THE FUNCTIONS OF RESERVES IN OLD-AGE BENEFIT PLANS

SUMMARY

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The problems connected with the accumulation of reserves for securing annuities under contributory national old-age benefit plans can be approached from three distinctly different angles. A clearly defined point of view is adopted by those who lay stress on the insurance aspects of the plan, that is to say, who insist upon establishing a relationship between contributions and annuities and upon implementing the system by a well-considered, long-term financial scheme which will secure full payment of all annuities when due, except for disturbances caused by unforeseen events. Other students of the problem emphasize the budgetary implications of the plan; their concern centers on the relations between the methods of financing the benefit scheme and the State budget whose balance might be seriously affected unless "self-sufficiency" of the plan is secured. Finally, when the solutions proposed are examined as to the effects which the imposition of pay-roll taxes and the accumulation of reserves may exert on the economic system and its monetary sector in particular, a third line of approach is adopted which may be termed the economic one.

To each of these divergent points of view special groups of problems can obviously be coordinated, and it might be

1. Since the author of this article is on the staff of the Social Security Board, it may be expressly emphasized that the statements of fact or opinion which the article contains are made on the responsibility of the author alone.
appropriate to keep this coördination in mind in analyzing the various arguments advanced in favor of or against the accumulation of large reserves. This way of setting the problem may be particularly helpful in examining compromises suggested under the combined influence of different lines of approach.

The approach from the insurance angle and the budgetary approach have this in common that both are ruled by certain assumptions or hypotheses with respect to the future trend of economic and financial events. Above all it is assumed that, in the long run, the value of the monetary unit can be considered as fairly stable, and that general purchasing power will experience no rapid changes in its volume. However, when the full economic and financial implications of the benefit plan are taken into consideration, this hypothesis is to be discarded. To put it in other terms: when insurance concepts or budgetary considerations are applied, the economic system is supposed to be marked by a slowly but gradually expanding development, by some sort of moving equilibrium. If, on the other hand, the economic and financial implications of the benefit plan are given full consideration, a rather dynamic concept is applied to the economic system, and particular attention is paid to the periodic fluctuations of this system, that is to say, to the recurring alternations of prosperity and depression periods.

I. THE INSURANCE POINT OF VIEW

Up to the creation of the American old-age insurance plan there existed unanimous agreement on the principle that an old-age insurance fund should form a separate financial entity. Payment of regular and limited State subsidies to such a fund was not regarded as inconsistent with this principle, provided such subsidies were made a part of the normal receipts of the fund and were calculated from the outset. From this principle have started discussions concerning the extent to which reserves should be accumulated

in order to be sufficient for safeguarding the rights of those covered by compulsory insurance plans.

In these discussions, which have been going on for approximately forty years, the role to be attributed to the time element in financing social insurance plans was strongly emphasized. For an indefinite time to come, by virtue of compulsion, all members of the large group which is covered by the plan — at present and in the future — are bound to participate in the scheme, and the contributions to be paid on behalf of generations to come can be expected to provide the funds needed for satisfying the claims of those who, in turn, provide, by the contributions paid on their behalf, the means for securing the claims of their contemporary annuitants. Hence insight into the effects of the compulsory features of social insurance plans appears to lead to the conclusion that there is no need for establishing an individual reserve account for each participant, but that in this case the principle of collective coverage of the risks can apply.

However, the validity of such considerations is open to serious doubt in all cases in which the amount and duration of the annuities payable to an individual are determined by the period during which contributions have been levied on his behalf. Then a "transitional" process is bound to take place, which may extend over a considerable period, far exceeding one generation. This process does not reach its end until the number of the yearly accruing annuities is balanced by the number of those falling off owing to death, and an equal balance obtains between the total amounts of yearly accruing and falling-off annuities. Only when this state of equilibrium has been attained is the adoption of a pay-as-you-go system fully justified, since under these conditions the yearly contributions to be levied can be adjusted to fairly constant expenditures.

Hence, the insurance problem to be solved by compulsory contributory old-age benefit plans centers on the question of how to provide means for the increases in annuity payments which are a characteristic feature of the transition years elapsing between the beginning of the operation of the plan
and the time when the balance mentioned above has been attained.

In the light of experience so far gained, no less than four ways are open for dealing with this problem. The first way is in open contradiction with any insurance principles and has, in practice, never deliberately been adopted, altho resorted to under the strain of extraordinary circumstances. This method, when consistently applied, would amount to the adoption of an outright pay-as-you-go procedure; the contributions would simply be determined with a view to covering the current expenditures, hence at very low rates during the first stage of operating the plan but with steeply increasing rates needed later in order to cover the rapidly rising expenditures of the fund caused by increases in the number of the annuitants and in the amounts of the benefits due. Since the contributions are commonly levied on wages and are to be paid by employers and workers — as a rule on a fifty-fifty basis — the effects of such rapid increases in the rates would be highly prejudicial to the balance of the wage and price structure. Unstable contributions are considered inconsistent with a smooth and sound functioning of the plan. The time dimension can never be completely disregarded in devising the financial structure of a contributory old-age benefit scheme.

Insight into the problems involved in the time dimension leads to the conclusion that the expenditures of the fund as determined for the entire transition period or eventually for an indefinite, perpetual duration of the plan should be considered as an integral whole to be balanced by the total revenues of the fund as determined for the same period. In the light of this reasoning, a second method of organizing old-age pension plans has been devised, which is based upon the idea of fixing the rates of contribution in advance at fairly stable levels for the entire duration of the scheme. If, to facilitate economic adjustment, somewhat lower rates are imposed during the initial stages of operating the plan, increased contributions are to be levied during subsequent periods. Under this system reserves are accumulated as
long as the yearly incoming contributions are in excess of the yearly expenditures. These reserves are intended to remain a constant and permanent element of the financial structure of the plan, since the interest earned on these reserves is considered a continuous source of income over and above the yearly contributions. This interest can be taken into account in fixing the rate of contribution, and this, consequently, can be kept lower than would otherwise be the case, even after the changing situation obtaining during the transition period has been superseded by that balance between revenues and expenditures which would permit the adoption of an outright pay-as-you-go system. This method in so far resembles those adopted by private insurance plans as — in the possible but highly improbable case of discontinuing the scheme — more or less adequate funds would be available for securing the claims of those who, at this juncture, would be insured members of the scheme.

The two-dimensional features of this financial device stand out in bold relief. The entire group of the insured extending over the entire period covered by the plan is considered as an integral whole for the purpose of financing the scheme.

The main objections raised against this solution of the reserve problem center on the consideration that, tho the rates of contribution can be kept fairly constant and at a reasonable level, the amount of the reserves to be accumulated may assume considerable proportions and might deflect large volumes of purchasing power from far more desirable and economically more advantageous uses than could possibly be made of the reserves. In this connection the question of how to invest the reserves made its appearance, tho it has hardly received as much attention as its importance would seem to warrant.

Among the expert actuaries who played the foremost rôle in devising social insurance plans, far-reaching agreement appears to have been reached with respect to two closely interrelated postulates: (1) that the rates of contribution should be kept stable; (2) that accumulation of huge reserves
should, as far as possible, be avoided. Particularly in countries in which additional contributions needed for financing other lines of insurance were levied on pay rolls, such rates as would have permitted the accumulation of full reserves were considered too high. At this juncture the problem of pay-roll taxes and their incidence entered into the picture, but again this problem was never discussed in the full light of its importance.

When this line of reasoning was pursued into its consequences, there was no way out of the dilemma presented by the reserve problem but payment of subsidies out of public means to cover the deficits arising from the excess of expenditures over the revenues of the fund during the later stages of operating the plan. As far as actual experience goes, such subsidies have either been simply adjusted to the deficits or have been granted in the form of supplements to the annuities as they fell due.

Outright deficit-financing is adopted by the third method to be discussed under this heading. The lower the contributions are kept, the greater is the part assigned to the public subsidies which are to be granted after the exhaustion of small reserves accumulated during the initial period of operating the plan, when yearly expenditures on annuities, tho rapidly increasing, are still below the revenues resulting from the contributions. However, under such a financial organization the burden to be borne by the Treasury may assume considerable proportions, and the capacity of the fund to meet its obligations may be made dependent to a high degree upon the general situation of the public budget, which in time to come may be exposed to severe tensions. Moreover, it is obvious that the quasi-contractual features of an old-age benefit plan are likely to be the more problematic, the larger is the portion of the expenditures financed by public subsidies as compared with that portion which is defrayed out of current contributions.

Under the method just described the two-dimensional aspects of old-age annuity systems are neglected in favor of meeting the yearly expenditures of the fund out of current
revenues (contributions plus State subsidies) received during the same yearly period during which they are spent.

In evaluating this method of financing annuity plans, it is not to be overlooked that in any insurance plan in the strict sense of the word there exists some relationship between the amounts of contribution paid on behalf of the insured and the amounts of benefit which they are entitled to receive. Any payment of public subsidies which is simply adjusted to the deficits of the plan is likely to disturb that relationship, since this procedure amounts, in fact, to a system which results in granting each annuitant an "unearned" portion of his pension. As a result of this reasoning, deficit-financing of this kind was generally considered inapplicable, unless the pensions granted were of the flat-rate type. Where the pensions varied in accordance with accumulated contributions, this method would have implied that the amount of public subsidies granted each annuitant would likewise have varied in accordance with the contributions paid on his behalf, and such a procedure was held to be inconsistent with commonly recognized principles of equity.

In order to meet this difficulty, a fourth method was devised, in terms of which regular and equal State contributions are paid to each annuity, whatever may be its amount. This method appears to secure the advantages involved both in relatively low rates of contribution and low reserves, and to give due regard to the importance of the time dimension for the insurance plan. In setting up the financial structure of the plan the entire volume of expenditures to be met during an indefinite time to come is considered as an integral whole, and the contributions are fixed, at fairly stable rates, accordingly. However, the contributions can be kept relatively low and moderate reserves may be sufficient for balancing the system by the interest earned on them, since the annuities which are to be covered out of the yearly contributions plus this interest are intended to constitute only a fraction of the total benefits to be granted the annuitants; another considerable fraction is to be supplied through the public subsidy. As in the case of other systems, political
and budgetary considerations were likely to play an important part in promoting or discouraging the adoption of this method.

Three of the four methods which have been briefly outlined in the foregoing analysis have found practical application in the historical development of social insurance systems. The fourth method can claim to have been the first to be put to the test of practical experience, since it supplied the pattern for the structure of the comprehensive compulsory wage-earners' old-age and invalidity plan which came into operation in Germany as early as 1891.

The third method, which results in deficit-financing out of public means, was adopted by the British post-war old-age pension system, which provides for flat-rate contributions and equally flat-rate benefits. The American old-age benefit plan is based upon the second method, according to which full reserves accumulated during the initial stages of the transition period are intended to yield sufficient interest to supplement the deficient yield of contributions during the later periods of operating the plan. The French old-age and invalidity plan presents a somewhat modified application of the same method. Certain characteristic features of each of these plans will be analyzed in the following section.

II. RESERVES IN EXISTING OLD-AGE BENEFIT PLANS

In establishing the financial structure of workers' old-age and invalidity plans it has been quite common to secure current revenues for the respective funds through contributions levied on pay rolls, while employers are, as a rule, authorized to deduct a certain portion (in most cases one-half) of the contributions from their employees' wages. These contributions take the place of the premiums paid by the insured persons — or on behalf of them — under private insurance contracts.

When the first nation-wide contributory old-age and invalidity plan was organized in Germany, the contributions were fixed at a lower rate than would have been needed in order to secure the annuitants adequate benefits, and that
portion of the annuities which was not to be covered by the contributory system was to be supplemented by a fixed Governmental subsidy to be granted each annuity. Under these conditions the size of the reserves was not considerable enough to present serious problems. The financial structure of the national economy was not likely to be deeply affected by the accumulative procedure, the less so as the autonomous territorial old-age and invalidity institutions were permitted a certain degree of elasticity with respect to their investment policy.

Prior to the World War other countries were rather reluctant to establish comprehensive old-age benefit systems in accordance with the example set by Germany; so far as pension plans covering large portions of the populations were created, they were either of a non-contributory type and, consequently, not ruled by insurance principles (as the British and Danish systems) or limited to selected groups of wage earners (as the Austrian salaried employees’ pension plan).

As a result of the World War the German old-age and invalidity plan lost a large portion of its reserves, which had amounted to about four billion Marks at the end of the pre-war period. When the Mark had been stabilized in 1924, reestablishment of the statutory reserves would have required levying of large contributions, which at that time were impossible to raise. Hence the assessment method was resorted to and current expenditures were defrayed out of current revenues. Deficits were covered by public subsidies. During the last depression it was found necessary rigorously to curtail the annuities, which was done by an emergency decree issued in 1931; but in spite of the reduction in expenditures thus achieved, the total reserves of the funds fell from 1,637 million R.M. in 1930 to 1,267 million in 1932. The actuarial deficit of the funds was estimated at 12.4 billion R.M. on January 1, 1933.

3. See for these and the following data an article on “Workers’ Compulsory Pension Insurance in Germany” (International Labour Review, January 1935); a report published in the “Amtliche Nachrichten für Reichsversicherung,” January 1936, and an article dealing with the “Reform of Social Insurance in Germany” in the Weekly Report of the German Institute for Business Research, June 16, 1937, pp. 49ff.
In order to meet this critical situation and to provide for a return to the "capitalization" method, a plan was prepared and partly put into effect which mainly contemplated the adoption of three measures: (1) reduction of the total amounts of benefits, resulting from a new method of calculation; (2) payment of an annual Governmental subsidy fixed at 204 million R.M.; (3) increases in the rates of contribution. It was estimated that this latter increase, to be sufficient, would have to be $1\frac{1}{2}$ to 2 per cent of total wages of the insured wage earners, on the assumption that unemployment would decline to the 1929 level but that wages would show no changes over the level attained at the beginning of 1933. In fact, development since 1933 was very promising in so far as increasing surpluses of revenues over expenditures were realized owing to the general far-reaching improvement of general economic conditions, which led to rapid increases in the amounts of contributions. The reserves of the funds rose from 1,267 million R.M. in 1932 to 1,928 million in 1936. However, the interest earned on the reserves did not amount to more than 7 per cent of total revenues, while approximately 27 per cent were covered, in 1936, by Government subsidies. The final settlement of the financial situation of the funds will largely depend upon whether and when it will be possible to reduce the rate of unemployment insurance contributions, which at present is fixed at $6\frac{1}{2}$ per cent of wages, and to increase the contributions to the old-age benefit plan accordingly. The future general trend of economic conditions will decide upon the ultimate success or failure of the projected reform. Similar measures were applied in other cases in which the reserves of less comprehensive European contributory pension schemes had suffered heavy losses through inflation.

The method of avoiding the accumulation of reserves by a system providing for coverage of the deficits out of public funds is illustrated by the financial structure of the British old-age benefit plan established in 1925. This plan was intended partly to supersede a non-contributory pension scheme which had been introduced by a liberal Government in 1908 but had met with increasing opposition, on account
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of the heavy burden which it involved for the treasury and on account of the means test which it imposed on the claimants to benefits. In the public discussions concerning the financial set-up of the post-war "Widows', Orphans' and Old-Age Pensions" Bill, the Government favored the contributory system — the machinery for collecting contributions having been established by the National Insurance Act adopted in 1911; however, the contributory principle was opposed by the Labour party, which suggested that the State should cover the cost of the plan, at least until industry had recovered from depressed business conditions and the contributions for unemployment compensation had fallen to a more normal level.\(^4\)

The opposition was strong enough to bring about a far-reaching participation of the State in apportioning the total charges of the plan. The contributions required from insured persons and their employers were fixed at uniform flat rates, differentiated only according to sex; flat contributions were paralleled by flat rates of benefit. However, the contributions were fixed in such a way that out of their proceeds only that risk was to be covered which is introduced by the insured who enter insurance at the age of 16. "The additional burden resulting from the admission to insurance of persons above the age of 16 is carried by the State. . . . This deficit is increased by reason of the fact that the initial rate of contribution required from insured persons entering at the age of 16 in 1926 is only enough to cover 20 per cent of the cost of the benefits which will be payable to such persons after they have reached the age of 70; it is the object of three decennial increases in the rate of contribution to cover a growing portion of the cost of benefits granted after the retiring age. The coverage increases for persons entering insurance at the age of 16: in 1936 to 55 per cent, in 1946 to 80 per cent, in 1956 to 100 per cent."\(^5\)

The initial deficit which is to be borne by the State is further enhanced by pensions to be granted to insured per-

\(^4\) See the article in the International Labour Review, April 1926, pp. 506ff.
\(^5\) Loc. cit., p. 513;
sons over the age of 70, to widows with dependent children and to voluntary contributors. "The difference between income and expenditure which results from the initial deficit will grow until a period is reached when the expenditure which results from the maturing of new risks will be balanced by the cessation of expenditure on account of risks which had matured previously. This state of equilibrium should be reached about 1965. The annual deficit existing at that date will continue indefinitely, if we suppose a constant number of insured persons involving constant risks." 6 To put it in a different way: the contributions will be sufficient to cover the risks of those who will be insured under the "normal" régime, that is to say, who will enter the insurance plan at the age of 16; the deficit to be borne by public subsidies results from the annuities payable to those who are benefited by the "retrospective" scheme, that is to say, have almost reached the age of retirement when the fund starts operating, and by the "transitional" régime which comprises the intermediate age groups. 7

The comprehensive French old-age and invalidity insurance system inaugurated after prolonged public discussion in 1928 marks, as to its financial structure, a decisive step in a direction opposite to that adopted by the British plan: it is based on the idea of accumulating reserves almost to the full extent needed for covering, out of the contributions and the interest earned on the reserves, all forthcoming expenditures of the system. If certain transitory appropriations are left out of account, the contributions granted out of public means are not considerable; the direct annual regular State subsidy amounts to 125 million francs, being a portion of the savings on public charges to the State and communes. On the other hand, reserves are accumulated by the primary old-age insurance funds, fifteen regional units established for re-insurance purposes and a Central

Guarantee Fund designed to contribute toward equalizing the risks of the primary funds. More than eight billion francs (approximately 223 million dollars, calculated according to the parity, fixed May 5, 1938, of approximately 2.79 cents per franc) were paid into the reserves between 1930 and 1934, that is, prior to the date when annuities first became payable. Approximately 75 per cent of the reserves are invested in Government securities. The annual contributions to this plan have been fixed at 4 per cent of the pay rolls; these contributions form an integral part of a unified contribution of 8 per cent designed to meet the needs of the entire system of social security. The unified contributions are intended to be increased, by two steps, to 10 per cent; employers and workers are participating on equal terms in defraying the cost of the insurance system.8

It is probable that the well-known difficulties with which the French Treasury is almost continuously faced in its efforts to secure balanced budgets have barred the way to the adoption of any proposals designed to avoid the accumulation of huge reserves by introducing a system of public subsidies. On the other hand, the idea of financing old-age annuities increasingly out of interest earned on reserves is likely to have strongly appealed to public opinion in France, where the economic behavior of the middle classes is profoundly motivated by the tendency to provide for old age out of the interest on accumulated savings.

The Czechoslovakian workmen's old-age and invalidity benefit plan, which was introduced in 1924 and started paying benefits in 1929, is, as to its financial structure, largely influenced by the German pattern. State contributions are paid to the annuities and approximately 30 per cent of the annuities due are thus covered out of public funds. On the other hand, workers' and employers' contributions have been fixed at a stable rate, determined on actuarial principles by averaging the expenditures of the fund which are to be met

out of these contributions and the interest earned on the reserves up to the time when the balance between the yearly accruing and falling-off annuities will have been reached. The reserves which had been accumulated up to the end of 1935 amounted to about 5.4 billion Czechoslovakian crowns (approximately $19,000,000); this method of solving the problem appears to have met with almost general satisfaction.⁹

Its choice has probably been largely influenced by the fact that wages are relatively low in Czechoslovakia and wage costs in large industrial sectors are strongly determined by foreign competition, hence highly sensitive to any increases which are not justified by market conditions. Therefore, it was held advisable to charge the State budget with a considerable portion of the burden and to provide, on the other hand, for a slow increase of the annual State contributions by linking them up with the yearly amounts of the annuities due. During recent years that increase amounted annually to about 20 million Czechoslovakian crowns (approximately $740,000). It may be mentioned that at the end of 1935 only about 38.24 per cent of the total assets administered by the Central Institution for Social Insurance had been invested in Government securities in accordance with existing regulations, while the investment policy was otherwise ruled by the intention to promote, as far as possible, the development of such projects as are designed to serve the interests of the insured workers (construction of workmen’s dwellings, of hospitals, and the like).

The system adopted for financing the American old-age benefit plan is, on the whole, ruled by the same principles as are fundamental to the corresponding French plan, except for the important difference that no recourse whatever is had to public subsidies. As a result of these principles the entire burden which is to be borne by the fund during the transition period is distributed as equally as possible over the contribut-

ing groups and over the time dimension, with the proviso that, in order to secure a smoother adjustment of the economic system to the effects produced by levying contributions on pay rolls, the contributory taxes have been fixed at lower levels for the initial years of operating the plan, while higher rates have been fixed for the later stages of the transitional period than would have been needed if a uniform rate had been imposed throughout that period. The reserves to be accumulated during the "surplus" years are intended to enable this distribution to be performed, and the principle underlying this distribution, as indicated by the reports of the Congressional committees upon the Act, is that the Old-Age Reserve Account should at any given time equal the difference between the then value of future benefits payable under Title II and the then value of future taxes collectible under Title VIII. The interest earned on the reserves will cover the deficits which would obtain during the later stages of operating the plan unless the rates of the pay-roll taxes were increased to about 10 per cent, that is to say, to a level of almost prohibitive proportions.

Of course, as contrasted with the European old-age insurance systems the American old-age benefit plan is in so far quite peculiar as its insurance features are obscured by financial devices adopted partly on constitutional grounds. There does not exist anything like an insurance carrier operating the plan or anything like a contractual relation between the wage earners covered by the scheme and the Government which is under the legal obligation to pay the benefits when due. No contributions are paid into a fund, but taxes are levied on pay rolls.¹

Benefits are not fixed in relation to contributions paid on behalf of insured persons but in terms of wages earned in covered employment. The taxes imposed by the provisions of Title VIII of the Social Security Act are covered into the

1. Throughout the present paper the term "pay-roll tax" is used for denoting the combined taxes levied on employers and workers, while the term "excise tax" means that portion which is to be paid by the employers and the term "wage tax" the portion which is deducted from the workers' wages and therefore paid out of their earnings.
general funds of the Treasury and available for any kind of Federal expenditure. It is for Congress annually to decide whether the amount determined by the Treasury in accordance with the actuarial principles set forth in the Social Security Act or what portion of this amount, if any, is to be appropriated to the Reserve Account. Under these conditions the financial management of the American old-age benefit plan reveals an aspect which fundamentally differs from the management of any corresponding European system, and the budgetary point of view assumes in this country particular aspects presently to be discussed.

III. The Budgetary Point of View

While, of course, governmental budgetary policy has played an important part in determining the financial structure of the European old-age benefit plans, the future revenues of these plans have been fixed, at the outset, in accordance with clearly pre-established schemes, their funds have been construed as separate financial entities, and such questions as accumulation of reserves, payment of government subsidies and the like have been definitely settled, except for modifications which might be introduced by subsequent legislation or unexpected developments in expenditures or revenues of the funds. Even in England, where the liability for paying old-age benefits rests with the government and has not been conferred on a separate semi-public insurance carrier, the contributions levied on pay rolls are directly covered into the old-age benefit fund and are not considered as taxes flowing into the general fund of the Treasury.

As contrasted with this method of regulating the financial situation of contributory old-age benefit plans, the method adopted by the American legislation does not provide for independent revenues of the Old-Age Reserve Account established by the Social Security Act. The revenues of this Account, which can hardly be termed a "fund," strictly speaking, are dependent upon appropriations which are to be decided upon annually by Congress. A close permanent relationship has thus been established between the budget
of the Old-Age Reserve Account and the budget of the United States.

The budgetary considerations which actuated the framers of the Social Security Act in formulating the provisions relating to the Old-Age Reserve Account have been ably presented in an article recently published in The Quarterly Journal of Economics; in this article any other aspects of the reserve problem have either been deliberately disregarded or relegated to the background. The author's analysis centers on the problem of how to avoid the danger that the Federal budget might be faced, in times to come, with increasing liabilities resulting from the old-age benefit plan, while no adequate financial provisions might have been made for meeting these liabilities. This danger, it is argued, cannot be eliminated except by accumulating appropriate reserves. However, these reserves, the argument continues, are not to be considered as anything like reserves of the insurance type, since they are not designed to assure the future solvency of a government which can always resort to the taxing power; they are designed "to distribute a given burden fairly and wisely between the taxpayers of different periods of time." As a mechanism of government finance, it is stated, the reserve serves a purpose not dependent upon a relationship between the contemplated expenditure and any particular source of revenue. Viewed from this angle, it is an unimportant coincidence that the same individual will be at one time a taxpayer and at a later time a recipient of benefits, a coincidence which may justify the use of the word "insurance." However, since pay-roll taxes have been chosen for covering the total costs of the plan, present and future, which are increasing during the transition period, the only solution appears to be the accumulation of an excess in the earlier years which can be put to work earning compound interest sufficient to cover the difference which is bound to arise in

3. P. 454.
5. P. 455.
later years between annual pay-roll tax receipts and expenditures on benefits. The projection of these future expenditures and receipts is held to be warranted mainly by the fact that the item in question is destined to bulk fairly large in future annual budgets, since the benefit payments will increase from about 4 million dollars in 1937 to an ultimate annual sum of more than 3.5 billion dollars, whereupon this "normal" increase is expected to come to a standstill; on the other hand, the present value of these future expenditures is susceptible of determination with a reasonable degree of accuracy. Unless a system of accumulating surplus revenues were chosen, the budgets of future years would be loaded with a substantial net burden.

When examined from the insurance point of view, this line of reasoning will be found to overlook the important fact that the fundamental structure of the old-age benefit plan is deeply rooted in actuarial principles, tho on its surface the plan has been pretty well adjusted to constitutional exigencies. In fact, the schedule of the pay-roll taxes follows closely the pattern of contributions which would be levied under an outright insurance system, and the tax rates have been determined in accordance with actuarial devices with a view to securing, to the largest possible extent, self-sufficiency of the plan. Individual accounts are kept for all insured persons, and it is of secondary importance that, to strengthen the constitutionality of the Act, these accounts are established in terms of wage credits earned instead of in terms of contributions paid on behalf of the insured. At least indirectly the contributory taxes are instrumental in determining the claims to annuities. To adjust the pension payable to a superannuated worker to the wages earned by him during his lifetime can only be justified if contributions have been paid on his behalf which are proportionate to his wages. Why should a worker who has been receiving high wages be granted a higher pension than his less fortunate fellow-worker, if not for the reason that higher contributory taxes

6. P. 542.
7. P. 458.
have been levied on his wages? Insight into this obvious relationship between pay-roll taxes and annuities is barred unless the insurance point of view is given due consideration. Viewed from this angle, accumulation of reserves, apart from any budgetary considerations, appears as an appropriate means for linking up the amounts of the taxes paid on behalf of each annuitant with the amounts of pensions which are payable to him. The importance of this relationship for the financial structure of the pension plan can hardly be overestimated.

Considerations of this type are equally commonly overlooked by those adversaries of a full-fledged reserve system who insist upon replacing by large Federal subsidies the functions fulfilled by the reserves in the financial set-up of the pension plan. Against this proposal the fact is to be emphasized that deficit financing, out of public contributions, instead of out of interest earned on the accumulated reserves, means, in fact, granting of a public subsidy to each annuity. Each annuitant would be paid a portion of his pension out of public means and this portion would vary in accordance with his accumulated wage credits; the larger these credits, the larger would be this "unearned" portion of his pension. Such a system would obviously be inconsistent with the principles of equity commonly adopted in this country. It is incompatible with the structure of the pension plan, which is ruled by the idea of establishing a close relationship between the wage credits earned by each annuitant and the amount of the pension to which he is entitled.

If this relationship is to be maintained, and a reduction of the reserve is nevertheless seriously contemplated, a plan should be adopted under which public subsidies, equal in amount, would be paid to each pension. This scheme should be paralleled by a contributory "self-sufficient" scheme intended to provide for each annuitant another portion of his pension which would vary in accordance with the wage credits earned by him and the contributory taxes paid on his behalf. There would be no deficit financing under such a plan; payment of Federal contribution to each annuity would start when the system started operating,
and the increasing burden which the Treasury would be required to meet annually could be calculated in accordance with the actuarial principles underlying the established plan. On the other hand, the expenditures to be defrayed by the contributory sector of the system would be diminished accordingly, with the result that the size of the reserves could be reduced. Such a device would also obviate the financial difficulties arising from the probable participation in the plan of a considerable number of "periodically uninsured" persons, since the "unearned" portion of their annuities would be defrayed out of public means instead of out of the revenues of the contributory system. A consistent financial structure could thus be created by combining an assistance plan with a contributory insurance plan.

In this connection it is perhaps not amiss to emphasize the fact that under a pension plan as adopted in this country only a permanent interest-bearing reserve, whatever may be its size, can fulfill the requirements of a satisfactory financial set-up. In discussions of the reserve problem the idea has been frequently advanced that a limited fund, a "contingency reserve," should be accumulated, intended to be drawn upon only during depression periods when pay-roll tax receipts would show considerable declines, whereas expenditures for benefits might be increased through the claims of those superannuated persons who had been gainfully employed but had now lost any chance of earning their living. However, it can easily be shown that a "contingency" reserve provides no adequate solution for the financial problems of an old-age pension plan. Increased expenditures arising out of involuntary unemployment of those over sixty-five are likely to be permanent; moreover, once spent, the reserve could not be built up again unless by increased rates of taxation or out of public subsidies or by reducing the amounts of benefit, since the insurance plan is faced, after a first transitional period, with a financial situation marked by permanent excess of expenditures over the yield of the contributory taxes. In fact, such a reserve would probably not be used for meeting abnormal situations but for covering the "normal" deficits of the plan.
IV. The Economic Point of View

If the behavior of our economic system did, on the whole, correspond to the assumptions made in establishing the financial features of the old-age benefit plan, it would be comparatively easy to arrive at some sort of a compromise between an outright contributory scheme involving the accumulation of a full reserve and a system partly financed by public subsidies. However, any such compromise is rendered difficult by the fact that our economic system is far from being stable. The course of economic events is marked by the well-known ups and downs commonly termed periodical business fluctuations. No solution, therefore, can be expected to be satisfactory unless based on an examination of the benefit plan from the economic point of view. Adoption of this point of view means, on the one hand, that account is taken of the possible and probable effects which business fluctuations may exert on the functioning of the plan, and, on the other hand, that the influence which may be exerted by the execution of the plan on the trend of fluctuating economic events is given due consideration.

It is obvious that the problems involved in such an examination of the plan are of staggering complexity. Owing to the interdependence of all economic events, the effects of the financial provisions of the plan may make themselves felt in the remotest corners of the economic system, while any change in business conditions is likely to affect the budget of the plan. In this connection two problems are of primary importance: (1) the problem of what mutual relations are found to exist between pay-roll taxes and the changing economic situations obtaining in the course of business cycles; (2) the problem of what mutual reactions can be expected to take place between the accumulation of a large reserve invested in government securities and the changing trend of economic events which is characteristic of business fluctuations. Only the first of these problems will be outlined in the following discussion.

There is no doubt that the distribution of the national dividend is affected, in various ways, by the introduction of
pay-roll taxes. On the whole it can be said that during a prosperity period, when prices are generally on the upswing and general purchasing power is increasing along with increasing incomes, the functioning of the economic machinery is not likely to be affected perceptibly by the incidence of the pay-roll taxes imposed on the employers. Problematic effects which the excise taxes can be expected to have in times of generally expanding business activity are twofold: they may prevent wage increases which otherwise would be granted, and thus result in shifting the burden on the workers; or, which is even more undesirable, they may provoke attempts to alleviate the burden by reducing the total wage bill through the introduction of labor-saving devices. The volume of "technological" unemployment may thus be increased over and above the size which it otherwise might assume.

On the other hand, while it can be expected that the wage tax which is imposed on the workers will, in fact, be paid out of their earnings — apart from some exceptional cases — it can equally well be assumed that in periods of prosperity a considerable portion of the wage tax receipts would have been deposited in savings banks and similar institutions, if no such taxes had been levied. Accumulation of these amounts in the Reserve Account instead of on the ledgers of the banking system may constitute a reduction of the capital available for industrial and commercial investments, tho this reduction will probably be largely offset by the effects of the debt retirement procedure.

Another, probably equally considerable portion of the wage tax imposed on the workers would have been spent on consumption goods, had this part of workers' earnings not been transformed, by a process of enforced saving, into assets of the Reserve Account. However, it can fairly be assumed that this portion of the pay-roll tax receipts — except for the first decade of the functioning of the benefit plan — will increasingly be paid out to superannuated workers in the form of annuities. On the other hand, during this first decade the rates of the pay-roll taxes will start at a low level and
only slowly increase. Hence it can be expected that the consumption balance of the economic system will not be upset, in periods of prosperity, by the effects of the wage-tax device. Of course, if these effects combine with those exerted on the price structure by the introduction of the excise tax, general purchasing power which will be available for consumption goods may be lowered during the first period of operating the benefit plan (up to about 1945). But it is at least doubtful whether in periods of prosperity such a reduction of general consumption will be prejudicial to the economic system as a whole. There are economists who argue that the more rapidly prosperity advances, the more the volume of consumption is likely to assume such exaggerated proportions that overexpansion of the productive capacities of the system is precipitated and the way prepared for a final collapse of the boom.

During periods of depression, however, pay-roll taxes present an aspect which thoroughly differs from that which they assume in times of expanding business activity. Even when complete adjustment of the price structure to increased costs brought about by the excise tax has taken place prior to a depression, new adjustments of costs are imperative when prices are declining. Under such conditions any rigid cost elements are likely to impair such adjustments, and a pay-roll tax imposed on employers, tho declining as to its total amount proportionately to the total wage bill, may nevertheless in many enterprises prevent the balance between expenditures and returns from being restored, and thus may contribute towards increasing existing financial difficulties. Even more frequently pay-roll tax devices may cause additional unemployment by raising the labor costs of the marginal worker beyond the level which would otherwise obtain. The effect of the excise tax on the balance sheet of an enterprise will be the more prejudicial the greater is the portion occupied by the wage bill in the cost structure, and the greater is the rigidity of the wage structure. When these effects extend over a large range of important concerns, they may assume such proportions that they may
result in aggravating the depression and in prolonging its duration.

Hardly less prejudicial to the economic system are the effects, during a period of depression, of that portion of the pay-roll tax which is levied on the wage earners. Rapidly contracting purchasing power is a characteristic feature of economic crises and depressions. Under these conditions rigid taxes levied on incomes which otherwise would be spent on consumption goods may accentuate the general deflationary trend and thus contribute their part towards aggravating the depression. The final effects of this taxing process would, of course, largely depend upon the use made of the pay-roll tax receipts.

These considerations are likely to lead to the conclusion that, in order to avoid the prejudicial effects of pay-roll taxes in depression periods, the rates of these taxes might well be adjusted, in terms of a flexible system, to changing business conditions. The proposal may be ventured that when profits and pay rolls are rapidly decreasing over the entire economy, the rates of the taxes might be reduced, gradually or rapidly, to a minimum percentage (one per cent), or payment of the taxes might even be temporarily suspended. Thus adjustment of costs to falling prices could be facilitated and shrinkage of general purchasing power attenuated. A tax policy of this type would be fully in line with the leading principles which are likely to prevail in combating depressions in the future. It is probable that future recovery policy will be dominated by the intention to expand government spending, financed by public borrowing, when general large-scale contraction of buying power is taking place. It would be somewhat inconsistent with such a policy to accentuate the deflationary trend by a rigid system of excise and wage taxes. On the other hand, with the return of prosperity and expanding business activity gradual increases of the tax rates could be provided for and adapted,

8. It may be mentioned that the term “inflation” when used in this paper means expansion of the monetary system resulting in price dispersions on an upward scale, whereas “deflation” means corresponding contraction resulting in price dispersions in the opposite direction.
Various indices could be used for determining periodically whether the tax rates should be increased or decreased in accordance with a general scheme or whether the rates should remain unaltered for the time being. Such indices could be supplied by figures indicative of expansion and contraction of general purchasing power, of the development of price dispersions, of changes in the general volume of production and consumption, in the volume of employment and the like. Definite correlations could be set up between certain percentage increases or decreases of the tax rates and percentage increases or decreases of the index figures adopted for estimating the trend and the size of declining or rising general buying power. Coöperation of the Social Security Board, the Federal Treasury, and the Federal Reserve Board could be secured for fixing and rede-termining the rates at given intervals in accordance with the general rules thus established. The influence of parties interested in manipulating the tax rates could thus be completely excluded. The Treasury and the Social Security Board would see to it that the balance of the Reserve Account would not be made the victim of unwarranted reductions of the rates, while the Federal Reserve Board would also be anxious to have the rules strictly observed in periods when reductions of the rates might result in considerable temporary losses of revenue to the Reserve Account.  

It is obvious that, in order to secure "self-sufficiency" of the Benefit Plan, it would be necessary to increase the rates of the pay-roll tax in periods of full prosperity beyond the percentages provided for in the Social Security Act. When the volume of employment was large and wage bills ample, one-half or one per cent of the pay rolls, if added to the rate provided by that schedule, might yield returns which would

9. It is hardly necessary to mention that even complete temporary suspension of the payment of pay-roll taxes would not affect the claims of the workers covered by the plan, since these claims are based on wages earned in employment and not on taxes paid on behalf of the workers.
offset to a large extent the losses experienced through reductions of the pay-roll tax during the preceding depression when volume of employment and total wage bills had been at a low ebb. Under no circumstances should the system of flexible taxation be used for introducing the payment of federal subsidies into the financial structure of the plan, since in that case the insured workers would receive public subsidies differentiated in accordance with their wages earned during the periods of reduced rates. If all covered workers were life members of the plan, the system of flexible taxation would be unobjectionable from the point of view of social equity. It might operate to the advantage of such workers as were employed exclusively or mainly when the rates were low; but it is a well-known fact that in periods of depression about the only workers maintained on pay rolls are those who are stable elements of the existing labor force.

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