the Internal Revenue Service.² If it is assumed that each executive acts in the same manner as does the "typical" individual in his income bracket, it turns out that he would have had, on average during the period 1940 to 1950, deductions and exemptions together amounting to approximately 10 per cent of his annual gross income. From 1951 through 1963 the corresponding figure was about 15 per cent.³ In computing the executive's tax liability here, then, each dollar of his before-tax salary and bonus is translated into either 85 or 90 cents of taxable income—depending on the calendar year involved.

A second aspect of a man's personal situation which is relevant to the tax treatment of his rewards is his marital status. Because of the major impact of the income-splitting privilege on average and marginal rates, an attempt is made in each case to determine whether or not the executive whose compensation is being examined is married. If no positive evidence can be uncovered, the assumption will be that he is—since the probabilities seem to point strongly in that direction. Personal exemptions for himself and the members of his family are, as noted, included in the percentage figure above.

A third factor involves income the executive may receive from sources other than his corporate employer. If he does enjoy some "outside income" of this sort, he will be in a higher tax bracket than that suggested by salary and bonus alone, and the tax liabilities imputed to him should be adjusted accordingly. Unfortunately, the probable size of such income is difficult to establish. Certainly, the senior executive's familiarity with the profit potential of various security instruments and business ventures can be expected to lead him to undertake a substantial amount of investment activity on personal account. His high income status.

² U.S. Treasury Department, Internal Revenue Service, *Statistics of Income, Individual Tax Returns*, Washington, D.C.

³ See Appendix A for the derivation of these values.

which supplies a reservoir of funds for that purpose, reinforces this expectation. It seems reasonable, therefore, to believe that his outside income will be sizeable.

An estimate which is taken here to be a suitable one is 15 per cent of direct current remuneration. Thus a man having a net worth three to four times his annual salary and bonus, and earning 4 or 5 per cent thereon before taxes, is considered representative. While that may perhaps seem a low investment yield to assume in view of postwar stock market conditions, it must be emphasized that only items taxable as ordinary income at the regular statutory rates are pertinent in this connection. To the extent that a significant portion of the executive's return on his portfolio consists of capital appreciation, that return will not affect the tax liabilities applicable to his salary and bonus. Dividend and interest income is therefore the appropriate concern, and the indicated yield does not seem unduly pessimistic in those terms. A complete analysis would, of course, also recognize the influence of such factors as a man's age, his past earnings history, his propensity to save, his investment skill and preferences, any inherited wealth, changes in external economic conditions, and so on. Clearly, information of this nature is not only hard to come by but would require for its full assimilation the development of a model for predicting investment results that exceeds the legitimate needs of the present study. The real objective in acknowledging the existence of so-called "outside income" is very simply the removal of what would otherwise be a persistent bias toward attributing too low a tax rate to the executive's salary and bonus. For that purpose, the estimate described should suffice.⁴

After-Tax Salary and Bonus

Given these assumptions, the executive's gross income, taxable income, personal tax liability, and, therefore, after-tax current income each year are easily computed. The final step is to specify the share of this last figure that should be credited to salary and bonus. In order to avoid arbitrarily designating one kind of receipt as "basic" and the others as

⁴ The effect on the empirical results of choosing some alternative assumptions, both for outside income and for deductions and exemptions, is explored in Chapter 12.

marginal, the allocation will be made according to the proportion of total before-tax income each item represents. Thus, if in a particular year an executive has a salary of \$80,000 plus \$20,000 in bonus awards, he is assumed also to have outside income amounting to \$15,000. With the relevant percentage of deductions and exemptions and the statutory personal tax schedule for that year, his after-tax income can be calculated. Of that figure, 80/115 is taken to be the after-tax counterpart of his salary and 20/115 the contribution of his bonus.⁵ In effect, current income is regarded as homogeneous, with deductions and exemptions—and taxes—applying uniformly to all its components.

Pensions

The central characteristic of a pension arrangement is the right of the executive to receive a series of yearly or monthly payments of a given size beginning at a specified future retirement date and continuing thereafter during his lifetime. A pension may, therefore, be termed a "deferred contingent" form of reward.

ORIENTATION

Retirement plans may be classified according to a number of criteria, depending on one's purpose. If interest lay in the pattern of asset accumulation and in the investment policies associated with different methods of providing for pensions, plans would be separated into categories related to degree of funding and funding medium, such as "insured," "trusteed," and "pay-as-you-go." If personnel administration were of major concern, the breakdown might be on the basis of the benefit formula into "career average," "final pay," and "flat benefit" plans. While these are important distinctions for many decisions, they are not particularly relevant to the valuation of executive rewards. For that purpose it is necessary to know only the promised benefit and how much, if anything, the executive must contribute toward the financing of the arrangement—i.e., whether the plan is "contributory" or "non-contributory." Under a contributory plan, both the corporation and the executive set aside certain amounts each year during the latter's active

⁵ A more detailed illustration is provided in the numerical example contained in Chapter 6.

working life to provide for a specified retirement benefit. In the case of a noncontributory plan, the full cost of the prospective pension is borne by the corporation.

CONCEPTUAL FRAMEWORK

The worth of a pension to its potential recipient will be assessed here by asking the question: How large would the annual premiums be if the executive were to purchase from an insurance company a retirement annuity equal in value and similar in form to his pension promise? Those premiums are taken to constitute the “after-tax current equivalent” of the pension. Since they measure the annual expenditure out of after-tax income that would be required for an individual to provide the same retirement benefits on his own, it is possible to compare them with the after-tax income generated by salary and bonus payments and to make statements about compensatory value on that basis. We may then take the further step of calculating the increase in *before-tax* salary and bonus that would raise the executive’s take-home pay by an amount equal to the pension’s after-tax current equivalent, thereby defining a “before-tax current equivalent” which represents the alternative of actually rewarding the man via salary instead. A “what if” computation of this sort is particularly useful in discussing the impact of taxes on the level and form of compensation—as will be seen later.

RATIONALE

It is, of course, true that a number of avenues exist through which an executive could provide on his own for economic security in retirement if he were not eligible to receive pension benefits. Selection of the individual annuity contract as the most appropriate alternative to—and, hence, index of the worth of—a pension was dictated by several considerations.

First, there is the matter of precision. The terms on which annuities are available are extremely well defined. The quoted premiums reflect guaranteed rates of return, established mortality experience, and specific charges for administrative expenses. Most other instruments are necessarily less definite, especially with regard to return on investment.

Secondly, it seems important to take full account of the risks borne by the executive. Since a corporate pension plan removes virtually all

financial uncertainty about the eventual receipt of a given retirement benefit,⁶ the alternative suggested should provide the same degree of assurance. An annuity fulfills this requirement. It represents a contractual obligation of the issuing insurance company and is backed by a governmentally regulated investment policy and reserve system. Even though the potential return offered by other investment media may be greater, few, if any, will guarantee a particular outcome. Perhaps a more significant kind of risk for the executive involved, however, is that of living *too long* after retirement and exhausting the funds he has set aside. Pension plans and insured individual annuities are the only arrangements which insulate their beneficiaries against that contingency.

Finally, there are the costs of managing the individual's funds. Retirement annuity premiums contain complete allowances for such expenses, whereas most other investment possibilities do not. Certainly, the energies which a highly paid executive would have to devote to managing his own portfolio represent a sizeable cost to him, but one which both the pension and the annuity obviate.

The premiums on an individual retirement annuity, then, are considered here to be the best measure of the after-tax current income equivalent of a pension because the two devices are similarly precise, certain, and comprehensive. If there are other arrangements which offer many or even all of these advantages, it can be assumed that competitive pressures in the financial markets will eliminate any significant differences in their prices and render the present choice no less desirable than any other. To the extent that the retirement annuity *is* singularly possessed of the requisite virtues, it should be preferred.⁷

THE NOTION OF EQUIVALENCE

Even with the above approach, the determination of the worth of a pension promise is not quite as simple as it might initially appear. Because of the nature of the benefits afforded by the typical corporate pension plan, it is not possible for an individual to purchase for himself

⁶ Except insofar as that benefit is not completely "vested," however. See the discussion below, pp. 25-26.

⁷ The issue of whether, given complete freedom of choice, every executive would in fact choose to purchase an individual annuity with the salary payments provided him in lieu of his pension is not critical to this argument. Our interest is only in guaranteeing that he *could* achieve an exactly equivalent position if he so desired.

exactly the same arrangement from an insurance company. Noncontributory pensions ordinarily provide no benefits if the employee should die prior to retirement. Contributory plans contain only a small death benefit feature. In addition, there is the matter of vesting and the contingencies it introduces. An individual annuity contract, on the other hand, will specify that, in the event of the policyholder's death before attaining the age at which the annuity is to begin, his estate shall receive the full amount of the net premiums⁸ he has paid together with the interest accumulated thereon. And, of course, an individual annuity is "fully vested" in the sense that the purchaser can alter or cancel it at will and lay claim to the prescribed cash surrender value at any time. The executive cannot, therefore, obtain an individual annuity whose benefits correspond in all respects to those of his pension.

Another problem is the different tax treatment of the two arrangements. The benefits eventually accruing to an executive are subject to one set of taxes if he purchases an annuity himself and another if that annuity is provided by a corporate pension plan.⁹ It is not correct to say, for example, that the after-tax current equivalent of a \$20,000 per year pension promise is equal to the annual premium on a \$20,000 per year individual retirement annuity.

As a result, "equivalence" must be established by first measuring the after-tax *present value* of the pension and then finding the individual annuity which has the same present value. The annual premiums quoted for *that* annuity comprise the pension's after-tax current income equivalent. Since the nature and degree of deferral and contingency involved in both arrangements have been given formal expression within the framework of actuarial science, methods by which the necessary calculations can be made fortunately are readily available.

TIME SPAN OF THE CURRENT EQUIVALENT

The size of the premiums on a particular annuity policy depend, of course, on the time period over which they are spread. Since the annuity, for our purposes, represents the executive's pension alternative, it seems appropriate that this period coincide with the years when he is performing the services that give rise to the pension. Thus, a man who

⁸ Gross premiums minus the charges for sales and administrative expenses.

⁹ See below, pp. 30-32, for the details.

comes under a pension plan at age 40 and who expects to retire at age 65 is credited here with an after-tax current equivalent consisting of twenty-five annual premiums. The magnitude of each year's premium is determined by the initial pension promise and the pattern of changes in benefits which occur.

BENEFIT CHANGES

Because the pension promised an executive is ordinarily adjusted over time to reflect his performance and increased experience, our analysis must be equipped to deal with such changes. Consistent with the general approach outlined above, each increase—or decrease—in benefits will be regarded as a separate pension award whose current equivalent begins at the time that award is made and continues thereafter up to the man's anticipated retirement age. For example, an executive who is first covered by a pension plan at age 50 and promised \$20,000 per year upon retirement at age 65 will have attributed to him an initial after-tax current equivalent made up of the fifteen equal annual premiums which would purchase an individual retirement annuity having the same present value as that pension. If, at age 55, his prospective benefit is raised to \$25,000 per year, a second current equivalent is calculated—the ten equal annual premiums required for an *additional* individual annuity which is as valuable to him as the additional \$5,000 pension promise. The sum of this new annual premium plus the original one represents the total after-tax current equivalent for the years from age 55 through age 64.¹⁰ Whenever a benefit change occurs, the procedure is repeated. In effect, the complete current equivalent finally generated for the executive's pension will be comprised of a series of "layers" of annuity premiums, each one corresponding to an increment in the benefits promised him and extending over successively shorter periods of time.

THE ANNUITY PREMIUM SCHEDULE

One of the advantages of choosing the individual retirement annuity as a measure of the value of a pension was taken to be the precision it

¹⁰ Had the pension benefit instead been reduced by \$5,000, the *difference* between the two premiums would be the current equivalent for the last ten years.

offered. This contention is valid, however, only in the case of a particular annuity contract—the “nonparticipating” policy.

Most large insurance companies are organized on a “mutual” basis, returning to their policyholders as dividends the fruits of investment, mortality, or administrative experience more favorable than was contemplated in the premium rates quoted. In effect, the policyholder is guaranteed some minimum result and then has the right to “participate” through lower premiums or larger benefits if the company’s projections are pessimistic. Since the ultimate cost of retirement annuities of this sort is ambiguous, such arrangements are not suited to our purposes here.

“Stock” insurance companies and many “mutual” ones do, however, make available nonparticipating annuities on which the terms are completely fixed. The insurance company assumes the risk of adverse developments, while the policyholder foregoes the right to share in any unexpected gains. The premiums on a nonparticipating individual retirement annuity are therefore the appropriate index of the current income equivalent of a pension.¹¹

THE POSTRETIREMENT ECONOMIC CONTEXT

The value of a pension and its individual annuity counterpart to an executive depends to a large extent upon the circumstances which will accompany the receipt of the promised benefits. Anticipated “outside income,” deductions and exemptions, and future tax rates are the major parameters involved.

It was mentioned earlier that an accurate appraisal of the personal tax liability on salary and bonus payments should include the effect of income from outside sources. The executive can expect to receive such income after retirement as well. Since he will be able to accumulate wealth in the intervening period, it might be reasonable to project a larger amount than he presently enjoys. On the other hand, he may have to draw upon his capital when his salary ceases in order to main-

¹¹ In the long run, of course, the exigencies of competition should cause the costs of participating and nonparticipating policies to be approximately equal. If properly handled, either type could be a useful standard of pension value. Because only the nonparticipating annuity is precise from an entirely *ex ante* standpoint, however, it is more convenient to use here.

tain an accustomed standard of living or to take advantage of the vacation and travel opportunities previously denied him. A number of additional factors could be considered, but any statement made must be highly tentative—and it is by no means certain that the estimate made here of the size of the executive's *current* outside income is correct. For lack of a better hypothesis, therefore, the assumption will be that such income is just about as important after retirement as it is before, and that the amount being received at the time the present value of a pension or a benefit change is assessed will also occur in retirement.¹²

A case can similarly be made for either higher or lower deductions and exemptions during the postretirement years. Medical expenses are likely to increase and the personal exemption doubles at age 65, but charitable contributions and various employment-connected outlays may well decline. Because the relevant influences are again complex and probably countervailing, the executive will simply be assumed to claim in retirement the same proportion of deductions and exemptions that is indicated by Internal Revenue Service data for his current income: either 10 or 15 per cent of each receipt, depending on the calendar year involved.¹³

Finally, tax rates must be projected forward. Since it seems that taxes were, over the period studied, as prone to increase as they were to fall, the tax schedule which might reasonably have been anticipated in the future could, at each point in time, have been fairly well approximated by that of the moment. The result of all these assumptions is perhaps best described by an example. In 1945 an executive is promised a \$20,000 per year pension which is to begin when he retires in 1960. His outside income in 1945 is \$10,000. Expected annual postretirement income is therefore taken to be \$30,000 before taxes, 90 per cent of which is assumed taxable¹⁴ at the rates prevailing in 1945. Following the procedure adopted in the case of salary payments, two-thirds of the calculated after-tax remainder is attributed to the pension.¹⁵

¹² Any Social Security benefits the executive may expect to receive are irrelevant in this connection, since they are tax-free and will not affect the tax liability on prospective pension receipts.

¹³ See above, p. 14, and Appendix A.

¹⁴ As noted, deductions and exemptions are specified to be 10 per cent of gross income during the period 1940-50.

¹⁵ See above, p. 16.

ACTUARIAL CONCEPTS

The present value of a pension arrangement or an individual retirement annuity is a function of the opportunity cost involved in having to wait for the promised benefits and the probability that the potential recipient will live to claim them. Our concern, then, is with the specification of two discount factors, one for time deferral and one for mortality.¹⁶ Actuarial science provides the necessary analytical framework.

Information pertaining to the likelihood of death is compiled by insurance companies from their historical policy-underwriting experience and presented in what is known as a mortality table. From this table the numerical probability that an "average" individual of any age will attain any other age can be computed.¹⁷ Multiplying that figure by the time-discounted dollar amount of the prospective after-tax benefit for the year in question, we obtain the expected present value of the benefit. The aggregate present value of the pension or annuity from the viewpoint of the executive is determined by repeating this procedure for each year and totaling the results.¹⁸

DISCOUNT RATE

The particular interest rate chosen as a measure of the executive's opportunity cost should, in general, reflect the characteristics of the investment activity he might engage in to meet his postretirement financial needs if he were not promised a pension nor able to purchase an individual annuity. Perhaps more to the point, it should reflect the returns available from investments whose outcomes are no less certain than those of these instruments. Since time deposits in commercial banks, deposits in mutual savings banks, and federal government debt instruments, if held to maturity, involve essentially no risk, a portfolio comprised of one or more of these elements may be regarded as a logical vehicle. Taking into account the taxability of interest earnings, a discount rate of 2½ per cent per annum after taxes appears to be consistent with the history of such investments. Once again, it is either

¹⁶ And also, perhaps, one for any vesting provisions that apply. See the section on "vesting" below.

¹⁷ For a description of the mortality table and a summary of the relevant probability measures, see Appendix B.

¹⁸ Appendix D offers an illustrative example.

impractical or impossible to identify and include in this estimate the many factors that would enable differences over time and among individuals to be fully recognized.¹⁹ However, by using the same figure to calculate the present value of both the pension and its annuity counterpart, whatever errors might otherwise cause concern should be largely neutralized. Certainly, the order of magnitude assumed is not out of line—and the effect of some alternative assumptions is tested in Chapter 12.²⁰

MORTALITY TABLE

An appropriate mortality table is also important to the analysis. The 1951 Group Annuity Table for Males²¹ was adopted for use throughout in the belief that it provides an adequate representation of the longevity characteristics of executives during the period with which the study is concerned. The assumption is that executives, many of whom were included in the compilation of data for this table, are not significantly different from the typical employee covered by a corporate pension plan—i.e., a “group annuity” contract—in terms of physical well-being.²² The gradual improvement in individual life expectancies over time does render the table, which extrapolates that trend to a certain extent, a better description of the mortality experience of the later years of the study, and its use may be open to some question on that basis. However, since the major part of the empirical effort—as measured both by number of executives and by dollar magnitude of pension promises—is necessarily concerned with these later years, the improvement in accuracy that might be achieved by using several mortality tables does not appear to justify the additional effort involved.

¹⁹ Even settling on a given before-tax rate of return on investment and recognizing differences among the sample executives' tax rates each year quickly becomes a very complicated and computationally inconvenient process.

²⁰ It must also be confessed that precisely $2\frac{1}{2}$ per cent rather than, say, $2\frac{1}{4}$ or $2\frac{3}{4}$ per cent after taxes was chosen because the mortality table adopted for the study incorporated that figure in its tabulation of certain shorthand actuarial symbols which greatly facilitate the calculation of the relevant present values.

²¹ A portion of this table was utilized in Appendix B. It is reproduced in its entirety in Appendix C.

²² While no conclusive evidence on this question is available, a related discussion can be found in Robert J. Lampman, *The Share of Top Wealth-Holders in National Wealth, 1922-56*, Princeton University Press for National Bureau of Economic Research, 1962. On pp. 42-48 and in annotated references, he considers the relationship between mortality and income class.

Furthermore, as in the case of a discount-rate choice, the use of the same mortality table to appraise both the executive's pension and its posited individual annuity alternative means that any errors offset rather than reinforce each other.

VESTING

One aspect of the imperfect correspondence between a corporate pension arrangement and an individual retirement annuity is the matter of vesting. An employee who decides to change jobs at some time during his working life usually forfeits all rights under the pension plan of his original employer unless he has worked for a specified number of years or attained a particular age, or both. To the extent that he can claim a portion of the promised benefits if he leaves, his pension is termed "vested." In order to assess the present value of a pension, therefore, the likelihood and consequences of the executive's resignation should be considered.

Although almost everyone can point to an example of a corporate officer who was either lured away from or forced out of his job, the conclusion suggested by an examination of proxy statements is that such occurrences are quite infrequent when viewed in relation to the entire senior managerial group.²³ Thus, if it were possible to compute for each age the probability that an executive might resign, the contention is that the indicated discount would be very small and the resulting pension present values would be only slightly different from those obtained by assuming that vesting is complete.²⁴ This argument is re-

²³ For example, out of the some 550 executives in 50 companies whose compensation experience is analyzed below, there were only 29 instances of resignations to take another job in the twenty-four-year period examined and, of these, nine occurred in just two firms. Further support comes from the information which is available on labor force turnover in general, which shows high mobility primarily among younger and newer employees. As the worker ages and accumulates job seniority, the likelihood of his departure diminishes steadily. Executives at the level the empirical effort here is concerned with clearly fit the latter description. See James A. Hamilton and Dorrance C. Bronson, *Pensions*, New York, 1958, pp. 212-216.

²⁴ Obviously, one of the *reasons* for low job turnover among executives and other long-time employees may well be the threat of cancellation of accumulated pension rights, and there is no intention here to downgrade the possible influence of that threat. Indeed, one might look at the pension values obtained in the subsequent empirical analysis under the assumption of complete vesting as in some sense an index of the *degree* of pressure on the individual not to change jobs. At the moment, however, only the fact of low turnover, not its source, is at issue.

inforced by the recognition that the senior executives included in the current sample almost certainly meet whatever age and job tenure requirements their respective employers' retirement plans specify for vesting and, hence, are not likely to be subject to full forfeiture of their pension rights in any event. There will, of course, be a small bias in the direction of overstating the worth of a pension if the possibility of forfeiture is ignored, but that bias should not be significant.

It should also be pointed out that a compensating error is built into the pension's current equivalent. No upward adjustment is made in those figures for the likelihood that the executive may not remain with his company until the designated retirement age and actually "collect" the full series of salary increments which are cast up as the substitute for his pension. To the extent that executives do change jobs, therefore, the after-tax current equivalents as calculated are also less valuable than they are credited with being here, and since this is the same sort of error as that associated with the present value of the pension itself, the two should cancel.²⁵

BENEFIT TIMING

The usual pension plan provides for a specified payment each month following retirement, as do most individual annuity contracts. For several reasons, however, it seems appropriate to calculate the value of both arrangements as if benefits were paid only once a year.

First of all, the mathematics are much simpler, substantially reducing the effort involved in programming the computations. If both instruments are treated under the same assumption, little accuracy is sacrificed in comparing them.

Secondly, the techniques involved in constructing a monthly valuation framework are not really completely satisfactory. Mortality tables, for example, do not provide an intrayear tabulation of the pattern of demise, and some arbitrary assumption would therefore be necessary.

²⁵ It is also worth noting that insofar as the current equivalent outlined is offered as an operational alternative to a pension, it carries with it similar pressures on the executive not to leave his job. Thus, if he does leave and his pension is not fully vested, he gives up some of his benefit rights. If he were instead being paid its "current income equivalent," the same consequence would follow, i.e., he would not receive the remainder of the annual payments due him under that arrangement.

A similar problem arises with respect to discounting to obtain present values. There are several "correct" ways to convert from an annual to a monthly interest rate, the choice among them being largely a matter of taste.

Finally, our tax laws do not provide any reason for undertaking the complications. An individual is taxed according to his economic performance over a full year's time. Month-to-month variations in his income are quite irrelevant. The same aggregate tax liabilities on pension and annuity receipts therefore pertain whether they are assumed payable only once or in twelve installments over the year.

THE BENEFIT STRUCTURE OF THE PENSION

In order to generate a precise statement of the present value of a pension, it is necessary to speak of some sort of "typical" plan. Since there are a wide variety of benefit provisions that a retirement package may contain, any choice of a particular combination cannot be entirely comprehensive. It is neither practical nor very fruitful to explore in detail here all the options which are available, however. Attention will be concentrated instead on the most popular form of both the contributory and noncontributory pension. That analysis should be sufficient to establish the soundness—or lack thereof—of the approach chosen and also to illustrate the manner in which other benefit structures could be valued.

The usual noncontributory pension plan is a fairly simple device. There is no death benefit feature of any sort, and the only promise made is for a specified monthly payment beginning at retirement and continuing thereafter for as long as the employee lives.

A contributory pension is somewhat more complicated because of the participation by the employee in its financing. The most common arrangement provides certain death benefits as well as the same sort of basic monthly retirement award offered by a noncontributory plan. If the employee involved should die prior to attaining the designated retirement age, his estate receives the total amount of the contributions he has made up to that time, together with the interest accumulated thereon, at a rate specified by the plan. Alternatively, if the employee dies after retiring but before receiving in monthly benefits an amount equal to the interest-accumulated value of his contributions as of the

date he retired, a death benefit equal to the difference between that amount and the monthly payments received is paid to his estate. These provisions guarantee, in effect, that the employee or his family will at least recover the "investment value" of his own contributions to the plan.

OTHER BENEFIT FORMULAS

The consequences of choosing the above arrangements as typical should be considered briefly. If the pension present value calculations can be expected to vary significantly depending on the benefit pattern assumed, the usefulness of the findings here will be limited. Fortunately, conditions exist which prevent this from being a problem.

From the standpoint of the medium through which the corporation finances its pension plan—whether it is an insurance company, a bank, or its own trustee fund—the present value of all benefit packages offered the executive must be the same, given the amount of his and his employer's contributions. The executive may, for example, have the option of trading off a large annual retirement benefit, payable only during his lifetime, for a smaller yearly amount accompanied by "period certain" or "survivorship" features.²⁶ However, when the relevant deferral and contingency aspects of each device are assessed, they all must be equal in terms of present value to the pension plan's administering agent. As a result, the benefits associated with a given pension promise may be restructured only within quite definite bounds.

The extent to which the several present values will be the same from the executive's point of view depends on the personal tax treatment of the various benefit alternatives and on the difference between the executive's opportunity cost and the earnings rate assumed by the pension plan in establishing those alternatives. Tax variations are not pronounced, especially in the initial retirement years which weigh most heavily in present value calculations. Moreover, the interest rates used to estimate probable pension fund portfolio yields have been close to the 2½ per cent figure chosen above as appropriate for the executive.

²⁶ A "period certain" arrangement provides that a specified minimum number of years' benefits be paid to either the retired employee or his beneficiary. The "survivorship" agreement makes benefits payable to the employee while he lives and then to a designated heir for the rest of that person's lifetime. In most cases, neither option contains any postretirement death benefit provisions of the sort described above for the "typical" contributory plan.

Accordingly, certain benefit options will give rise to larger and some to smaller present values than the one assumed here, but it seems that the discrepancies are not likely to be great and that, on average, a reasonable approximation of the value of the pension will be obtained.

BENEFIT STRUCTURE OF THE INDIVIDUAL ANNUITY

Although individual annuity contracts which exactly duplicate corporate pension benefits are not offered by insurance companies, it is possible to choose an arrangement to use as a standard of comparison which at least looks very much like the "typical" pension plans described above.

Individual annuity policies have for some time contained a "return-of-premiums" provision to the effect that, if the purchaser should die before reaching the age at which the annuity is to begin, his estate will receive a death benefit equal to either the total dollar amount of the gross premiums or the interest-accumulated value of the net premiums paid up to that time, whichever is greater.²⁷ This feature must, therefore, be a part of any annuity proposed. On the other hand, a number of postretirement benefit options are made available. The one that seems most suitable is the "straight life" annuity: a series of monthly payments (aggregated to yearly here) beginning at the man's retirement age and continuing until he dies. A package consisting of the indicated preretirement death benefit and this simple straight life annuity will be taken to be an appropriate alternative to both the contributory and noncontributory pension. A "current equivalent" therefore will consist of the series of annual premiums necessary to purchase an individual annuity of that form which has a present value equal to the present value of the particular pension being considered.²⁸

²⁷ The "return-of-contributions" aspect of the contributory pension is very similar to this. However, because the full cost of an individual annuity is borne by the policyholder through his premium payments, while only a portion of his pension is financed by his contributions, the preretirement death benefit represents a larger share of the present value of an annuity than of a pension. In the case of a noncontributory pension, of course, the difference is even more marked.

²⁸ The question might again be raised about the probable sensitivity of the empirical results to the choice of other benefit patterns for the annuity. As was true of the pension, the changes that may be expected to arise should be quite small, since the differences in the tax treatment of various annuity arrangements and between individual and insurance company investment opportunity costs are not great.

TAX TREATMENT OF PENSIONS

Employees participating in "qualified" corporate retirement plans—i.e., those which, as do the ones we will be concerned with, satisfy certain conditions relating to labor force coverage and nondiscrimination—need not include in their taxable income amounts representing the share of pension costs borne by their employers.²⁹ Tax liability to the employee or his estate results only when benefits are actually received. The contributions, if any, made to such plans by the employee, however, are not tax-deductible.

Retirement benefits provided by noncontributory pension plans are, when received, taxable in full at ordinary personal income tax rates. Benefits paid under most contributory plans are subject to the "life expectancy" rule. According to this formula, a portion of each monthly receipt is excluded from taxation, that portion determined by the ratio of the aggregate contributions made by the employee during his working life to the total monthly benefits which are anticipated on the basis of his life expectancy. To illustrate: An employee who contributed \$300 per year for thirty years and then retired on a monthly pension of \$200 would, assuming he had a life expectancy of fifteen years at the time of his retirement, pay taxes on only \$150 of each month's receipt. Thus \$200 times 12 times 15 is equal to \$36,000 of expected benefits, and contributions amount to \$300 times 30, or \$9,000. Dividing \$9,000 by \$36,000, we get one-fourth. One-fourth of \$200 is \$50, which is the tax-free portion of each receipt.³⁰ In effect, his own pension contributions are taxed to the individual while he is working, and he obtains in return a deduction that he can claim after retiring. The Internal Revenue Service specifies the appropriate life expectancies, designating fifteen years as the figure for a man who retires at age 65.³¹

²⁹ Appendix E summarizes the requirements for status as a "qualified" retirement plan and the tax consequences of not meeting those standards.

³⁰ Actually, the IRS requires that a slight reduction be made in the value of the employee's total contributions used in calculating this tax-free portion to reflect the fact that those contributions also give rise to a postretirement death benefit right. Since the necessary adjustment is not large for the pension promises that will be dealt with here, the general nature of the computation is as indicated. In the development and programming of the present value formulae, however, that adjustment was taken into account, and the particulars are spelled out in Appendix D.

³¹ *Internal Revenue Code*, Sections 72 and 402.

A special provision applies to a contributory pension plan when the benefits to be received in the first three years following retirement equal or exceed the employee's total contributions. In that event, the employee excludes from taxable income the entire amount of each receipt until he has "recovered" those contributions free of taxes. Payments received thereafter are taxable in full.³² Thus, in the example above, if the man's benefit were \$250 per month, he would pay no income tax on his pension until the fourth year of his retirement.

Death benefits payable under a pension plan are considered by the tax law to represent in part a return of the employee's contributions and in part an interest accumulation resulting from investment by the plan's managers. The first portion is simply included in the man's estate and taxed according to the regular estate tax schedule.³³ The interest earned component is not included in the estate as such, but is taxed separately as if it were a gain from the sale of a capital asset.³⁴ The details of these procedures are contained in Appendix D, where the complete pension present value expressions are derived.

One problem that arises in this connection is the specification of an estate tax rate to use in the computations. As was true in the case of "outside income," the pertinent information for obtaining an accurate estimate is absent. Given that no evidence as to either the size or the form of the estates of top corporate executives is currently available, and the fact that the estate tax is not really of major importance here, a choice that is computationally convenient might just as well be made. Since matters in several formulas³⁵ are greatly simplified if the over-all effective tax rate on executives' estates is taken to be roughly equal to the 25 per cent capital gains rate, that figure is adopted throughout.

TAX TREATMENT OF RETIREMENT ANNUITIES

Because annuity premiums have generally the same function and characteristics as do pension contributions by an employee, the tax provisions applicable to individual retirement annuities are similar to those associated with contributory pension plan benefits. Premium pay-

³² *Ibid.*, Section 72.

³³ *Ibid.*, Section 2039.

³⁴ *Ibid.*, Sections 71, 401, and 501.

³⁵ Particularly for stock options.

ments are not tax-deductible when made, but a fraction of the annuity later received by the policyholder is deductible—specified, in this case, by the “life expectancy” rule to be the ratio of total *premiums paid* to total benefits anticipated at retirement.³⁶

Annuity policy death benefits are also divided into two parts for tax purposes, but the levies are computed in a slightly different manner from those for the corresponding pension plan payments. The full amount of the benefit is taxed in the man's estate, and, in addition, the segment representing an interest accumulation is subject to a capital gains tax. As a partial offset to this combined assessment, the estate tax on the interest accumulation is first deducted from that figure before the capital gains tax is applied.³⁷ Appendix D provides a complete description.

THE PRESENT VALUE EXPRESSIONS

Given the benefit structures of the two pension plans and their individual retirement annuity counterpart, and given the relevant tax liabilities, a comprehensive present value formula can be developed for each arrangement. The present value to an executive of a single prospective benefit payment is obtained by subtracting from its total dollar amount the required tax—multiplying the remainder by the probability that it will actually be received—as determined from a mortality table—and, finally, discounting that result back to the present at a specified interest rate. The aggregate present value of a pension or an annuity is then simply the sum of the present values of all the separate benefits it provides. This expression is derived for noncontributory pension plans, contributory plans, and for the individual annuity alternative in Appendix D.

EARLY AND LATE RETIREMENT

While almost all corporate pension plans now provide for retirement at age 65, it is not uncommon for an important executive to stay on for several years past that point or—especially in more recent years—to take advantage of an early-retirement provision in his company's plan. The procedures described above, however, are geared to evaluate

³⁶ *Internal Revenue Code*, Section 72.

³⁷ *Ibid.*, Sections 72 and 2039(c), and IRS Regulation 1.72.

the experience of a man who retires at the "normal" time. The question must therefore be raised as to whether a "current equivalent" constructed on the expectation of retirement at one age is a legitimate index of the worth of an executive's pension if he ultimately retires at a different one.

Take first the case of a man who works past age 65. In the vast majority of instances, the applicable pension plan will specify that benefits do not continue to accrue for years of service beyond the designated retirement date. The executive therefore acquires nothing additional in the way of pension during his last years on the job, and a current equivalent set up to run only through age 64 is a complete alternative to that pension. From age 65 on, the current equivalent is by definition equal to zero, and there is no problem.³⁸

If instead an executive should retire early and accept a lower retirement benefit from his company, the situation is less clear. If the current equivalent is terminated at that point and no further adjustment made, it must be assumed that the individual retirement annuity which the now-attenuated series of premium payments will provide will have the same after-tax present value as the reduced pension benefit. Whether such an assumption is valid depends, of course, on the specific schedule of early-retirement benefits under the plan in question and on the nature of the adjustment by the insurance company to a shorter stream of premium receipts. In the empirical work that follows, the convention will be that the two reductions in benefits are likely to be close enough in size to permit the view that simply terminating the current equivalent in the event of premature retirement does not distort the measurements. Apart from the fact that the available data rarely spell out the extent of the executive's sacrifice and thus provide any basis for a different procedure, there are good reasons to believe that the "truth," if known, *would* be very much like the assumption made. Both corporate pension trustees and the insurance companies selling individual annuity policies

³⁸ The exception to this would be the case in which the entire pension plan is revised. When that happens, even employees who were not entitled to accumulate additional benefits under the previous plan because they were overage are frequently included in a *general* benefit increase. If so, we confront a one-shot increment in our man's pension expectation which can be handled by determining the single-premium payment to an insurance company that will provide him with a straight life annuity policy having the same after-tax present value as his pension benefit increase—both evaluated as if they were to begin immediately.

must necessarily manage their affairs according to the same actuarial principles and will appraise their alternatives using similar mortality tables and opportunity costs. For a particular executive, therefore, those computations should not yield very different answers.

THE BEFORE-TAX CURRENT EQUIVALENT

Once the after-tax present value of an executive's pension has been determined, the premiums required for the purchase of an individual annuity having the same present value define its "after-tax current equivalent." A logical extension of this approach is the definition of a "before-tax current equivalent": the increase in actual gross salary and bonus receipts from the employer corporation that would be necessary to raise the man's current after-tax remuneration by the amount of his pension's after-tax current equivalent. Since that salary increase would enable the executive to do as well for himself as is done for him by his pension, he should be indifferent between the two arrangements. The concept of a "before-tax equivalent" therefore describes an operational alternative to the pension which makes use of direct current payments rather than promises of future benefits.

Several applications of this instrument are suggested by a general interest in appraising the characteristics of the compensation transaction. A comparison in before-tax terms of the relative importance of salary, bonus, and pension in the pay package can be drawn. The "efficiency" of a particular pension from the viewpoint of the employer can be determined by calculating the cost of financing the actual retirement income promise and contrasting it with the cost of its before-tax current equivalent. Finally, we may compare the federal tax revenue consequences of the two arrangements, taking into account both personal and corporate tax differences. Within the confines of the present study, however, company costs and governmental tax yields are not directly at issue, and are considered only briefly below.³⁹

SUMMARY

Because the pension benefits promised corporate executives differ in timing and in likelihood of receipt from the other components of the pay package, it is necessary to develop a procedure for their valuation

³⁹ See Appendix M, for example, for a discussion of the relative costs.

which permits meaningful comparison as well as measurement. The before-tax and after-tax "current income equivalents" described seem appropriate to that purpose. Conceptually, the most important element in the analysis is the designation of the individual retirement annuity policy as the best index of the worth of a pension—in effect, its closest market substitute.⁴⁰ While the assumptions required in connection with executives' outside income, deductions and exemptions, opportunity costs, marital status, and mortality experience cannot be as accurate as one might wish, the parameters finally chosen should constitute a reasonable representation of actual experience.

⁴⁰ The difference between the pension valuation methodology followed by Leonard R. Burgess in *Top Executive Pay Package* and that outlined above is especially marked. For some comments on the procedures employed by Burgess, see Daniel M. Holland's review in the *Political Science Quarterly*, March 1964, pp. 129–133.