Existing financing principles undoubtedly constitute the strongest practical fiscal control that can be exercised over OASDI programs.

Providing a General Revenue Contribution

The objective of more “adequate” benefits was clearly a part of the proposed general revenue contribution in the Social Security bill (S. 3661) introduced in 1966 by Senator Robert Kennedy. In introducing this bill, he said:

... in 1964, two out of five aged couples in this country had incomes of less than $3,000. One out of four had incomes of less than $2,000.

For these elderly people, social security has still not lived up to its original promise to avert economic insecurity in retirement. We must now keep that promise. We must now provide adequate benefits, and we can do so with fiscal soundness to all who are insured. We must explore the full potential of the social security system to serve as a guarantor of the retired years of our people.12

In addition to emphasizing “adequacy,” some proponents of a general revenue contribution argue not only that the payroll tax is high, but that this is a poor way to finance increases in benefits. If the OASDI system is to be made more of an instrument for preventing or removing poverty, it would hardly be fair to do so with a tax that reaches a maximum at $6,600 or $7,600. An increased emphasis on social adequacy would more logically be accomplished through tax burdens based on “ability to pay.”

On the benefits side, it is argued by others that a general increase in social insurance benefits would be an expensive way to reduce poverty because benefits would also be increased for those well above the poverty line at the same time. If the prime objective is to improve the economic position of those below the “poverty line,” a dollar of expenditures will go further in other programs than through increases in the social insurance benefit structure.13

Historically, a more technical argument has been used for a general revenue contribution. It is that in the transitional stage to a “mature” social insurance system, most people become eligible for benefits even though they have not “contributed” anything like the full cost of those benefits. Until most workers have contributed a lifetime at rates commensurate with the benefits they will receive, a large windfall will continue to accrue to current beneficiaries. This windfall, it is argued, constitutes an “unfunded liability” the burden of which should be borne by all taxpayers through general revenues rather than through the payroll tax. Since the use of the payroll tax is largely justified by the quid pro quo element, the “redistribution” in favor of current beneficiaries receiving windfalls should be met by a general levy.

This position has been countered by the argument that under the present system, the employer’s contribution is really a contribution on behalf of all workers and cannot be attributed to the particular individuals on whose wages the tax was levied. Thus the employer’s contributions may be used for redistributive purposes to whatever extent one may deem such redistribution to be consistent with “social insurance.” In particular, the employer’s contribution may be considered an appropriate way to finance the windfalls accruing to current bene-

ficiaries during the process of approaching a "mature" social insurance system.

The social insurance system, as it has operated to date, will never in fact reach "maturity" because the benefit structure will continue to be revised upward at least to take account of increased prices and probably also to provide the aged with improved "real" incomes as the nation's average standard of living rises. Because Congress will almost certainly take account of these "dynamic" elements on the benefits side, it would be more realistic to take account of such changes in examining the trend and allocation of the related taxes in the long run.

**Modifying the Payroll Tax**

Closely related to a general revenue contribution is the proposal to modify the payroll tax to make it more like an income tax: to allow personal exemptions and to increase substantially the maximum wage base. Such changes would check the growing impact of direct taxes on low income groups that goes with increased reliance on the payroll tax.14

It is argued that "... the distinction between the personal income tax and the Social Security tax, qua taxes, is almost completely arbitrary,"15 and so the impact of the two taxes should be examined as a unit. Such a viewpoint would, in effect, mean giving up the contributory principle as the primary justification of the payroll tax.

A high maximum wage base would also mean increased benefit levels. With the present type of benefit structure, which is heavily weighted in favor of those with low earnings records, a higher maximum base would also serve to increase the emphasis on adequacy.16

Even more than a general revenue contribution, the alternative of modifying the payroll tax would reflect the social adequacy objective and mean almost complete departure from the principle of relating an individual's contributions to his benefits.

**Separating Welfare and Insurance Elements**

The conflict between the objectives of social adequacy and "individual equity" has led to another suggestion, namely: separating the major elements in OASDI programs designed to meet these different objectives.

These portions of the programs may also be referred to as the "welfare" and "insurance" elements. In the broadest terms, the "welfare" element may be defined as that part of benefits which is determined largely on the basis of adequacy. Thus, the minimum old-age benefits bear no relation to the average covered wages of the beneficiary except that these wages must be low and the beneficiary must have a record of some covered employment.

The "insurance" element, on the other hand, consists of that part of benefits which, is, or can be, related to average covered wages. This relation would not be the strict relation between individual

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15. Ibid., p. 498.

16. "... under the cash-benefits portion of the OASDI system, the basic benefit amount (payable to a worker retiring at age 65 . . .) is $107 a month for a person earning $275 a month, whereas it is $168 a month for a person at the maximum creditable earnings of $550 a month. Thus, although the latter individual contributes twice as much as the former individual, his benefit rate is only 57% higher." (Robert J. Myers, *Employee Social Insurance Contributions and Progressive Taxation,* to be published in the *Journal of Risk and Insurance.*)
premiums and value of benefits in private individual insurance; it would necessarily be a looser relationship more characteristic of private group insurance and group annuities. Moreover, many of the variations in risks that may be taken into account in private insurance might not be appropriate for a social insurance programs (and vice versa).

Isolating an insurance element in OASDI programs raises fundamental questions of whether there are insurable risks that are unlikely to be met by private enterprise and private saving, and for which compulsory coverage by a governmental system may be justified. Because of the overlay of the social adequacy objective, these issues have not received detailed analysis in the past.

A separation of insurance elements would mean greater reliance on the benefit principle of taxation. The economic argument here is that where the benefits of public expenditures can be attributed to specific groups of individuals, and taxes for the support of these expenditures can be efficiently levied on these same groups, people will on the whole be better off than if these expenditures are financed out of general revenues.

Such a revision of OASDI programs, however, would represent a most radical change in existing financing principles. It would mean a departure from the principle of “self-support” through exclusive reliance on payroll taxes, and the fiscal control that goes with this principle. Moreover, many question the practicality of applying the “individual equity” principle very strictly in a compulsory social insurance system with nearly universal coverage.
V.
Problems In a Two-Tier System

At least in a formal sense, we now have “separate” systems for old age and survivors insurance, disability insurance, hospital insurance, and supplementary medical insurance (SMI). Each is assigned a designated part of the tax rate (except for the optional “premium” in the case of SMI), and each is assigned a separate trust fund. For supplementary medical insurance, the government makes a contribution from general revenues equal to the total premiums of participants.

Would it be feasible to go to a system in which minimum retirement benefits, for example, (or other non-insurance portions of benefits) were financed from, say, a specified rate on individual taxable income (as defined for income tax purposes), and insurance elements would continue to be financed by payroll taxes? A system on such lines has now been launched in Canada.

The Canadian System

In 1952 the Government of Canada adopted a universal old age pension of a flat amount per person, paid without a means test, and financed by a three-way tax on individual incomes, corporation incomes, and manufacturers sales. (The manufacturers sales tax is an important part of the Federal tax system in Canada.) The three-way tax was originally a two percent (now four percent) surcharge levied on the base of these three major federal taxes. The pension was originally $40 per month. It is now $75 per month.

In 1965 Canada adopted, in addition to this universal old age pension, a wage-related contributory system, called the Canada Pension Plan, under which individual contributions are closely related to benefits.

The Canada Pension Plan provides retirement pensions, disability pensions, children’s, wives’, and widows’ benefits in case of death or disability, and a lump sum payment at death. Benefits are to be adjusted in accordance with the cost of living (and eventually related to the average wage level).

The plan is financed by “contributions” from the employer, the employee, and the self-employed. Currently the employer and the employee each pay a tax of 1.8 percent on taxable earnings up to $5,000, with a $600 exemption. The self-employed pay a tax of 3.6 percent on earnings from $600 to $5,000. The contributions are deductible for income tax purposes, while benefits will be taxable income when paid.

The retirement pensions eventually will amount to 25 percent of annual covered earnings up to the maximum of $5,000 with an allowance for low or non-earning years. Full retirement pensions first become available on January 1, 1965.

1. Further details can be found in The Canada Pension Plan, (Ottawa: The Queen’s Printer: 1965).
1976. Until that date reduced amounts of pensions will be paid to those eligible. Where both husband and wife have contributed, both are entitled to retirement pensions.

This system appears to have developed more in response to public demands for old age security than as a fully thought-out scheme for social insurance.²

Meaning of "Social Insurance"

If financing of the U.S. system were to be in the direction separating elements based on the individual equity principle, an essential problem would be to define more clearly the insurance elements appropriate in a compulsory governmental system.³

A good deal of analytical effort has gone into developing a definition of "social insurance." Part of the problem of terminology is that the definition depends in some degree on judgments concerning appropriate methods of financing and the extent to which concepts of adequacy can be combined with a wage-related, contributory system. The definition is also likely to change as actual social security systems evolve.

A recently revised draft (Spring 1967) of the definition of "social insurance" by the Committee on Social Insurance Terminology of the American Risk and Insurance Association reads in part as follows:

SOCIAL INSURANCE: A device for the pooling of risks by their transfer to an organization, usually governmental, that is required by law to provide pecuniary or service benefits to or on behalf of covered persons upon the occurrence of certain predesignated losses under all of the following conditions:

1. Coverage is compulsory by law in virtually all instances.

2. Eligibility for benefits is derived . . . from contributions having been made . . . by or in respect of the claimant . . .; there is no requirement that the individual demonstrate inadequate financial resources, although a dependency status may need to be established.

3. The method for determining the benefits is prescribed by law.

4. The benefits for any individual are not usually directly related to contributions made by or in respect of him but instead usually redistribute income so as to favor certain groups such as those with low former wages or a large number of dependents.

5. There is a definite plan for financing benefits that is designed to be adequate in terms of long-range considerations.

6. The cost is borne primarily by contributions which are usually made by covered persons, their employers, or both.

7. The plan is administered or at least supervised by the government.

8. The plan is not established by the government solely for its present or former employees.

This definition accurately reflects the state of social insurance today, but it does not point up the current problems in social insurance financing.


Arguments for a Wage-Related Contributory System

The traditional arguments for a social insurance system, in addition to adequacy considerations, still have relevance.

Since the beginning of the social security system, compulsory provision for old age has been justified by the argument that without such provision many of the aged would become public charges, or direct welfare recipients. If many people voluntarily provide for their own old age while others do not, the former will end up paying part of the old age costs of the latter.

The force of this argument has diminished somewhat with the increasing private financing resources of the aged, although the majority of OASDI beneficiaries still have no other source of "retirement income." As income rises, providing for their own retirement becomes one of the services that more and more people want to buy. At low income levels, the implicit discount rate that many people put on saving for old age is undoubtedly high. This is suggested by the extremely high interest rates that many persons at low income levels (and in low income countries) are willing to pay, for borrowing of any sort.

Forcing people to save through social insurance may appear to be an undue interference with individual choice. As yet there is no evidence of payroll taxes checking people's willingness to save for old age or to purchase insurance. The expansion of social security has been accompanied by a rapid growth of private saving in other forms. Whether or not such a relation may continue is another matter. The fact that the initial payroll tax rate in this country was so low (one percent) for nearly a decade and a half perhaps contributed to some illusion as to how much insurance was actually being purchased.

Social security would not serve its essential purpose if it encroached on individual savings in private insurance, investment in homeownership, stocks and bonds, and in private pensions.

However the arguments may be arrayed on the question of compulsory saving for old age, at least a minimum of such compulsion is accepted in most western countries. Acceptance of such compulsion seems to be a part of the decline of dependence on the family as an old age security system.

The limitations of private provision for old age continue to provide a justification for a governmental system. Even though the employee might not choose to save toward his old age, some portion of the cost of a minimum old age pension should probably be regarded as a necessary part of the cost of production of goods and services. As more than one writer on insurance economics has pointed out, we set up accounts to take care of depreciation and obsolescence of physical assets; and at least part of the cost of life insurance and retirement for individuals can be treated in a similar

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6. The economic question of whether the individual savings in the form of social insurance taxes will actually be turned into real national saving and investment is another question which is examined below, pp. 45, 46.

fashion by the firm as well as the individual.8

The rapid growth of group insurance and private pension plans shows a recognition in the market that the current cost of production includes some provision for the worker after he reaches an age of retirement or one in which he can no longer work productively. But despite the growth of what has been called the corporate social security system,9 the workings of the labor market are usually such that the individual firm is not forced to take into account the cost of maintaining workers after they retire, at least for employees who remain with one firm for a short time. To ensure that such costs are taken into account in current production by the firm and the individual may be regarded as one of the economic justifications for a social insurance system.10

The social insurance system compels every employer as well as the employee to contribute an equal amount to OASDI. The employee remains covered, and in a sense, receives credit for his and his employer's contributions, no matter how often he changes jobs. These features of immediate "vesting" of pension and insurance rights and of "portability" are seldom provided for all employees under private insurance plans.

Social insurance thus provides a means of ensuring that all, or nearly all, individuals and firms take account of costs of old age and disability that otherwise would fall on the general taxpayer.

One of the distinctive features of social insurance is that it provides a means of taking care of the "transitional" costs of instituting old age income insurance without necessarily involving the long period for the build-up of reserves and the growth of investment income that are an essential part of private insurance and pension plans.

Under a pay-as-you-go system, the present labor force pays taxes which are used to support the present beneficiaries. Those who are currently paying taxes receive in exchange a promise by the government (though not in the form of a contract) to provide them with a certain benefit or "protection." This promise to pay can provide today's worker with "his money's worth" even though the taxes are used currently to support persons whose contributions have been far less than the cost of their benefits. The social insurance system is more than a process of redistributing income by age group (or by income level).

By relating an individual's contributions to his benefits, a mutually advantageous exchange (between people in different age groups) can be achieved,11 while under an income redistributing system, some people necessarily give up something to provide a gain for others. By general agreement, some income redistribution is necessary in providing for


10. There are "external costs" involved in provision for old age which usually are not taken into account by the individual and the firm. In a similar way, private business accounting did not adequately take account of depreciation costs before the advent of the income tax. (George Terboe, Realistic Depreciation Policy, Machinery and Allied Products Institute, Washington, D.C., 1954, pp. 2-3.)

11. This and some related propositions were demonstrated by Paul A. Samuelson in his article, "An Exact Consumption-Loan Model of Interest with or without the Social Contrivance of Money," Journal of Political Economy, Vol. 66, No. 6, December 1958, pp. 467-482. See also the Appendix below, pp. 48-52. An opposing view, that no true economic exchange can be made between generations by social insurance, can be found in Abba P. Lerner, "Consumption-Loan Interest and Money," Journal of Political Economy, Vol. 67, No. 5, October 1959, pp. 512-523. Lerner's view, in effect, is a denial of the possibility of a quid pro quo financing basis in a pay-as-you-go social insurance system.
the needy aged — our society does in some way take care of the destitute. But at any level of old age benefits, the economic position of most individuals could be improved by providing a financing system in which benefits are related to contributions.

This point is closely related to the traditional argument that social insurance gave people a sense of collecting by “right” rather than as welfare recipients. If people have “paid for” social security on an individual equity basis, the payroll tax is of much less significance as a tax than if it is essentially being used for income redistribution.12

Redistribution in OASDI

The “welfare” element in OASDI is reflected in the substantial amount of income redistribution that is effected through these programs. The two major kinds of redistribution involved are: (1) from higher to lower income groups, and (2) from those currently working and “contributing” to those who are receiving benefits substantially in excess of their own contributions in the past. In addition to these types of redistribution, the existing benefit structure and conditions of eligibility discriminate in favor of certain groups of people regardless of income level or age.13

Neither of the two major kinds of redistribution — by wage level or by age group — can be easily measured, in part because of problems of definition. Redistribution by income level can be defined with respect to the existing benefit structure and contribution levels: how do the existing or expected benefits compare with contributions under present law for people at different income levels? Studies done on this basis indicate a substantial redistribution from those whose earnings are near or above the maximum taxable level to those whose earnings are well below the maximum.14 Such comparisons made at any point of time must assume some expected benefit levels and past or future contribution levels, which may turn out to be unrealistic.

“Intergenerational” redistribution is also subject to definitional problems. The extent to which an individual pays for his own benefits is debatable. Some would attribute to the individual not only the employee’s contribution but also all or a part of the employer’s contribution. Others argue that the employer’s contribution cannot be attributed to the individual employee but is a general contribution for the support of all covered workers. Some would argue that even the employee’s contribution has so little relation to benefits that the whole process is a transfer with no real element of payment in exchange for a service.

A true, wage-related pension system would be more than a transfer — each individual would have “paid for” his pension during his working years.

The transitional problems involved in providing “adequate” benefits during the period between the initiation of the program and the time when most people will have contributed over a working lifetime constitute perhaps the most difficult problems of equity. The problems are difficult because to have a program

of importance in the transitional period, benefits cannot be based solely on contributions paid. The principle of social adequacy is given an important role, and it means "windfalls" to most beneficiaries during the transition to a "mature" system.

The question of how the costs of these windfalls are to be distributed has now been largely answered by past decisions in this country, namely through employer's contributions and the flow of employee contributions from new entrants to the labor force. A justification for this kind of financing can be made on the same grounds as the justification for a "mature" wage-related system, as long as the transitional financing does not fall outside the limits of the principle of "individual equity."

It is argued in the Appendix that the transitional problems of financing under a pay-as-you-go system can be consistent with the principle of individual equity. The implication of this conclusion is that in separating "welfare" and "insurance" elements, it is redistribution by income level for current contributors, not "intergenerational" redistribution, that might be financed by general revenues. Intergenerational redistribution can, under reasonable assumptions, be financed by payroll taxation subject to the individual equity principle for current contributors. The "transfer" payment to current beneficiaries does not mean that current taxpayers will not "get their money's worth" in exchange for their own contributions.

**Complexity**

A shift of emphasis to the individual equity principle would mean an increase in the complexity of theoretical and administrative problems. The aggregative principle of "actuarial soundness" now being used is simple as compared with the problems of relating individual contributions to individual benefit levels.

A considerable expansion of the research programs of the Social Security Administration would probably be required. As the Chief Actuary once pointed out:

> The principle of individual equity is difficult to disagree with. The problem arises that this principle is easy to discuss in general but relatively difficult to define specifically. Certain questions arise. Should only workers who actually earn the maximum taxable wage for every year of their working life be considered, or should a probable wage-history basis be used? Should retirement be assumed to occur at the earliest possible age, or should the probability of retirement at later ages be considered? Should allowance be made for the probabilities of marriage and parenthood, or should only single men and single women be considered?...

A detailed analysis of risks and costs would involve the Social Security Administration in more actuarial work similar to that done by private insurance companies, but with different kinds of "packages" of insurance and annuities. Some change in the treatment of single and married persons would probably be necessary, and perhaps account should be taken of the varying risks for certain categories in the population. However, many variations in risks might not be appropriate to consider in a social insurance program—such as differences in length of life characteristic of different occupations. Costs and benefits undoubtedly would not be as closely related as is likely under private insurance.

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There is precedent for detailed cost-benefit analysis for tax purposes in the Federal Highway program. The problems involved in relating benefits to contributions for social insurance are probably less complicated than for highway programs. The very fact that cash payments and receipts are involved, rather than benefits that must be estimated, simplifies the problems. Social insurance is analogous to private group insurance rather than to individual life insurance, and the problems of dealing with particular age groups as a whole, rather than with individual risks, are simpler to handle.

The proposal that individual contributions be actuarially related to benefits is not a new one. It has been explored by the Social Security Administration and by various study commissions and individual experts in the past. Other countries have relied in varying degrees on a contributory, wage-related, insurance program.

Welfare Versus Insurance Costs

How much would a social insurance system cost if welfare elements were largely eliminated? The answer would depend in part on the extent of risks covered as well as on the definition of such elements.

One way of estimating the redistributive element by income level would be to examine OASDI benefit levels in relation to "actuarially justified" pensions. Such estimates have been made by Henry Aaron, but he did not carry them to the extent of estimating an aggregate amount of redistribution involved. Nevertheless, his estimates show a benefit-contribution ratio at low wage levels of two to three times the ratio at maximum taxable income levels.

Another way of estimating the order of magnitude of the redistributive element in social security is to assume that the aged at low income levels are the major beneficiaries of the redistributive elements in the system. Recent estimates indicate that about one-third of OASDI beneficiaries would have income above "poverty levels" ($1,500 for single persons and $1,900 for a couple) without OASDI benefits. About 41 percent of beneficiaries are kept above "poverty levels" by OASDI payments.

The orders of magnitude involved can also be illustrated by estimating the cost of the present minimum retirement benefit if it were financed as a separate element of the benefit structure for all retired beneficiaries. If a minimum old age pension of $44 per month were paid to all persons currently receiving retirement benefits (11½ million in 1966) the cost would be about $500 million per month as compared with actual monthly retirement payments of about $950 million in 1966 (or about $6 billion per year as compared with actual retirement payments of about $12 billion per year).

The cost would be much less if it related only to those receiving the minimum retirement benefit. A flat minimum retirement benefit for all beneficiaries.
aries would be "uneconomic" in that it would apply to those not really in need. More strictly defined, a "welfare" element would be related in some way to a means test. The OASDI system, in effect, has a means test in its record of earnings. For most beneficiaries, other sources of income are of minor importance.

The direction in which a separation of welfare and insurance elements leads is a complete revision of the benefit structure. The existing weighting of benefits in favor of low income groups would be replaced by a more closely wage-related schedule of insurance benefits. The adequacy objective would be reflected instead in a non-insurance payment also dependent on the beneficiary's record of past and current earnings. The record of attachment to the labor force would become the chief distinguishing feature between OASDI payments and public assistance. The measure of "means" or needs in the OASDI system is rough, but a major function of public welfare programs is to deal in detail with the variation in needs of low income families. The OASDI payment would be a basic cash payment for purposes of public assistance programs, as is now the case, for beneficiaries of both types of programs.

**Economic Effects**

An important policy objective in revision of the social insurance system is the minimizing of distorting economic effects. One of the limits on payroll taxes is the possible differential effects on different kinds of industries. These have been examined in a previous Tax Foundation study, as have the problems of relating social security financing to counter-cyclical fiscal policy.\(^{21}\)

One of the major problems that bears on social security devotion is the effect on economic growth. This question has been debated and examined at great length in the past in connection with the issue of building up reserve funds. The insurance analogy seemed to call for a large reserve fund, but the possible deflationary effects of building up such a fund were a major consideration in the shift to a virtual pay-as-you-go system. Moreover, many questioned whether a reserve fund invested in government securities would have any real effect on national savings and investment. If the build-up of a financial reserve had no real effect on the rate of investment, the economic argument for a reserve fund was largely removed.

In contrast, the reserves of private pension funds are generally managed in such a way that they are directly channeled into real investment; they also appear to have the effect of increasing the rate of national saving. A pay-as-you-go social insurance system transfers income from the working population, who are savers, to the non-working population, who for the most part are non-savers. Consequently, such a system is likely to reduce the real rate of national saving and investment and thus decrease the rate of economic growth.

A pension system that does not serve to increase national productive capacity from which increased pensions must be paid—and which may even reduce future growth—has a disadvantage in comparison with a system that serves to increase economic growth (on the assumption that a higher rate of economic growth is desirable). Particularly, when we are reaching a stage where public policies may have important effects on the relative growth of public versus pri-

vate pension systems, the possible effects on economic growth become significant.

Under certain assumptions, reserve fund financing of social insurance could well lead to increased national savings and investment, but it is by no means certain that a reserve fund invested in government bonds will have this effect. An attempt to ensure such an effect has been made under the Canada Pension Plan by investing its assets in provincial government securities. Presumably the uses made of long-term borrowing by provincial governments are such as to increase real national investment. Such investment of funds obtained from a compulsory government pension program does serve to reduce demands on the capital market by provincial governments and should leave more funds available for private business investment.

In any case, there is a broad range of policies open to government to promote economic growth, and the financing of a contributory social insurance program must be taken into account in formulating policies for growth and stability. However, this does not mean that social insurance financing should necessarily be used as a major instrument for pursuing such goals.

**Coordination with Other Public Policies Relating to the Aged**

A change in social insurance programs to put the primary emphasis on the contributory principle would necessarily involve revisions in other policies and programs affecting the aged. These include the income tax treatment of the aged, the tax treatment of private pension plans, and the coordination of social insurance with other welfare programs.

Whatever alternatives are adopted in social security financing, the increasing coverage and rising level of benefits under social security have made the issues of the various policies toward the aged closely interdependent.

Current exemption from taxable income of social insurance contributions, as under the Canadian system, and inclusion of benefits in taxable income at the time paid could improve individual equity by relating the income tax liability more closely to current disposable income (although this is not the only consideration involved). Such a change in the treatment of social insurance contributions has been proposed in the United States.

The question of the respective roles of public and private pension plans has apparently been given relatively little consideration in the past. Lack of attention to this question has probably been due to the narrow coverage of private pension plans until recent years. As recently as 1950 the number of persons covered by private plans amounted to 11 percent of those covered by OASDI. By 1965 this ratio has risen to 20 percent.

Social insurance has generally been thought of as providing a "floor" of protection against loss of income and the other risks covered. The level of contributory pensions, on an individual equity basis should, however, take account of

the extent to which private pensions and other provisions for old age are likely to provide for old age. It would not be reasonable to provide compulsory governmental pensions at a level that would check the growth of private provision for old age. The coverage and benefits provided by private pension plans as time goes on will probably change substantially.25

At the low end of the benefit scale, concepts of adequacy have obviously dominated social security benefits. The OASDI system was originally intended gradually to replace a substantial portion of old age assistance, and it has at least partially achieved this goal. The number of old age assistance recipients reached a peak of 2.8 million in 1950 and thereafter declined steadily to 2.1 million in 1966.26 Increases in recipients of other public assistance programs have in part offset this decline.27 The close relation between OASDI programs and public assistance is indicated by the fact that about four fifths of the old age assistance recipients also are OASDI beneficiaries.28

**Conclusion**

The difficulties in moving toward a two-tier system are formidable. A substantial revision in the benefit structure and its relation to contribution and earnings records would not be easy to work out. A separate financing of elements in OASDI programs based on the principle of "social adequacy" might mean considerable change in the Federal tax structure — with relatively more revenue to be raised through income taxes, corporate as well as individual.

It is difficult to predict what the additional expenditure levels and tax burdens might be. A general revenue contribution, however set up or rationalized, is likely to remove the necessity for relating the tax levy directly to the benefits to be financed. If a general revenue contribution came in substantial part from the corporation income tax, rather than from the individual income tax, there would be little improvement in equity, and hence no justification for such a shift.

Modification of the payroll tax, either by introducing an exemption, or substantially raising the maximum tax base, or both of these, would retain the fiscal control features of the present system, but would shift a large part of the tax burden to middle and upper income groups, who would benefit least from such a revision. The contributory justification of payroll tax financing would be weakened. In addition, substantially raising the maximum tax base, and thereby benefits as well, would narrow the possibilities for growth in private pension plans.

Maintaining approximately the existing balance between "social adequacy" and "individual equity" would, with rising payroll taxes, emphasize the fiscal control feature, and also retain the wage-related, contributory feature in its present form.

27. Further discussion can be found in Robert J. Myers, *Social Insurance and Allied Government Programs* (Homewood, Ill.: Richard D. Irwin, Inc., 1965), Chapter X.
Appendix

A Diagrammatic Analysis of Social Insurance Taxes for Retirement Benefits

A simplified model of the economy can serve to highlight the major issues of financing social insurance. The main question examined here is the relationship between a pay-as-you-go social insurance tax rate and an "actuarial" insurance tax rate. To put the problem another way, what is the relationship between a collective or aggregate view of social insurance financing and an individual's cost-benefit view?

Let us assume that:

1. The population grows at a constant rate per year.
2. Every individual enters the labor force at a given age, $a_1$, works through age $a_2$, and dies at age $a_3 + 1$.
3. Everyone gets the same wage. (This is a useful simplifying assumption that serves to separate problems of financing over time from the problem of redistribution by income levels.)
4. Every one retires with a social insurance pension equal to the current wage, or some fraction of the current wage. (In the case of an increasing wage assumption, i.e., a model with increasing productivity, the individual's pension increases at the same annual rate as the wage.²)
5. Full employment is continuously maintained.

Population Age Distribution and
The Social Insurance Tax

Under the above assumptions, the population age distribution is shown in Chart A1. Since the population increases at a constant rate, the age distribution shows up as a straight line on a semi-log chart. Although there is no zero boundary on such charts, area $L$ can be taken as representing the labor force, and area $R$ as representing the retired population.

In any given year, if we assume that the pension is equal to the wage, then the social insurance tax rate, on a pay-as-you-go system, must be equal to the ratio of the retired to the working population, namely, $\frac{R}{L}$.

The size of the retired population and the labor force depend on (1) the number of years people spend in retirement, $n = a_3 - a_2$ (2) the years spent in the labor force, $m = a_2 - a_1 + 1$, and (3) the rate of growth of population.$^3$

Altogether, the social insurance tax rate, $F$, is determined by four variables or constants:

$p =$ the ratio of the pension to the wage
$n =$ the number of years people spend in retirement
$m =$ the number of years people spend in the labor force
$t = 1 +$ the rate of growth of population

$$F = p \frac{R}{L}.$$
Mits

Chart A1
Hypothetical Population
Age Distribution

Chart A2
Hypothetical Individual's Wage,
Tax, and Pension History
(Level-Wage Assumption)

Chart A3
Hypothetical Individual's Wage,
Tax, and Pension History
(Increasing-Wage Assumption)

- Interest rate equal to area 11 assumes an interest rate equal to the rate of growth of wages. Interest rate equal to areas 11 & 12 assumes an interest rate equal to the rate of growth of wages plus the rate of growth of population.

Number at each age

Wage

L (Labor Force)
R (Retired population)

W (Wages)
P (Pension)

T (Taxes)

Age a1 a2 a3

W1 W2 W3
It should be noted that the pay-as-you-go tax rate is not dependent on the level or rate of growth of wages. The whole operation of tax collection and pension payments may be assumed to occur within one year, so that we have no problem of payment lags.

Of the four factors affecting the social insurance tax rate, we might assume any three to be constant, and the fourth to be the main determinant of the tax rate. Thus, if we assume that the ratio of the pension to the wage, the number of years in the labor force and in retirement are constant, we can say that the pay-as-you-go tax rate depends on the rate of growth of population.

The Individual's "Actuarial" Rate

To turn from the aggregate point of view to the position of the individual, Chart A2 shows, with a constant wage level, the total amount of wages paid to an individual over his working life, area W (i.e., the rectangle $a_1a_2W_2W_0$). Similarly, the amount of pensions paid to an individual over his retirement years is represented by the area P (i.e., the rectangle $a_3a_4W_3W_4$).

If the interest rate were zero and he did not discount the future, the individual would have to save, or tax himself, at the rate $W/W$ in order to provide himself for his old age (where $T = \text{total taxes paid}$, and $P = \text{total pensions received}$). The collective pay-as-you-go tax rate, $R$, is necessarily less than the individual's required rate of saving, $T/W$, because of the growth of population. The social insurance tax rate will be smaller than the individual's required saving rate, the larger the number of people in the younger age groups available to make contributions.

How is the comparison affected if we take account of interest? If the individual has an interest rate available to him on his own savings (as risk-free as the government's promise to pay pension benefits), the interest on his savings will accumulate as shown by area $I$ in Chart A2. If he discounts the value of his pensions at this same rate, the discounted value of his pensions at the time of retirement is area $P$. With interest available, he has to save, or tax himself, at a lower rate than with no interest because of the accumulation of interest on his savings and the discounting of the value of his pension.

Inspection of the charts suggests the break-even point. The advantage of the collective pay-as-you-go rate is just offset when the interest rate is equal to the rate of growth of population.

If the interest rate exceeded the rate of population growth, the individual would fare better by doing his own saving than he would under a collective pay-as-you-go insurance system.

The question of whether there would be a positive interest rate in an economy in which wages remained constant is a complex one. In a more elaborate model, Professor Samuelson has shown that under conditions similar to those assumed above, the interest rate will indeed be determined by the rate of population growth.

The Insurance Tax Comparison

In a Progressing Economy

We have shown that the collective pay-as-you-go tax rate is independent of the rate of growth of wages. However, the rate of growth of wages (or "productivity") affects the individual's calculation of his required rate of saving. With a growing wage rate, he will have to tax himself more in every year before retirement in order to provide a pension that grows with the level of wages from his year of retirement. If he is to keep up with the Joneses after his retirement, he will have to tax himself at a higher rate over his working life.

Under an increasing-wage assumption, the additional saving required will more or less offset the additional value obtained from interest — depending on the extent to which the rate of interest exceeds the rate of growth of wages.

4. For the next three decades in the United States, the population aged 65 and over bears an almost constant ratio to the population aged 20 to 64. This ratio rises from 18.1 percent in 1965 to about 19 percent in 2000. (United States Population Projections for OASDI Cost Estimates, Social Security Administration, Actuarial Study No. 62, Washington, D.C. December 1966, p. 23.) Thus, it would be more realistic to say that the social insurance tax rate in the United States will depend upon the ratio of the pension to the average wage.

5. Let $T$ = the tax paid in the last year of working life, $T' =$ the total taxes paid over the individual's working life, and $r = 1 +$ the rate of interest. Then: $T' = T (1 + r + r^2 + \ldots + r^{n-1})$. Similarly, let $w_0 =$ the wage paid in the last year of working life, and $P' =$ the discounted value of the individual's pension payments at the time of his retirement. Then: $P' = w_0 (r^{-1} + r^{-2} + \ldots + r^{-n})$. These from these equations and those in footnote 3, it follows that $T' = P'$ when the interest rate is equal to the rate of population growth.


7. Even if he chose only to provide himself a pension equal to the average wage when he retired, he would also have to save more in his working years when his wage averaged less than the wage in his last working year.
As Henry Aaron has shown in a slightly different formulation, the collective pay-as-you-go rate will be equal to the individual’s “actuarial” rate, where the interest rate is approximately equal to the sum of the rate of growth of population and the rate of growth of wages. This relationship is shown by a comparison of Charts A1 and A3. In Chart A3, an increasing wage assumption is illustrated by the rising wage and tax curve. For the sake of direct comparison with Chart A1, interest is shown on Chart A3 accumulated graphically from year $a_0$ to year $a_1$. The interest shown in area $I_1$ is the amount that would be accumulated if the interest rate were just equal to the rate of growth of wages. The interest shown in area $I_2$ plus area $I_3$ is the amount that would be accumulated if the interest rate were just equal to the sum of the rate of growth of wages and the rate of growth of population. (For illustrative purpose in these charts, the rates of growth of wages and population were assumed to be 2 per cent per annum.) Inspection of Charts A1 and A3 indicates that the social insurance tax rate, $F = p \frac{P'}{L}$, under these assumptions, is just equal to the individual’s actuarial rate, $\frac{P'}{L'}$, where $T'$ is the accumulated amount of taxes plus interest over a working life, is equal to $P'$, the discounted value of pensions received over the years of retirement. Any ratio of the pension to the wage affects the social insurance tax rate and the individual’s actuarial rate equally.

By way of comparison, individuals in 1967 could generally expect to get an interest rate on the order of 4½ percent on riskless forms of savings. The average rate of growth of “productivity” is on the order of 3 percent, depending on just how, and over what period, it is calculated. The expected rate of population growth (in age groups over 20) from 1965 to 2000 is just 1.5 percent.

There are, of course, various other influences affecting the comparison between social insurance and private saving for old age. One of these is that most private annuities and other forms of safe investments do not readily offer the individual the option of providing himself with a growing pension. However, the kind of comparison made above could also be made on the assumption that each individual retires with a pension equal to the wage (or some fraction of the wage) in his last working year. If everyone retired with a pension equal to the wage at the time he retired, the pay-as-you-go social insurance tax rate would be slightly lower, and so would the individual’s “actuarial” rate.

More realistically, what is done in the United States is that Congress periodically takes a long-range (or intermediate-range) look at social insurance benefits and revises them upwards on the basis of projections which assume continuation of the existing level of wages and a fixed scale of benefits. If this revision is done often enough, the “actuality” comes close, in its major relevant characteristics, to the model assumed above.

In one important respect, however, the above model differs from the actual situation: the model assumes a “mature” system in which everyone contributes for a full lifetime. In fact, the U.S. system is a long way from maturity both because few people have actually contributed for a working lifetime and because, as a result of liberalizations, far fewer people have contributed for a long period at a level of taxation consistent with the current level of benefits. This situation raises special problems.

**Problems of Transition**

The financing problems in a period of transition to a mature system depend upon the way in which transitional financing is arranged.

A social insurance system could be put into effect immediately with the same collective tax rate as under a mature system. Since it can be assumed that such a system would represent a tax of all wages in one year to pay for the pensions of the retired population in that same year, the tax rate in the first year of operation would also be determined by the ratio of the retired to the working population (given the ratio of the pension to the wage and the number of years of working life and the number spent in retirement).

It might seem then that we have no problems of transition. It has been argued in most of the literature on this subject that under a contributory system there is necessarily a large "unfunded liability" to be met during the transition to a mature system. Those who collect a full pension before contributing over a full lifetime receive a windfall.

It does not follow, however, that because of such windfalls, the younger age groups will pay a social insurance tax rate higher than their "actuarial" rate. The above analysis shows that the social insurance tax rate will be equal to the individual actuarial rate, for someone who works a lifetime under the system, where

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9. Such matters as the absence of selling costs in a compulsory system will not be considered here.
the interest rate is approximately equal to the sum of the rate of population growth and the rate of growth of wages. This will be true regardless of any unfunded liability. Here lies the paradox of social insurance. The younger age groups are taxed to provide for the aged, but the younger age groups also get an equivalent quid pro quo in the government's promise to pay future benefits. At the same time, the aged receive windfalls. Is someone getting something for nothing—or without others having to give up something?

The answer to this paradox is to be found in the assumption of perpetual exponential growth. The point to be emphasized in considering social insurance financing is that the pay-as-you-go social insurance rate cannot, or assumptions used above, exceed the highest individual "actuarial" rate as long as the interest rate does not exceed the sum of the rate of growth of population and productivity.

The problem of "unfunded" liabilities is essentially this: Only the youngest age group in the population will be paying its full "actuarial" rate. All older age groups will pay a progressively lower rate, actuarially, down to the group just retiring when the system is instituted; and this group pays a zero price unless there are provisions for "actuarially reduced benefits" and minimum periods of coverage necessary to qualify for benefits.

In order to minimize this price discrimination, most social insurance systems do not immediately pay full benefits. But neither do they postpone full benefits until the system reaches maturity. Because full benefits are not postponed until the system reaches maturity, most individuals will pay a social insurance tax rate below their own individual actuarial rate. This unfunded liability, however, cannot make the collective tax rate exceed the individual actuarial rate, even for those just entering the labor force.

**Income Redistribution**

It may be concluded that the cause of current high social insurance tax rates (in relation to "actuarial" levels for young age groups earning the maximum taxable wage or more) is an element in the system which was excluded from the model used above, namely redistribution by income level. The model assumed that everyone got the same wage and the same pension.

In the United States, the retirement benefit is not a straight pension or annuity reflecting past levels of earnings. Rather, the benefit structure is set up to provide a large discrimination in favor of very low incomes. The structure of taxes and benefits together results in a large amount of income redistribution by income levels.

Currently, average retirement benefits are substantially below the maximum benefits payable to those with covered wages equal to or in excess of the maximum (Chart 1 above p. 18). If the maximum wage base were substantially raised, and a benefit schedule similar to the present one (in relation to covered wages) were retained, the extent of redistribution by income level would be increased. In effect, further redistribution would be accomplished by greater price discrimination between those with high and low taxable incomes.

Redistribution effected through a system of price discrimination by income level will generally be less advantageous for the community as a whole than the same redistribution effected through an income tax and an equivalent subsidy to low income groups through transfer payments.

10. This assumption is the basis of certain get-something-for-nothing chain letter schemes. It was also the assumption underlying many "fraternal" insurance societies around the turn of the century. (Frank G. Dickson, "The Social Security Principle," The Journal of Insurance, Vol. 27, No. 4, December 1966, pp. 8-10.)

11. One of these assumptions is that a free capital market exists and that private forms of savings are available to the individual. It was also assumed that the social insurance system would have no effect on the interest rate. In the extreme case, the government could continue to raise its promise to pay until the pension was several times as large as the wage. If the tax rate rose to 100 percent, the rate of interest (and discount) would presumably be infinite.
