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6. Alternative Projections

Unlike the basic set of projections (P_1), those now to be discussed—designated as projections P_2 through P_7—all make an explicit assumption about the "adequacy" of benefits, i.e., about their ratio to income, and also an explicit rather than trend assumption about the behavior of benefits per annuitant and about contributions per covered worker. Numbering ninety-six in all and distributed evenly in six sets, they will be found in full in the tabular supplement on file at the National Bureau.

To keep the projections from ramifying to an unmanageable number, all estimates in sets P_2 through P_7 are based on the actuarially projected number of beneficiaries (the derivation of which has already been given), with an adjustment factor of .50. Thus they involve different assumptions than the P_1 set, and they all incorporate four projections of beneficiaries in contrast to P_1's seventeen such estimates.[1] The arithmetical operations for obtaining P_2–P_7 pension plan reserves are the same as those described earlier for P_1.

The main purpose of these additional projections is to round out the range of possibilities covered by this study. P_1 was judged best, but this judgment did not consider purposeful income-maintenance policy, changes in structure, various possible divisions of the responsibility for income support in retirement, and so on. Put somewhat differently, the role of these new projections is to permit closer analysis of the effect of certain purposeful policies or desired achievements stated in terms of levels of benefit adequacy, rates of contributions, and like matters. Thus, compared with the P_1 series, projections P_2–P_7 are more specific and direct in their assumptions about particular features of the pension structure and of the plans that make up that structure. The specific assumptions involved in these projection sets are all highly particular and less realistic than the

[1] The four C_i together with $A_{.50}$ determine four beneficiary projections for sets P_2–P_7; the four C_i in conjunction with $A_{.25}$, $A_{.50}$, $A_{.75}$, A_1 determine sixteen projections and A_0 fixes the seventeenth for set P_1.

basis of P_1, in the sense that the latter attempts to incorporate the dynamics of the industrial pension structure, whereas the former illustrate the effect of introducing a purposeful policy or point up the result should a particular relation strictly hold.

Instead of simply extending the experience of the past into the future, as did the P_1 set of projections, a good case, at least for illustrative purposes, could be made for projecting on the basis of the achievement of a specified goal over time, i.e., between 1962 and a given date, say, 1981. A particular level of adequacy of the pension structure might be considered—this time defined, even more broadly than in the earlier part of this study, to include the public pension arrangement—Old-Age, Survivors, and Disability Insurance—as well as private industrial pensions. Or again, instead of simply extending a trend, projection might be made on the basis of assuming a particular level of performance, as, for example, the assumptions that benefits and contributions grow at the same rate as productivity or at the same rate as money wages. These considerations—growth and "adequacy"—motivate and shape projection sets P_2 through P_7.

More specifically, as to growth alone two assumptions were made and two projection sets obtained, each containing sixteen projections. Set P_2 assumed that benefits, contributions, and contributions plus fund earnings all will continue to grow at the same rate as did average gross weekly earnings in manufacturing over the period 1951–61—4 per cent.[2] The intent here is clear. Since over the last decade workers' hourly earnings, reflecting both productivity and "inflation," grew at an annual rate of 4 per cent, it is not unreasonable to expect them to continue at that rate over the next twenty years. While there are numerous possible definitions of adequacy, in this context an obvious choice is simply to assume that benefits, contributions, and contribu-

[2] Private industrial pensions, of course, cover workers in all industries, not just manufacturing, but those in manufacturing are a major part of the total. Moreover, only a benchmark for obtaining a growth rate is needed, and while average gross weekly earnings differ among industries, their rates of growth over a decade are not very different. Average gross weekly earnings in manufacturing are estimated by the Department of Labor and appear in, among other places, the *Economic Report of the President.*

Four per cent is almost equivalent to the rate of growth that would be derived from average gross weekly earnings for each of seven sectors weighted to reflect their relative importance in total coverage: manufacturing, .5; construction, .1; retail trade, .2; wholesale, .05; coal mining, .05; class I railroads, .05; telephone communication, .05.

tions plus fund earnings all keep the same relation to workers' weekly earnings that existed in 1961.[3] And this, in turn, implies that these three variables grow at 4 per cent per annum. This procedure illustrates what would happen to benefits, contributions, fund earnings, and, most importantly, their net resultant, fund accumulations, if all three of the inflow and outflow variables remained in constant proportion to weekly earnings growing at 4 per cent per annum. Since this implies a more "generous" level of benefits and a more "liberal" contribution flow than prevailed for the P_1 set, it can be said that P_2 differs from it in taking account of growth and in embodying the financial flows of a more adequate pension structure financed by a strictly specified behavior of benefits, contributions, and fund earnings plus contributions.

In deriving P_2, the same rate of growth of workers' earnings was projected into the 1960's and 1970's as existed over the period 1951–61. But that rate of growth reflected many factors: inflation in the first half of the decade, relative power of unions, a particular bargaining framework and set of economic goals stated or implied by default, etc. Whatever the system of factors (the "structure") that generated this experience, it is not at all clear that it will continue unchanged over the next generation, and the implications of some changes in "structure" for the projections of pension plan reserves should be explored.

In P_3 it was decided to examine the implications of an economic world that is roughly sketched by the Council of Economic Advisers in the 1962 *Economic Report of the President*. The economic environment suggested as possible and, indeed, worthy of achievement is a world with a constant general price level and average gross earnings (wages) moving *pari passu* with increases in average productivity.

The first step in deriving projection set P_3 involved the assumption that average gross weekly earnings (AGWE) would grow at a rate equal to the annual rate of growth of productivity. This brought up the question of what that growth rate would be. Since the concept of productivity is extremely complex, it goes without saying that its measurement is not simple, and even more difficult is the next step—forecasting productivity over the next twenty years. The basis for

[3] Contributions equal 5 per cent of wages; benefits, 22 per cent; and earnings plus contributions, 7 per cent.

developing a productivity measure is a question of great theoretical importance, but the problem of which measure to choose is simply solved because of the tightness of the range in which measures of productivity growth rate fall. All of the estimates for the nonagricultural sector, though derived in a variety of ways and based on different theoretical structures, tend to cluster in a range of 2 to 2.5 per cent per annum, both for short and long periods. A rate of growth of 2.2 per cent was therefore chosen, a figure calculated from the data for the nonagricultural sector for the period 1954–60.[4] This is only slightly higher than the 2.1 per cent calculated for the longer period 1909–60.[5] On the assumption that earnings would increase by 2.2 per cent each year, and that contributions per employee, benefits per beneficiary, and fund earnings plus contributions per employee would stand in an unchanged proportion to workers' average gross earnings, all were projected at this rate.[6]

In summary, the P_2 and P_3 set of projections are similarly derived and differ only in having P/B, C/W, and $C + E$ growing at 4 and 2.2 per cent, respectively. The A factor in each set was fixed at .50, and, as in the basic set, P_1, there were four coverage assumptions (C_1, C_2, C_3, and C_4) and four fund-earnings assumptions (3.5, 4.0, 4.5, and $C + E$).

P_4–P_7 also contain sixteen projections each. They differ from P_2 and P_3 in their specification of "adequacy." Whereas for sets P_2 and P_3 adequacy was determined by the rate of growth assumed for benefit payments per beneficiary, in sets P_4 through P_7 the posited level of adequacy determined benefit payments. That level was set in terms of the retirement benefits received from both private industrial plans and OASDI.

Sets P_4–P_7 are based on the possibility that, in an affluent society

[4] See *Economic Report of the President,* 1962, Table B-31, p. 244.

[5] *Ibid.,* Table 26, p. 184.

[6] The procedure of this study relates productivity and wage rates directly, and continues from that relation to a link between productivity and average gross earnings. Implicitly, therefore, it was assumed that hours of work per week would remain substantially unchanged. (This seems to have been the case in the last several years; see *Economic Report of the President,* 1962, Table B-28, p. 241.) If the work week should be shortened perceptibly over the next twenty years, these projections of AGWE would be overstated unless the decline in working hours was accompanied by an increase in productivity sufficient in its effect on wages to offset the shorter number of hours worked, or by an increase in labor's share of the income generated.

with a growing (absolute and relative) number of persons over 65 and with a demand for pensions that is elastic with respect to income, pension benefits derived from both public and private arrangements will tend to rise in relation to current income, which is itself growing over time.[7] The elasticity of pension demand to income is reinforced by the progressive rate structure of the personal income tax, in the face of which net after-tax lifetime income will be considerably higher if tax-deferred pension plans are used to average out the flow of income over one's working life.

It is assumed that OASDI and industrial plans together will provide the beneficiaries of the latter with a pension that would come to some specified percentage of current AGWE, this percentage to grow linearly from the 1961 figure to the higher level specified for 1981. Moreover, OASDI old-age benefits would grow at the same rate as AGWE. These assumptions determine private industrial pension plans' benefit payments per recipient. The ratio of average benefit payments of OASDI and industrial plans to AGWE in manufacturing for 1961 was estimated at 53.5 per cent.[8]

The next step was to assume that by 1981 a specified value of this ratio would be achieved. Two percentages were chosen: 65 in P_4 and P_5, and 75 in P_6 and P_7. The assumption that between 1961 and 1981 the approach to this ratio was linear provided a basis for obtaining the annual value of the ratio of benefits (industrial pension and OASDI combined) to AGWE. But more had to be done, of course,

[7] The procedures employed here assume constant growth in this as well as numerous other variables, and this obviously runs counter to the actual experience of any short-run period. To this extent, the annual projections will be off, but it was considered feasible to project average experience (not fluctuations) over time.

[8] All industrial pension beneficiaries were assumed to be recipients of OASDI payments also. Further, it was assumed that industrial pension beneficiaries would receive somewhat higher than average OASDI old-age payments. The OASDI payment chosen was obtained by counting down from the top of the array of OASDI old-age benefit payment recipients by size of monthly payment the number of industrial plan beneficiaries. This was done for males and females separately, with the relative proportions thereof based on information obtained from Weltha Van Eenam. (See Chapter 2 for details on this source, and Table 69, under 1961 amendments, of the *Annual Statistical Supplement of the Social Security Bulletin, 1961,* for the arrays of OASDI old-age benefit recipients.) To this was added an estimated average private plan benefit as of the middle of 1961 equal to half the sum of the average payment as of the end of 1960 and 1961. (For data, see Alfred M. Skolnik, "Growth of Employee-Benefit Plans, 1954–61," *Social Security Bulletin,* April 1963.) This furnished the benchmark for "adequacy."

to derive P/B and C/W, and thus to project private industrial pension funds.

The annual values of C/W (contributions per covered worker) were derived by assuming a growth rate of 4.0 per cent for projection sets P_4 and P_6 and 2.2 per cent for sets P_5 and P_7. The basis for these values has already been explained in connection with the description of P_2 and P_3 and need not be repeated here. The values of P/B (industrial pension benefit payments per recipient), were calculated as a residual. Growth of AGWE at a specified rate, and the ratio of benefits to AGWE determined, as explained, by linear interpolation, made possible an estimate of total average benefits for each year. Further, by assuming that the relevant OASDI payments grew at 4.5 per cent for P_4 and P_6 and 2.2 per cent for P_5 and P_7, P/B could be obtained by subtracting the projected OASDI payments from projected total average benefits.[9] Table 44 summarizes the basis of all the industrial pension projection sets used in this study.

The remainder of this chapter examines projection sets P_2 through P_7 and compares each with P_1, using Tables 45–47. The tables give the "most likely" group of four in each of the projection sets and compare their averages with the average of these four projections from the basic set, based on an adjustment factor .50.[10] Because only one A factor has been used in deriving P_2–P_7, emphasis need not be focused on the absolute levels of the averages drawn from these projections; rather, attention should be concentrated on how they look compared to P_1 similarly standardized for the single adjustment factor $A_{.50}$, as in Table 48. Later, in Table 49, data more suggestive of the "real" range of possible absolute levels are discussed.

Set P_2

Were contributions and benefits (the former invariant over time under P_1's assumptions and the latter growing at a continually declining

[9] The growth rates of average OASDI payments to industrial pension beneficiaries are not arbitrary; 4.5 per cent is the rate at which the OASDI maximum grew between 1950 and 1961, and the choice of 2.2 per cent implies that OASDI benefits will grow at the same rate as productivity, which would be the case in the stable price-level world discussed earlier in connection with P_3.

[10] This collection differs from the "most likely" subset of Chapter 4, which included, as well, four projections based on an adjustment factor of .25.

TABLE 44

Description of Projection Sets P_1 Through P_7, Private Industrial Pension Plans

Projection Set	*P/B*	*C/W*	*C+E*	*O/B*	*P/B + O/B*
P_1	Estimated from trend equation	Estimated from trend equation	Estimated from trend equation	Not relevant	Not relevant
P_2	Assumed to grow at annual rate of 4 per cent	Assumed to grow at annual rate of 4 per cent	Assumed to grow at annual rate of 4 per cent	Not relevant	Not relevant
P_3	Assumed to grow at annual rate of 2.2 per cent	Assumed to grow at annual rate of 2.2 per cent	Assumed to grow at annual rate of 2.2 per cent	Not relevant	Not relevant
P_4	Calculated as a residual: *(P/B + O/B) − O/B*	Assumed to grow at annual rate of 4 per cent	Assumed to grow at annual rate of 4 per cent	Assumed to grow at annual rate of 4.5 per cent	Assumed to reach 65 per cent of AGWE by 1981
P_5	Calculated as a residual: *(P/B + O/B) − O/B*	Assumed to grow at annual rate of 2.2 per cent	Assumed to grow at annual rate of 2.2 per cent	Assumed to grow at annual rate of 2.2 per cent	Assumed to reach 65 per cent of AGWE by 1981
P_6	Calculated as a residual: *(P/B + O/B) − O/B*	Assumed to grow at annual rate of 4 per cent	Assumed to grow at annual rate of 4 per cent	Assumed to grow at annual rate of 4.5 per cent	Assumed to reach 75 per cent of AGWE by 1981
P_7	Calculated as a residual: *(P/B + O/B) − O/B*	Assumed to grow at annual rate of 2.2 per cent	Assumed to grow at annual rate of 2.2 per cent	Assumed to grow at annual rate of 2.2 per cent	Assumed to reach 75 per cent of AGWE by 1981

P/B = average benefits per beneficiary, private industrial pension plans.

C/W = average contribution per covered worker, private industrial pension plans.

C+E = contributions plus earnings, private industrial pension plans.

O/B = OASDI average old-age payments to recipients of private industrial pension plans.

TABLE 45

Fund Levels and Annual Accumulations for the "Most Likely" Group of Projection Sets P_2 Through P_7, Private Industrial Pension Plans, 1961-81

(billion dollars)

Year	$(A_{.50}, C_1, 4.0)$ Fund Level	$(A_{.50}, C_1, 4.0)$ Annual Fund Accumulation	$(A_{.50}, C_1, C+E)$ Fund Level	$(A_{.50}, C_1, C+E)$ Annual Fund Accumulation	$(A_{.50}, C_3, 4.0)$ Fund Level	$(A_{.50}, C_3, 4.0)$ Annual Fund Accumulation	$(A_{.50}, C_3, C+E)$ Fund Level	$(A_{.50}, C_3, C+E)$ Annual Fund Accumulation
				Set P_2				
1961[a]	55.3	5.3	55.3	5.3	55.3	5.3	55.3	5.3
1962	61.1	5.8	61.1	5.8	61.2	5.9	61.2	5.9
1963	67.3	6.2	67.3	6.2	67.5	6.3	67.6	6.4
1964	73.9	6.6	73.7	6.4	74.4	6.9	74.4	6.8
1965	80.9	7.0	80.5	6.8	81.8	7.4	81.7	7.3
1966	88.3	7.4	87.7	7.2	89.7	7.9	89.5	7.8
1967	96.1	7.8	95.1	7.4	98.1	8.4	97.8	8.3
1968	104.2	8.1	102.7	7.6	106.9	8.8	106.4	8.6
1969	112.5	8.3	110.5	7.8	116.1	9.2	115.3	8.9
1970	121.1	8.6	118.6	8.1	125.7	9.6	124.5	9.2
1971	130.1	9.0	126.9	8.3	135.7	10.0	134.1	9.6
1972	139.4	9.3	135.4	8.5	146.1	10.4	144.0	9.9
1973	148.8	9.4	144.1	8.7	156.7	10.6	154.0	10.0
1974	158.3	9.5	152.8	8.7	167.4	10.7	164.2	10.2
1975	168.0	9.7	161.6	8.8	178.4	11.0	174.5	10.3
1976	177.8	9.8	170.7	9.1	189.5	11.1	184.9	10.4
1977	187.9	10.1	180.0	9.3	200.7	11.2	195.4	10.5
1978	197.9	10.0	189.5	9.5	211.8	11.1	205.8	10.4
1979	208.0	10.1	199.2	9.7	222.9	11.1	216.1	10.3
1980	218.1	10.1	209.0	9.8	233.9	11.0	226.4	10.3
1981	228.3	10.2	219.2	10.2	244.8	10.9	236.8	10.4
				Set P_3				
1961[a]	55.3	5.3	55.3	5.3	55.3	5.3	55.3	5.3
1962	61.1	5.8	61.0	5.7	61.1	5.8	61.1	5.8
1963	67.1	6.0	67.0	6.0	67.3	6.2	67.2	6.1
1964	73.5	6.4	73.1	6.1	74.0	6.7	73.7	6.5
1965	80.2	6.7	79.4	6.3	81.0	7.0	80.6	6.9
1966	87.2	7.0	86.0	6.6	88.5	7.5	87.7	7.1
1967	94.6	7.4	92.7	6.7	96.4	7.9	95.1	7.4
1968	102.1	7.5	99.4	6.7	104.6	8.2	102.7	7.6
1969	109.8	7.7	106.2	6.8	113.1	8.5	110.5	7.8
1970	117.7	7.9	113.1	6.9	121.8	8.7	118.4	7.9
1971	125.9	8.2	120.1	7.0	130.9	9.1	126.5	8.1
1972	134.3	8.4	127.1	7.0	140.2	9.3	134.6	8.1
1973	142.8	8.5	134.1	7.0	149.6	9.4	142.7	8.1
1974	151.3	8.5	141.1	7.0	159.2	9.6	150.8	8.1
1975	160.0	8.7	148.0	6.9	168.9	9.7	158.9	8.1
1976	168.8	8.8	155.0	7.0	178.7	9.8	166.9	8.0
1977	177.8	9.0	162.0	7.0	188.6	9.9	174.8	7.9
1978	186.8	9.0	169.1	7.1	198.5	9.9	182.6	7.8
1979	195.8	9.0	176.1	7.0	208.3	9.8	190.1	7.5
1980	204.9	9.1	183.2	7.1	218.1	9.8	197.5	7.4
1981	214.2	9.3	190.4	7.2	228.0	9.9	204.8	7.3

(continued)

TABLE 45 *(continued)*

Year	$(A_{.50}, C_1, 4.0)$ Fund Level	$(A_{.50}, C_1, 4.0)$ Annual Fund Accumulation	$(A_{.50}, C_1, C+E)$ Fund Level	$(A_{.50}, C_1, C+E)$ Annual Fund Accumulation	$(A_{.50}, C_3, 4.0)$ Fund Level	$(A_{.50}, C_3, 4.0)$ Annual Fund Accumulation	$(A_{.50}, C_3, C+E)$ Fund Level	$(A_{.50}, C_3, C+E)$ Annual Fund Accumulation
				Set P_4				
1961[a]	55.3	5.3	55.3	5.3	55.3	5.3	55.3	5.3
1962	60.7	5.4	60.7	5.4	60.8	5.5	60.8	5.5
1963	66.4	5.7	66.4	5.7	66.6	5.8	66.7	5.9
1964	72.3	5.9	72.2	5.8	72.8	6.2	72.9	6.2
1965	78.4	6.1	78.2	6.0	79.3	6.5	79.4	6.5
1966	84.8	6.4	84.5	6.3	86.2	6.9	86.3	6.9
1967	91.3	6.5	90.8	6.3	93.3	7.1	93.4	7.1
1968	97.8	6.5	97.0	6.2	100.4	7.1	100.5	7.1
1969	104.2	6.4	103.2	6.2	107.6	7.2	107.7	7.2
1970	110.4	6.2	109.2	6.0	114.7	7.1	114.9	7.2
1971	116.6	6.2	115.1	5.9	121.8	7.1	122.0	7.1
1972	122.4	5.8	120.8	5.7	128.6	6.8	129.0	7.0
1973	127.6	5.2	126.1	5.3	134.9	6.3	135.4	6.4
1974	132.2	4.6	130.8	4.7	140.5	5.6	141.4	6.0
1975	136.0	3.8	134.9	4.1	145.3	4.8	146.8	5.4
1976	139.1	3.1	138.5	3.6	149.3	4.0	151.5	4.7
1977	141.1	2.0	141.5	3.0	152.2	2.9	155.4	3.9
1978	141.6	0.5	143.5	2.0	153.6	1.4	158.2	2.8
1979	140.7	−0.9	144.5	1.0	153.4	−0.2	159.7	1.5
1980	137.9	−2.8	144.5	−0.0	151.3	−2.1	160.0	0.3
1981	132.9	−5.0	142.8	−1.7	146.9	−4.4	158.5	−1.5
				Set P_5				
1961[a]	55.3	5.3	55.3	5.3	55.3	5.3	55.3	5.3
1962	60.7	5.4	60.6	5.3	60.7	5.4	60.7	5.4
1963	66.2	5.5	66.1	5.5	66.4	5.7	66.3	5.6
1964	71.9	5.7	71.5	5.4	72.3	5.9	72.2	5.9
1965	77.7	5.8	77.1	5.6	78.5	6.2	78.2	6.0
1966	83.7	6.0	82.7	5.6	84.9	6.4	84.4	6.2
1967	89.7	6.0	88.3	5.6	91.5	6.6	90.7	6.3
1968	95.6	5.9	93.6	5.3	98.0	6.5	96.8	6.1
1969	101.4	5.8	98.7	5.1	104.4	6.4	102.8	6.0
1970	106.9	5.5	103.6	4.9	110.8	6.4	108.7	5.9
1971	112.3	5.4	108.3	4.7	116.9	6.1	114.3	5.6
1972	117.3	5.0	112.6	4.3	122.7	5.8	119.6	5.3
1973	121.8	4.5	116.3	3.7	128.0	5.3	124.3	4.7
1974	125.6	3.8	119.4	3.1	132.6	4.6	128.5	4.2
1975	128.8	3.2	122.0	2.6	136.6	4.0	131.9	3.4
1976	131.2	2.4	123.9	1.9	139.8	3.2	134.7	2.8
1977	132.7	1.5	125.1	1.2	142.0	2.2	136.6	1.9
1978	133.0	0.3	125.5	0.4	142.9	0.9	137.4	0.8
1979	132.1	−0.9	124.8	−0.7	142.5	−0.4	137.1	−0.3
1980	129.8	−2.3	123.2	−1.6	140.7	−1.8	135.7	−1.4
1981	126.0	−3.8	120.5	−2.7	137.5	−3.2	133.2	−2.5

(continued)

TABLE 45 *(concluded)*

Year	$(A_{.50}, C_1, 4.0)$ Fund Level	$(A_{.50}, C_1, 4.0)$ Annual Fund Accumulation	$(A_{.50}, C_1, C+E)$ Fund Level	$(A_{.50}, C_1, C+E)$ Annual Fund Accumulation	$(A_{.50}, C_3, 4.0)$ Fund Level	$(A_{.50}, C_3, 4.0)$ Annual Fund Accumulation	$(A_{.50}, C_3, C+E)$ Fund Level	$(A_{.50}, C_3, C+E)$ Annual Fund Accumulation
				Set P_6				
1961[a]	55.3	5.3	55.3	5.3	55.3	5.3	55.3	5.3
1962	60.7	5.4	60.7	5.4	60.7	5.4	60.8	5.5
1963	66.2	5.5	66.2	5.5	66.4	5.7	66.5	5.7
1964	71.9	5.7	71.9	5.7	72.4	6.0	72.5	6.0
1965	77.8	5.9	77.6	5.7	78.6	6.2	78.8	6.3
1966	83.7	5.9	83.4	5.8	85.0	6.4	85.2	6.4
1967	89.6	5.9	89.2	5.8	91.5	6.5	91.8	6.6
1968	95.3	5.7	94.7	5.5	97.9	6.3	98.2	6.4
1969	100.6	5.3	99.9	5.2	103.9	6.1	104.4	6.2
1970	105.5	4.9	104.7	4.8	109.6	5.7	110.3	5.9
1971	109.9	4.4	109.2	4.5	114.9	5.3	115.9	5.6
1972	113.5	3.6	113.0	3.8	119.5	4.6	120.9	5.0
1973	116.1	2.6	115.9	2.9	122.9	3.4	125.0	4.1
1974	117.3	1.2	117.8	1.9	125.0	2.1	128.0	3.0
1975	117.1	−0.2	118.6	0.8	125.6	0.6	129.8	1.8
1976	115.2	−1.9	118.2	−0.4	124.6	−1.0	130.3	0.5
1977	111.3	−3.9	116.3	−1.9	121.4	−3.2	129.2	−1.1
1978	104.8	−6.5	112.5	−3.8	115.5	−5.9	126.0	−3.2
1979	95.4	−9.4	106.7	−5.8	106.6	−8.9	120.6	−5.4
1980	82.7	−12.7	98.6	−8.1	94.5	−12.1	112.8	−7.8
1981	66.5	−16.2	88.2	−10.4	78.8	−15.7	102.5	−10.3
				Set P_7				
1961[a]	55.3	5.3	55.3	5.3	55.3	5.3	55.3	5.3
1962	60.6	5.3	60.6	5.3	60.7	5.4	60.7	5.4
1963	66.0	5.4	65.9	5.3	66.2	5.5	66.2	5.5
1964	71.5	5.5	71.2	5.3	72.0	5.8	71.8	5.6
1965	77.1	5.6	76.5	5.3	77.9	5.9	77.6	5.8
1966	82.6	5.5	81.7	5.2	83.9	6.0	83.4	5.8
1967	88.1	5.5	86.8	5.1	89.9	6.0	89.2	5.8
1968	93.3	5.2	91.5	4.7	95.7	5.8	94.7	5.5
1969	98.1	4.8	95.8	4.3	101.1	5.4	99.8	5.1
1970	102.5	4.4	99.7	3.9	106.2	5.1	104.6	4.8
1971	106.4	3.9	103.1	3.4	110.9	4.7	109.0	4.4
1972	109.6	3.2	105.8	2.7	114.8	3.9	112.6	3.6
1973	111.9	2.3	107.7	1.9	117.8	3.0	115.4	2.8
1974	113.0	1.1	108.6	0.9	119.6	1.8	117.2	1.8
1975	113.0	−0.0	108.4	−0.2	120.2	0.6	117.8	0.6
1976	111.6	−1.4	107.2	−1.2	119.4	−0.8	117.4	−0.4
1977	108.6	−3.0	104.8	−2.4	116.9	−2.5	115.5	−1.9
1978	103.6	−5.0	100.8	−4.0	112.4	−4.5	111.9	−3.6
1979	96.4	−7.2	95.2	−5.6	105.6	−6.8	106.6	−5.3
1980	86.8	−9.6	87.9	−7.3	96.4	−9.2	99.4	−7.2
1981	74.6	−12.2	78.7	−9.2	84.7	−11.7	90.3	−9.1

Source: NBER projections.

[a] From Alfred M. Skolnik, "Growth of Employee-Benefit Plans, 1954-61," *Social Security Bulletin,* April 1963.

TABLE 46

Range of Fund Levels and Annual Accumulations of the "Most Likely" Group of Projection Sets P_2 Through P_7, Private Industrial Pension Plans, 1961-81
(billion dollars)

Year	Fund Level			Annual Fund Accumulation		
	High	Low	Difference	High	Low	Difference
			Set P_2			
1961	55.3	55.3	0.0	5.3	5.3	0.0
1962	61.2	61.1	0.1	5.9	5.8	0.1
1963	67.6	67.3	0.3	6.4	6.2	0.2
1964	74.4	73.7	0.7	6.9	6.4	0.5
1965	81.8	80.5	1.3	7.4	6.8	0.6
1966	89.7	87.7	2.0	7.9	7.2	0.7
1967	98.1	95.1	3.0	8.4	7.4	1.0
1968	106.9	102.7	4.2	8.8	7.6	1.2
1969	116.1	110.5	5.6	9.2	7.8	1.4
1970	125.7	118.6	7.1	9.6	8.1	1.5
1971	135.7	126.9	8.8	10.0	8.3	1.7
1972	146.1	135.4	10.7	10.4	8.5	1.9
1973	156.7	144.1	12.6	10.6	8.7	1.9
1974	167.4	152.8	14.6	10.7	8.7	2.0
1975	178.4	161.6	16.8	11.0	8.8	2.2
1976	189.5	170.7	18.8	11.1	9.1	2.0
1977	200.7	180.0	20.7	11.2	9.3	1.9
1978	211.8	189.5	22.3	11.1	9.5	1.6
1979	222.9	199.2	23.7	11.1	9.7	1.4
1980	233.9	209.0	24.9	11.0	9.8	1.2
1981	244.8	219.2	25.6	10.9	10.2	0.7
			Set P_3			
1961	55.3	55.3	0.0	5.3	5.3	0.0
1962	61.1	61.0	0.1	5.8	5.7	0.1
1963	67.3	67.0	0.3	6.2	6.0	0.2
1964	74.0	73.1	0.9	6.7	6.1	0.6
1965	81.0	79.4	1.6	7.0	6.3	0.7
1966	88.5	86.0	2.5	7.5	6.6	0.9
1967	96.4	92.7	3.7	7.9	6.7	1.2
1968	104.6	99.4	5.2	8.2	6.7	1.5
1969	113.1	106.2	6.9	8.5	6.8	1.7
1970	121.8	113.1	8.7	8.7	6.9	1.8
1971	130.9	120.1	10.8	9.1	7.0	2.1
1972	140.2	127.1	13.1	9.3	7.0	2.3
1973	149.6	134.1	15.5	9.4	7.0	2.4
1974	159.2	141.1	18.1	9.6	7.0	2.6
1975	168.9	148.0	20.9	9.7	6.9	2.8
1976	178.7	155.0	23.7	9.8	7.0	2.8
1977	188.6	162.0	26.6	9.9	7.0	2.9
1978	198.5	169.1	29.4	9.9	7.1	2.8
1979	208.3	176.1	32.2	9.8	7.0	2.8
1980	218.1	183.2	34.9	9.8	7.1	2.7
1981	228.0	190.4	37.6	9.9	7.2	2.7

(continued)

TABLE 46 *(continued)*

Year	Fund Level			Annual Fund Accumulation		
	High	Low	Difference	High	Low	Difference
			Set P_4			
1961	55.3	55.3	0.0	5.3	5.3	0.0
1962	60.8	60.7	0.1	5.5	5.4	0.1
1963	66.7	66.4	0.3	5.9	5.7	0.2
1964	72.9	72.2	0.7	6.2	5.8	0.4
1965	79.4	78.2	1.2	6.5	6.0	0.5
1966	86.3	84.5	1.8	6.9	6.3	0.6
1967	93.4	90.8	2.6	7.1	6.3	0.8
1968	100.5	97.0	3.5	7.1	6.2	0.9
1969	107.7	103.2	4.5	7.2	6.2	1.0
1970	114.9	109.2	5.7	7.2	6.0	1.2
1971	122.0	115.1	6.9	7.1	5.9	1.2
1972	129.0	120.8	8.2	7.0	5.7	1.3
1973	135.4	126.1	9.3	6.4	5.2	1.2
1974	141.4	130.8	10.6	6.0	4.6	1.4
1975	146.8	134.9	11.9	5.4	3.8	1.6
1976	151.5	138.5	13.0	4.7	3.1	1.6
1977	155.4	141.1	14.3	3.9	2.0	1.9
1978	158.2	141.6	16.6	2.8	0.5	2.3
1979	159.7	140.7	19.0	1.5	−0.9	2.4
1980	160.0	137.9	22.1	0.3	−2.8	3.1
1981	158.5	132.9	25.6	−1.5	−5.0	3.5
			Set P_5			
1961	55.3	55.3	0.0	5.3	5.3	0.0
1962	60.7	60.6	0.1	5.4	5.3	0.1
1963	66.4	66.1	0.3	5.7	5.5	0.2
1964	72.3	71.5	0.8	5.9	5.4	0.5
1965	78.5	77.1	1.4	6.2	5.6	0.6
1966	84.9	82.7	2.2	6.4	5.6	0.8
1967	91.5	88.3	3.2	6.6	5.6	1.0
1968	98.0	93.6	4.4	6.5	5.3	1.2
1969	104.4	98.7	5.7	6.4	5.1	1.3
1970	110.8	103.6	7.2	6.4	4.9	1.5
1971	116.9	108.3	8.6	6.1	4.7	1.4
1972	122.7	112.6	10.1	5.8	4.3	1.5
1973	128.0	116.3	11.7	5.3	3.7	1.6
1974	132.6	119.4	13.2	4.6	3.1	1.5
1975	136.6	122.0	14.6	4.0	2.6	1.4
1976	139.8	123.9	15.9	3.2	1.9	1.3
1977	142.0	125.1	16.9	2.2	1.2	1.0
1978	142.9	125.5	17.4	0.9	0.3	0.6
1979	142.5	124.8	17.7	−0.3	−0.9	0.6
1980	140.7	123.2	17.5	−1.4	−2.3	0.9
1981	137.5	120.5	17.0	−2.5	−3.8	1.3

(continued)

TABLE 46 *(concluded)*

Year	Fund Level			Annual Fund Accumulation		
	High	Low	Difference	High	Low	Difference
			Set P_6			
1961	55.3	55.3	0.0	5.3	5.3	0.0
1962	60.8	60.7	0.1	5.5	5.4	0.1
1963	66.5	66.2	0.3	5.7	5.5	0.2
1964	72.5	71.9	0.6	6.0	5.7	0.3
1965	78.8	77.6	1.2	6.3	5.7	0.6
1966	85.2	83.4	1.8	6.4	5.8	0.6
1967	91.8	89.2	2.6	6.6	5.8	0.8
1968	98.2	94.7	3.5	6.4	5.5	0.9
1969	104.4	99.9	4.5	6.2	5.2	1.0
1970	110.3	104.7	5.6	5.9	4.8	1.1
1971	115.9	109.2	6.7	5.6	4.4	1.2
1972	120.9	113.0	7.9	5.0	3.6	1.4
1973	125.0	115.9	9.1	4.1	2.6	1.5
1974	128.0	117.3	10.7	3.0	1.2	1.8
1975	129.8	117.1	12.7	1.8	−0.2	2.0
1976	130.3	115.2	15.1	0.5	−1.9	2.4
1977	129.2	111.3	17.9	−1.1	−3.9	2.8
1978	126.0	104.8	21.2	−3.2	−6.5	3.3
1979	120.6	95.4	25.2	−5.4	−9.4	4.0
1980	112.8	82.7	30.1	−7.8	−12.7	4.9
1981	102.5	66.5	36.0	−10.3	−16.2	5.9
			Set P_7			
1961	55.3	55.3	0.0	5.3	5.3	0.0
1962	60.7	60.6	0.1	5.4	5.3	0.1
1963	66.2	65.9	0.3	5.5	5.3	0.2
1964	72.0	71.2	0.8	5.8	5.3	0.5
1965	77.9	76.5	1.4	5.9	5.3	0.6
1966	83.9	81.7	2.2	6.0	5.2	0.8
1967	89.9	86.8	3.1	6.0	5.1	0.9
1968	95.7	91.5	4.2	5.8	4.7	1.1
1969	101.1	95.8	5.3	5.4	4.3	1.1
1970	106.2	99.7	6.5	5.1	3.9	1.2
1971	110.9	103.1	7.8	4.7	3.4	1.3
1972	114.8	105.8	9.0	3.9	2.7	1.2
1973	117.8	107.7	10.1	3.0	1.9	1.1
1974	119.6	108.6	11.0	1.8	0.9	0.9
1975	120.2	108.4	11.8	0.6	−0.2	0.8
1976	119.4	107.2	12.2	−0.4	−1.4	1.0
1977	116.9	104.8	12.1	−1.9	−3.0	1.1
1978	112.4	100.8	11.6	−3.6	−5.0	1.4
1979	106.6	95.2	11.4	−5.3	−7.2	1.9
1980	99.4	86.8	12.6	−7.2	−9.6	2.4
1981	90.3	74.6	15.7	−9.1	−12.2	3.1

Source: Table 45.

TABLE 47

Average Fund Levels and Annual Accumulations for the "Most Likely" Group of Projection Sets P_1 Through P_7, Private Industrial Pension Plans, 1961-81

(billion dollars)

Year	P_1	P_2	P_3	P_4	P_5	P_6	P_7
				Average Fund Level[a]			
1961	55.3	55.3	55.3	55.3	55.3	55.3	55.3
1962	61.2	61.2	61.1	60.8	60.7	60.7	60.6
1963	67.4	67.4	67.2	66.5	66.2	66.3	66.1
1964	73.8	74.1	73.6	72.5	72.0	72.2	71.6
1965	80.5	81.2	80.3	78.8	77.9	78.2	77.2
1966	87.4	88.8	87.4	85.4	83.9	84.4	82.9
1967	94.5	96.8	94.7	92.2	90.0	90.5	88.5
1968	101.8	105.0	102.2	98.9	96.0	96.5	93.8
1969	109.5	113.6	109.9	105.7	101.8	102.2	98.7
1970	116.4	122.5	117.8	112.3	107.5	107.5	103.3
1971	123.9	131.7	125.8	118.9	113.0	112.5	107.3
1972	131.4	141.2	134.1	125.2	118.1	116.7	110.7
1973	138.8	150.9	142.3	131.0	122.6	120.0	113.2
1974	146.1	160.7	150.6	136.2	126.5	122.0	114.6
1975	153.3	170.6	158.9	140.8	129.8	122.8	114.8
1976	160.5	180.7	167.4	144.6	132.4	122.1	113.9
1977	167.7	191.0	175.8	147.6	134.1	119.5	111.4
1978	174.6	201.3	184.2	149.2	134.7	114.7	107.2
1979	181.4	211.5	192.6	149.6	134.2	107.3	100.9
1980	187.9	221.9	200.9	148.4	132.4	97.2	92.6
1981	194.4	232.3	209.3	145.3	129.3	84.0	82.1
				Average Annual Fund Accumulation[a]			
1961	5.3	5.3	5.3	5.3	5.3	5.3	5.3
1962	5.9	5.9	5.8	5.5	5.4	5.4	5.3
1963	6.2	6.2	6.1	5.7	5.5	5.6	5.5
1964	6.4	6.7	6.4	6.0	5.8	5.9	5.5
1965	6.7	7.1	6.7	6.3	5.9	6.0	5.6
1966	6.9	7.6	7.1	6.6	6.0	6.2	5.7
1967	7.1	8.0	7.3	6.8	6.1	6.1	5.6
1968	7.3	8.2	7.5	6.7	6.0	6.0	5.3
1969	7.7	8.6	7.7	6.8	5.8	5.7	4.9
1970	6.9	8.9	7.9	6.6	5.7	5.3	4.6
1971	7.5	9.2	8.0	6.6	5.5	5.0	4.0
1972	7.5	9.5	8.3	6.3	5.1	4.2	3.4
1973	7.4	9.7	8.2	5.8	4.5	3.3	2.5
1974	7.3	9.8	8.3	5.2	3.9	2.0	1.4
1975	7.2	9.9	8.3	4.6	3.3	0.8	0.2
1976	7.2	10.1	8.5	3.8	2.6	−0.7	−0.9
1977	7.2	10.3	8.4	3.0	1.7	−2.6	−2.5
1978	6.9	10.3	8.4	1.6	0.6	−4.8	−4.2
1979	6.8	10.2	8.4	0.4	−0.5	−7.4	−6.3
1980	6.5	10.4	8.3	−1.2	−1.8	−10.1	−8.3
1981	6.5	10.4	8.4	−3.1	−3.1	−13.2	−10.5

[a]Simple averages of Table 45 and of the corresponding data in Table 26.

year-to-year rate under P_1), in fact, both to grow at an annual rate of 4.0 per cent, pension funds would be considerably larger than set P_1 suggests.[11] By 1981 the difference would be just under 20 per cent as regards fund levels and 60 per cent as regards the absolute amount of annual change in pension fund assets. Moreover, the pattern of annual accumulations is basically different for the two projections. In the average of the P_1 group, a peak is reached in the early 1970's and then some tailing off occurs; under P_2 there is a continual increase in the amount of annual accumulations. It is not surprising, then, that the divergence between P_1 and P_2 grows relatively greater with each passing year.

If a shorter period, say, ten years, were of interest, the variation brought about by pronounced differences in assumptions about the behavior of pension fund outlays and inflows would be surprisingly small as regards projected levels of funds and even the amount of annual accumulation by pension funds. For 1971 the P_2 "most likely" subset average is less than 7 per cent different from the P_1 figure, while the indications as to annual fund accumulation differ on the order of 23 per cent.

Set P_3

This type of conclusion is even more valid for the P_3 projections, which are quite close to P_1. From these two sets, based on dissimilar underlying structure, indications of pension fund assets in the future of roughly the same order of magnitude are obtained, but from the way their first differences are moving and, more basically, from the assumption used in their derivation it is clear that, over a longer period than covered by this study, the differences between P_1 and P_3 would be more pronounced, and increasingly so. The comparison shows, however, that, for the next twenty years or so, one could make quite different sets of assumptions about the underlying structure and still arrive at about the same values for fund levels and annual net accumulations.[12]

[11] The regression of contributions on time, it will be recalled, had a zero slope coefficient.

[12] For example, at the end of ten years, i.e., in 1971, the average fund levels of the "most likely" group of projections of the P_1 and P_3 sets differ by about 2 per cent. But over these ten years, total benefit payments cumulate to $34.7 billion

It is appropriate at this point to note specifically that projection sets P_2 through P_7 are strictly mechanical. That is to say, they do not incorporate the results of benefits and contributions appropriately adjusted to a specified set of pension plan promises, but simply the arithmetic implication of specified behavior of average contributions per covered worker and benefits per beneficiary. The question is not what reserves would be if pension plans were geared to provide benefits that moved with average gross weekly earnings, but rather, in the case of P_2 and P_3, what the implications are for fund accumulation under particular assumptions about the rate of growth of benefits, contributions, and fund earnings.

In other words, these alternative projection sets do not say: "Let pension plans make different promises, and see how this affects required reserves." They do say: "Let benefits, contributions, and earnings behave in a specifically different manner, and see how this affects their net resultant—accumulated reserves." This distinction becomes even more important for projection sets P_4 through P_7.

Sets P_4 and P_5

The assumptions that determine these sets are too numerous to spell out here; the reader is referred to the description in Table 44 and the preceding discussion. Their underlying basis is at sharp variance with P_1; it is no surprise that this great difference in underlying assumptions produces vastly different projections. Thus, under both P_4 and P_5, fund levels reach a maximum and then turn down sharply before the end of the period, while P_1 suggests that sizable accumulations will continue.

Once again, if we were interested in a shorter period, the projected fund levels (and the annual first differences therein, albeit to a lesser degree) would not be too different from P_1's. Thus by 1971, P_5 and P_1 differ by less than 9 per cent, and P_4 and P_1 by no more than 4 per cent. As to annual accumulations of pension fund assets, the P_4 and P_5 projection sets suggest a less important role for pension funds in the capital markets. Indeed, they indicate that pension funds would

for the P_1 version of ($A_{.50}$, C_3, 4.0) and $37.0 billion for the P_3 equivalent; similarly, the respective cumulative contributions over these ten years are $71.3 billion and $77.3 billion.

sell assets on net balance by the end of the period. Yet again, over the next decade or so, P_4 and P_5 are rather like P_1 in what they suggest for the strength of pension funds as demanders of financial assets.

The unreality of focusing on the fiscal flows and not their determinants—the characteristics of the plans—now stands out in sharp relief. It is most unlikely, in the face of pension benefits of the levels suggested in the assumptions for P_4 and P_5, rising linearly over time from 53.5 to 65 per cent of a growing base (AGWE), that pension funds would become smaller over time. Thus the projections clearly understate the required amount of fund assets. And even so, fund levels are projected at close to P_1's at least over the next decade.

Sets P_6 and P_7

Finally, P_6 and P_7 differ from P_4 and P_5 only in specifying more generous industrial pensions and hence, given the nature of the projections, even smaller funds and annual net decumulations starting earlier and becoming considerably larger. But even here fund levels through 1971 or so are not too far out of line with those suggested by P_1.

Summary

Table 48 is helpful in summarizing the projections and in drawing conclusions from them. Additionally, on the basis of these percentages, P_2 through P_5 equivalents of the enlarged (and more meaningful) "most likely" subset of Chapter 4 have been derived and are incorporated in Table 49. These tables have no values for P_6 and P_7, first because there is not a sufficient difference between them and P_4 and P_5 to warrant separate treatment, and second because P_4 and P_5 are more reasonable since they involve a less astronomical growth in benefits.[13]

A look at the projected values for 1966 shows a strikingly "tight"

[13] Although it must be admitted that all four of these projection sets involve such rapid rates of growth in benefits as to make them "illustrative" at best. Thus under the P_4 version of ($A_{.50}$, C_3, 4.0) average benefits grow at a rate on the order of 5.3 per cent per annum between 1962 and 1982, and under the P_6 version of this projection the annual rate of growth of average benefits is about 6.5 per cent.

TABLE 48

Average Fund Levels and Annual Accumulations for the "Most Likely" Group of Projection Sets P_2 Through P_5 as Percentage of P_1 Values, 1966-81

Year	P_2	P_3	P_4	P_5
		Fund Level		
1966	102	100	98	96
1971	106	102	96	91
1976	113	104	90	82
1981	119	108	75	67
		Annual Accumulation		
1966	110	103	96	87
1971	123	107	88	73
1976	140	118	53	36
1981	160	129	−48	−48

Source: Table 47.

distribution of possible values of fund levels around P_1 and a relatively narrow range of annual fund accumulations. It seems safe to conclude that almost any basis of projection indicates that by 1966 pension funds would be holding between $85 and $90 billion of assets and would be a powerful force in the capital markets, with between $6 and $8 billion to invest annually, about 35 per cent greater than today (1961).[14]

Taking cognizance of all projection sets P_1 through P_5, for asset holdings the span of possible values is much greater by 1971, and for annual changes therein this is even more pointedly the case. By that date the projections indicate that the reserves would fall within the range of $115 to $130 billion, and suggest that industrial pension

[14] This is not as behind the times as it seems. To refer to 1961 as "today" in, say, 1966, is to lag by five years, of course. But since the Social Security Administration data on private plans, the basis for these projections, were available for 1961, say, not until 1963, the difference is only three years. Moreover, because the projections took several years to develop, 1961 is the last year of actual data and is referred to in the text, unless otherwise specified, as currently or today.

TABLE 49

Possible Values of Private Industrial Pension Plan Funds and Annual Accumulations for the "Most Likely" Group of Projection Sets P_1 Through P_5, 1966-81
(billion dollars)

Year	P_1[a]	P_2[b]	P_3[b]	P_4[b]	P_5[b]
			Fund Level		
1966	87.5	89.3	87.5	85.8	84.0
1971	124.5	132.0	127.0	119.5	113.3
1976	162.9	184.1	169.4	146.6	133.6
1981	200.5	238.6	216.5	150.4	134.3
			Annual Accumulation		
1966	7.0	7.7	7.2	6.6	6.1
1971	7.6	9.3	8.1	6.7	5.5
1976	7.7	10.8	9.1	4.1	2.8
1981	7.4	11.8	9.6	−3.6	−3.6

[a]From Table 28.

[b]Derived by applying percentages of Table 48 to the first column of this table.

funds would still be a powerful financial intermediary—more powerful in terms of the amount of net investment they seek to undertake than they are today, but it cannot be stated with certainty whether they would be twice as powerful or only slightly more powerful. The range of possibilities is wide—somewhere between $5.5 and $9.3 billion. But by any reckoning pension funds would be large and still accumulating.

Still looking at the evidence of all sets P_1–P_5, funds in 1976 would probably fall between $135 and $185 billion. But as for a judgment on annual accumulations, we are "at sea without compass or rudder." [15] Pension funds, according to the projections, might seek to invest as little as $3 billion or as much as $11 billion, so this much can be stated: they would still be net acquirers of assets.

[15] As McCulloch said about tax systems that abandon proportional income taxation for progressive taxation.

Not much can be said about the picture twenty years from now if projection sets P_1 through P_5 are considered to be equally likely. It is not very helpful to be told that by the end of 1981 pension fund assets could total $239 billion, or they might be only half as large. It is even less helpful to learn that by then they might be purchasing, on net balance, $12 billion of assets a year or could, with equal likelihood, be net sellers of assets to an amount of about $3.5 billion.

However, if P_4 and P_5 are put to one side on the grounds that they are less likely than P_1, P_2, and P_3, a set of possible values will remain that both for fund assets and for annual net accumulations form a reasonable cluster over the whole of the period. Their averages suggest substantially the same order of magnitude, particularly for fund assets. On the same grounds that P_6 and P_7 were considered to be less likely than P_4 and P_5, these latter might be taken to be less likely than P_1, P_2, and P_3. Specifically, P_4 and P_5 project an annual rate of growth of average benefits from 1962 through 1981 of 5.5 and 4 per cent, while 1.5, 4.0, and 2.2 per cent are the percentage rates of growth of average benefits for P_1, P_2, and P_3, respectively.

Thus there are grounds for considering P_4 to be less realistic than the others, since the annual rate of growth of average benefits under industrial pension plans over the last decade has been only about 1.5 per cent. As to P_5, it could be argued that it lacks realism in that it makes asymmetrical assumptions about the roles of industrial plans and the public arrangement, OASDI, with the latter assuming a proportionately invariant role and the former assuming a growing residual responsibility. It was said earlier in this chapter that only the arithmetical implications of the assumptions behind P_4 through P_7 are dealt with. But this arithmetic suggests an unrealistically low level of fund assets. As regards the benefit promises, a heavier flow of contributions and earnings would be needed than that assumed for P_4 through P_7 to keep industrial plans at something like their current degree of funding. Implicit in these projection sets as presently structured, therefore, is a less realistic assumption about fund levels, viz., that private industrial pension funds will be content or permitted to have a lower degree of funding than at present.

Thus there is a basis for taking P_1, P_2, and P_3 as the more realistic of the projection sets, and firmer statements can be made about pension funds in the future. Fund levels would be on the order of $88 billion

by the end of 1966, something like $125 or $130 billion by the end of 1971, between $165 and $185 billion by the end of 1976, and would fall in a range between $200 and $240 billion by the end of 1981. And for every year in the period 1966–81, private industrial pension plans would come to the market for at least $7 billion and perhaps as much as $10 or $11 billion of net new assets.

In brief summary, over a wide range of alternative assumptions as to coverage, beneficiaries, benefits per beneficiary, and contributions per covered worker, private industrial pension plan funds will grow significantly over the next twenty years. In the course of this growth they will bring a substantial flow of new money to the capital markets each year, on the order of 40 to 50 per cent greater than their current demand, and perhaps as much as 100 per cent more.

Their probable holdings by the end of the period covered by this study will amount to something like $220 billion, give or take $15 billion. Financial intermediaries that hold this much in assets, predominantly bonds and common stock, will play a powerful role in the market for capital whether they continue to acquire assets on net balance each year or not. They will always be seeking to refurbish their portfolios as the bonds run out or are called, and as the relative attractiveness of financial instruments varies. So they will be important traders. Net acquisitions or no, the projections for 1981 indicate that industrial pension plans will still constitute a powerful financial institution at that date.