28649

SOCIAL SECURITY FINANCING: RECENT PROBLEMS AND CURRENT UNCERTAINTIES

by Lawrence H. Thompson
U.S. General Accounting Office

Prepared for
Annual Meeting of
Industrial Relations Research Association
San Francisco, CA
December 30, 1983

Opinions and conclusions are the author's and not necessarily those of the General Accounting Office.

Social Security Financing: Recent Problems and Current Uncertainties

Introduction

The last ten years have been difficult ones for many domestic social and economic institutions, including the U.S. Social Security system. Twice during that period, Social Security has faced a financial crisis that could be addressed only through major alterations in either benefit levels or tax rates. This paper explores the reasons for the recent financial crises in social security, the changes that Congress enacted earlier this year to deal with the latest crisis, the current projections of the future status of the program, and some of the uncertainties inherent in assessing these projections. It closes with a comment about the relationship between the uncertainty of the financial projections and the financial soundness of Social Security.

Causes of the Financial Problems

The essence of social security financing is easily demonstrated through simple algebra.[1] Social Security revenues are derived virtually exclusively from a flat rate payroll tax. The program is financed on a "current cost" or "pay-as-you-go" basis, meaning that the revenues collected in any given year are used mostly to finance the benefit payments that year. Each year's revenues can be expressed as the product of the total (i.e., combined employer-employee) tax rate that year, TR_t, the number of workers in covered employment that year, N_t, and the average annual taxable earnings per worker, E_t. Expenditures are the product of the number of beneficiaries, B_t, and the average payment per beneficiary, P_t. Since the program is current cost

---

[1] This approach is developed more extensively in Sherwin Rosen (1984).

financed, revenues each year must equal average expenditures.[2] Thus, financial balance requires:

$$[1] \quad (TR_t)(N_t)(E_t) = (B_t)(P_t)$$

and the tax rate required to finance the program is:

$$[2] \quad TR_t = \frac{P_t}{E_t} \times \frac{B_t}{N_t}$$

the product of the ratio of the average benefit to average annual earnings and the ratio of beneficiaries to workers.

Social Security's recent financial problems have had two components: a short range problem and a conceptually distinct long range problem. The short range problems have been almost entirely the result of economic developments which have caused unanticipated changes in the benefit-earnings ratio.[3] What has happened is that Congress has established in the law a tax rate that it believes will be sufficient to finance scheduled benefits. The cost and revenue projections used to derived this tax rate have been based on forecasts of key economic and demographic variables, including in particular the rate of inflation and the rate of increase in nominal earnings. The economic assumptions subsequently have proven erroneous, however, and upset the expectation of balance between Social Security revenues and expenditures.

---

[2] Actually, in the long run total revenues must exceed expenditures by enough to maintain a contingency reserve trust fund balance that grows at the same rate as expenditures are growing. In effect, the required excess is equal to the rate of growth of expenditures multiplied by the ratio of reserves to expenditures. If the interest rate earned on the reserves equals the rate of growth of expenditures, interest earnings will just equal the excess required.

[3] The benefit rolls turn over relatively slowly so that their size can be projected fairly accurately in the short run. The number of workers who will have some covered employment in a given year is not all that sensitive to changes in the average monthly unemployment rate because most workers who are unemployed in a given month will nonetheless have some covered employment at sometime during the year. Changes in the unemployment rate have a larger effect on average annual hours per worker and hence E_t.

Consider the effect of an error in the economic forecast. From equation [1] it is clear that if earnings grow by two percentage points less than had been projected, revenues will fall (essentially) 2 percent short of the level projected. If the projection had shown balance between revenues and expenditures, actual experience will be a shortfall of 2 percent of expenditures. The shortfall will be covered by drawing down reserves and the ratio of reserves on hand to annual expenditures (henceforth, the "reserve ratio") will fall by 2 percentage points from the level originally projected. If the percent increase in earnings in all subsequent years was forecast accurately, the level of average earnings (and hence total tax revenues) will continue to be 2 percent below the projected level in all subsequent years. The revenue-expenditure gap will never be closed and in each subsequent year the reserve ratio will fall by another 2 percentage points. In n years, the reserve ratio will be 2n percentage points lower than projected simply as a consequence of the one time forecasting error of 2 percentage points in the earnings growth rate.

The financial status of the program deteriorates far more rapidly when the gap between actual and projected growth persists for several years. A simple rule of thumb is that the change in the actual reserve ratio in year n as compared to the level that had been projected in year t=1 is given by:

$$\Delta RR_t = \sum_{t=1}^{n} (n-(t-1))ERR_t$$

where RR_t is the reserve ratio and ERR_t is the difference (in percentage points) between projected and actual economic experience.[4] Thus a continuing 2 percentage point shortfall between actual earnings growth and projected earnings growth reduces the reserve ratio below previously projected levels by 2 points after one year, 6 points after two years, 12 points after three years, 20 points after four years and 30 points after five years.

Since benefit payments are indexed to the CPI, the effect of errors in projecting inflation is almost identical, though opposite in direction, to that of errors in projecting earnings growth. Errors in projecting both earnings growth and price changes will tend to offset each other, provided the actual relationship between the two turns out to be as projected.[5]

---

[4] This is an simplified form of the rule derived by Dwight K. Bartlett and Joseph A. Applebaum (1982).

[5] Because of the time lag in adjusting benefit levels, the system would actually gain slightly from higher inflation if the inflation were offset by equal increases in the rate of growth of nominal earnings. The actual timing of the benefit increases is an unnecessary complexity ignored in this discussion.

Thus, in the short run, the single most important economic variable affecting Social Security financing is the real wage differential, the difference between the rate of growth of earnings and the rate of growth of prices.

Prior to 1970, the reserve in the Social Security (Old-Age, Survivors' and Disability Insurance) trust funds were always equal to at least one-year's expenditures. Since then, the reserve ratio has declined virtually every year. A good part of the explanation for this is found in the economic data summarized in Table 1.

In 1972, at a time when the economy was coming out of a recession, a new Social Security financing and benefit schedule was adopted. The schedule was based on the assumption that real wage levels in the mid 1970s would recover sufficiently to restore them to the level implied by the trend rate of growth of the 1960's; the assumed real wage differential in the 1972 projections was 2.25 percent per year. Projections based on this assumption implied that the reserve ratio would remain fairly constant at around 80 percent. As shown in Table 1, however, the actual real wage differential turned out to average -0.3 over 1973-77 rather than +2.25. Largely as a result of this, Social Security began running substantial deficits and, instead of holding steady at around 80 percent, the reserve ratio fell to less than 40 percent by the end of 1977.[6]

Congress acted in 1977 to restore balance by reducing scheduled future benefits and increasing future taxes. The expectation was that these changes would be enough to stop the deficits and that by the end of 1982 reserves would equal 38 percent of expenditures and be increasing. The 1977 projections were based on the assumption that in the rest of the decade real growth would resume at something close to its earlier rate. The assumption was again proven incorrect, leading to the need for further benefit and tax adjustments in 1983.

The long-range financial projections are probably more sensitive to demographic developments, particularly changes in fertility and mortality rates, than to economic variations; demographic variations affect program financing by altering the ratio of beneficiaries to workers. The data in Table 2 show past trends and three plausible projections of future movements in fertility and in one measure of mortality (life expectancy at age 65). These data illustrate three observations about the demographic assumptions underlying Social Security cost projections.

---

[6] The economic assumptions used in 1972 to set the tax and benefit schedule were consistent with those contained in the DRI September 1972 long range forecast. Lawrence H. Thompson and Paul N. Van de Water (1977) show that had DRI been correct there would have been no short range financing crisis in 1977.

First, past fertility and mortality trends show sufficient variation to warn one against being too confident of any one prediction of the future. Fertility rates rose dramatically after World War II and fell just as dramatically in the 1960s and early 1970s. On the other hand, mortality rates had declined fairly steadily from 1900 through about 1955. Beginning around 1955, however, the rate of decline slowed substantially, especially for men; it increased again beginning in the late 1960s.

Second, when compounded over a long period of time, different, plausible assumptions about either future mortality or future fertility can produce dramatic differences in the projected costs of Social Security. By the year 2060, only 1.3 workers would support each beneficiary under the low fertility/low mortality assumption set (labeled "Pessimistic"), whereas the high fertility/high mortality assumption set (labeled "Optimistic") produces 2.7 workers per beneficiary. Other things equal, the tax rate if the optimistic set proved the more accurate would be twice the level required should the pessimistic set prove the more accurate.

Third, the assumptions about future fertility and future mortality are far more important in determining costs 50 or more years from now than they are in determining costs in the next 20 years or so. In the year 2000, the beneficiary to worker ratio is only some 16 percent higher under the pessimistic assumption set than under the optimistic set.

Social Security's long run financing problem began appearing in the projections issued after 1973. The problem stems virtually entirely from modifications made in the fertility and mortality assumptions used in the projections, and the modifications were largely the result of the Social Security actuaries' quite reasonable reaction to then emerging current experience.[7] Incorporation of these modified fertility and mortality assumptions has had little effect on the short range projections made in the last decade and the recent fertility and mortality developments have had little to do with the recent cash flow crisis in Social Security. But the change in assumptions has had a great deal to do with the emerging consensus that without future changes in benefit provisions the costs of the system are very likely to rise dramatically in the 21st century.

---

[7] Long range projections made in 1976 and 1977 also showed significant cost escalation as a result of a mistake that was made when benefit indexing was introduced into Social Security in 1972. The mistake served gradually to increase initial benefit amounts to future retirees in a way that no one had intended. The 1977 legislation corrected this error and reduced future benefit levels by an amount calculated to restore them to the level that would have prevailed in the absence of the 1972 mistake. See, for instance, John Snee and Mary Ross (1978).

1983 Congressional Action

By the end of 1982, the Old-Age and Survivors' Insurance program had a positive trust fund balance only by virtue of its having received loans from the Disability Insurance fund and a third payroll tax-financed trust fund used to finance Hospital Insurance. Additional interfund loans could have financed retirement benefits for a few additional months, but projections showed that the final effect would have been to exhaust the balances in all three payroll tax-financed funds by the Spring of 1984. One challenge facing the Congress was to balance projected revenues with projected expenditures in the 1983-89 period.

A substantial increase in the Social Security payroll tax then scheduled to occur in 1990 appeared to provide sufficient revenue to finance then-scheduled Social Security cash benefit payments occurring between 1990 and about 2030, but thereafter projected revenues were substantially less than projected expenditures. The gap after 2030 was the long-range financial problem; it was projected to continue into the indefinite future. Averaged over the next 75 years, the short- and long-range gap between projected revenues and projected expenditures was the equivalent of 2.09 percent of taxable payroll.[8] The second challenge facing the Congress was to restore long-range balance to the program.

The 1983 legislation reduced previously scheduled benefits and increased previously scheduled revenues through the changes summarized in Table 3. The changes sought to address the short-range problem by providing a cumulative total of $166.2 billion over the 1983-89 period. Roughly 40 percent of this came from two changes that reduced net benefits: a one-time, six month delay in the cost-of-living adjustment and subjecting to personal income taxation the Social Security benefits received by those

---

[8] Long-range cost and revenue estimates are expressed as a percent of all wages and salaries subject to the Social Security tax. A long-range deficit of 2.10 percent can be closed by increasing the combined tax rate by 2.10 percentage points above previously scheduled levels for each of the 75 years in the projection period. (Since the combined rate has always been divided equally between employer and employee, this implies that each would pay 1.05 percentage points more.)

A substantial part of the long-range gap was closed by the changes enacted to close the short-range gap. What remained was dealt with by increasing the normal retirement age from 65 to 67 effective early in the 21st Century. Taken together, the net long-range effect of the benefit changes (including taxation of benefits) provided about 70 percent of the amount needed while the increases in payroll tax revenue supplied the other 30 percent.

The Remaining Uncertainties

Cost and revenue projections incorporating the effect of the 1983 legislation are shown in Table 4. The 75-year projections under the intermediate assumption set are at the top and center. Costs are projected to average 12.84 percent of taxable payroll, average total revenues are projected to be 12.87 percent of payroll, and the two are essentially balanced.

The full picture is not quite as simple as this one 75-year result implies, however. Uncertainties include:

- Whether economic developments during the rest of the 1980s will turn out to be at least as favorable to Social Security financing as the projections made early in 1983 assumed.

- Whether the Congress will allow the cash benefit trust funds to accumulate at the rate that the projections imply for the 1990s and early 21st century.

- How the Congress will address the projected financing shortfall in the payroll tax-financed Hospital Insurance program.

- How well future demographic developments track the assumptions employed in 1983.

- How the higher costs implied for the years after 2050 are to be handled.

- What changes might be necessary to address concerns about the treatment of women under Social Security.

The short-range tax and benefit changes adopted in 1983 were based on an economic forecast that was substantially more pessimistic than those employed in 1972 or 1977. The economic assumptions used in 1983 are shown in Table 5. The set labeled "Intermediate(B) was the set considered to be the most realistic, but the legislation was developed so that, at least over the next 35 years, financing also would be adequate (if just barely) under the set labeled "Pessimistic." These assumptions do not contemplate economic developments as unfavorable as those of the late 1970s and early 1980s, but they assume far more modest growth in real earnings levels than occurred in the 1960s.

Whether these assumptions prove realistic will be a major factor in determining whether the 1983 legislation will actually bring an end to the recent short-term financial crises in the program.

The data in Table 4 also reveal how the projected financial results differ from one 25-year period to another. The payroll tax rate now scheduled be in effect in the cash benefit program after the year 1990 is higher than the rate required for current-cost financing, whereas under either the intermediate or pessimistic assumptions, the rate scheduled for the period 2033-2057 is less than current-cost financing would require. The 75-year balance under the intermediate assumption set requires the accumulation of large surpluses in the period 1990 to 2015; these surpluses are then drawn down to cover annual deficits in the years 2033 to 2057. Under these assumptions, the accumulated balance in the cash benefit trust funds rises to levels unprecedented in the history of the program. By 2015, the balance is projected to be about 25 percent of the gross national product.[12] It remains to be seen whether future Congresses will allow accumulation of surpluses of this magnitude when they imply levying payroll taxes at rates substantially higher than those required to fully finance current benefits.

One reason such large surpluses might not materialize is the currently projected financial situation in the payroll tax-financed Hospital Insurance program. That program is now projected to encounter financing difficulties beginning in the late 1980s and under all three assumption sets it faces a substantial deficit over the next 25 years. It is entirely possible that a future Congress will decide to cover a part of the deficit currently projected in the HI program by reallocating a portion of the payroll tax revenues now scheduled to go into the cash benefit program after 1990.

The data in Table 4 also illustrate how sensitive the long-range financial picture is to the economic and demographic assumptions. Over the next 75 years, the system would be in perfect financial balance if the intermediate assumptions prove valid. But if the optimistic assumptions prove to be the more accurate, the system will be over-financed by almost 3 percent of payroll; whereas if the pessimistic assumptions prove to be the more accurate, it will be under-financed by an average of 3.5 percent of taxable payroll. No one can know what the actual

---

[12] Calculated from U.S. Congress (1983b) Tables 30 and 32.

future experience will be or even if it will be within the range currently projected.[13] Thus, in future years, as actual experience diverges from these projections (which it undoubtedly will) one must expect that currently scheduled benefits or taxes will have to be modified.

Even if the intermediate projections turn out to be entirely accurate predictions of future events, notice that a day of reckoning faces the program in the middle of the 21st century. In the third 25-year period, costs exceed revenues by an average of 2.08 percent of payroll. Thus, the system is running a substantial deficit in each year after about 2030. By 2057, the reserves accumulated in the 1990s and the early part of the 21st century will have been exhausted, and adjustments will have to be made in either benefit levels or tax rates in order to maintain financial balance. Also, when 75 year cost estimates are released in future years, they will show gradually increasing deficits even in the highly unlikely event that the economic and demographic assumptions are never again changed. This is because, over time, the 75-year projection is a rolling average of projected results for individual years. As time goes on, near term years of projected surplus will drop out of the rolling average and be replaced by years of deficit in the period after 2055.

Finally, certain aspects of the treatment of women under Social Security remain controversial.[14] In the 1977 financing legislation, Congress asked the Secretary of Health, Education, and Welfare to submit a study of ways in which the system could be adjusted to address some of these concerns. In the 1983 legislation, Congress asked the Secretary for another study which would address implementation issues involving one of the more

---

[13] In this regard, looking at past population projections is revealing. For example, in 1943 two Census Bureau demographers projected that by 1980 the population of the United States would range from a low of 145.8 million to a high of 179.4 million (Warren S. Thompson and P. K. Whelpton, 1943). In 1958, the Census Bureau projected a 1980 population ranging from 230.8 million to 272.6 million (U.S. Bureau of the Census, 1958, p.2). The actual 1980 population was 227.7 million and fell outside of the range of both projections. In contrast to Social Security's 75-year projection period, these two projections were made for just 37 and 22 years.

[14] Space does not permit discussion of all of the concerns that have been expressed or of the various proposals designed to address them. Interested readers are referred to Richard V. Burkhauser and Karen C. Holden (1982) or U.S. Advisory Council on Social Security (1979).

popular approaches to addressing these concerns. It is not possible to say what, if anything, will be done to address these concerns or when action might be taken. It is reasonable to expect, however, that if any actions are taken they will have the effect of increasing the cost of the program, at least for a measurable period of time. Such changes thus would require reconsideration of the financing arrangements for the program.

Financial Soundness of Social Security

The uncertainty inherent in projecting Social Security's financial status does not necessarily imply that the financial status of the program is suspect, however. The purpose of projections is to allow decision makers to make the most informed decisions possible and to inform decision makers of the emerging consequences of past decisions. Since the projections are not always accurate, one must expect that the provisions enacted in one year may well have to be altered in a subsequent year.

The need for periodic modification of tax and benefit schedules is not so much an indication that something is wrong with Social Security as it is an indication that we live in an uncertain world and our institutions must be flexible enough to adjust to a changing environment. The assurance of financial solvency in Social Security rests not on the results of the financial projections being made in any particular year; rather, it rests with the will of the Congress to make the changes required when the projections suggest the need for change. The 1979 Advisory Council on Social Security argued that:

> "The ultimate financial strength of social security, however, rests not on these projections, but on the sustained commitment of the American people, expressed through their elected representatives, to levy the taxes necessary to pay for benefits. The council finds no evidence that this commitment is waning or that the tax structure necessary to financed benefits during the next 75 years will be excessively burdensome. It is on this basis that the council finds that social security is soundly financed."[15]

---

[15] U.S. Advisory Council on Social Security (1979), p. 14. Although a discussion of the various arguments is beyond the scope of this paper, it must be noted that not all informed observers agree with the finding of no evidence that the future tax structure will be excessively burdensome. In general, those who disagree prefer a set of long range benefit promises which are less generous than those currently legislated. This can be viewed as a debate over the best way in which to plan in an uncertain world.

Conclusion

The financial status of the Social Security program is quite sensitive to underlying economic and demographic developments; the former are the more important in determining shorter-range financial health while the latter are potentially the more important in determining the longer-range financial picture. The recent series of short-term financial crises in Social Security are largely the result of the unforeseen unfavorable economic environment since the early 1970s. Had the economy performed since 1972 in a manner similar to its performance in the twenty years prior to 1972, it is likely that no short-term financial problems would have occurred. Alternatively, had we been able to project future economic performance accurately in 1972 and 1977, the tax and benefit schedules would most likely have been set at levels that produced financial balance, thereby also avoiding the recent crises.

The longer-range financial problem is the result of the projected future effect of the continuation of recent demographic trends. The problems first appeared about ten years ago largely because it was only about 10 years ago that fertility rates dropped below the replacement level in this country and only about 15 years ago that mortality rates resumed their older trend decline. If the recent trends in fertility and mortality prove to be not representative of developments in the rest of this century and the beginning of the next century, the longer-range financing picture for Social Security will be altered again.

Congress acted in 1983 to restore balance to the system, both in the short-run and in the long-run. But history teaches us to expect that financial balance will not be produced permanently by one legislative act. We must expect that projections made in future years will not look like those being made now and that future Congresses will be called upon to make further alterations in the program to adjust to these future projections.

Table 1. Historical Behavior of Prices and Average Covered Earnings

Year	Percent Change in Covered Earnings	Percent Change in Consumer Prices	Real Wage Differential* (percent)	OASDI Reserve Ratio End of Period**
1960-64	3.4%	1.3%	2.1	110%
1965-69	5.4	3.4	2.0	103
1970-72	5.7	4.5	1.2	80
1973-77	7.4	7.7	-0.3	37
1978-82	8.0	9.7	-1.7	7***

* arithmetic difference
** reserves as a percent of subsequent year's total expenditure
*** excludes reserves borrowed from HI trust fund

Source: U.S. Congress (1983b), Tables 10 and 14 and Social Security Bulletin, Annual Statistical Supplement, Table 16.

TABLE 2

Historical Demographic Trends and Projections
Used for 1983 Trustees Report

Year	Total Fertility Rate	Life Expectancy at Age 65		Covered Workers per OASDI Beneficiary
		Male	Female	
		Historical		
1940	2.23	11.9	13.4	--
1950	3.03	12.8	15.1	16.5
1960	3.61	12.9	15.9	5.1
1970	2.43	13.1	17.1	3.7
1980	1.85	14.0	18.3	3.3
		Pessimistic Projections		
2000	1.66	16.8	22.1	3.1
2030	1.60	19.2	24.9	1.7
2060	1.60	21.7	27.7	1.3
		Intermediate (B) Projections		
2000	1.96	15.7	20.8	3.3
2030	2.00	16.8	22.2	2.1
2060	2.00	17.9	23.6	2.0
		Optimistic Projections		
2000	2.18	14.8	19.6	3.6
2030	2.30	15.4	20.4	2.5
2060	2.30	16.0	21.2	2.7

Source: U.S. Congress (1983b), Tables 11 and 28.

TABLE 3

Estimated Reduction in Projected OASDI Deficits from Major Changes Enacted in 1983

Provision	Cumulative Effect 1983-89 (billions)	75-Year Effect (percent of taxable payroll)
Increase Payroll Taxes	$ 57.9	0.22%
Extend Coverage	25.0	0.44
Transfer Military Service Credits[a]	17.7	0.01
Tax Benefits	26.6	0.61
Delay COLA Adjustment	39.4	0.30
Raise Retirement Age	--	0.71
Increase Delayed Retirement credit	--	-0.10
All Other	-0.4	-0.04
Total[b]	$+166.2	+2.09%

Source: Svahn and Ross (1983) Tables 1 and 4.

a. Includes $1.6 billion for cost of previously issued Social Security checks that were never negotiated.

b. Individual items do not sum to the total because of interactions between provisions.

TABLE 4

1983 75-Year OASDI Income and Expenditure Projections (Average annual total Projected Income and Expenses as a Percent of Projected Taxable Payroll)

	Assumption Set		
	Pessimistic	Intermediate (B)	Optimistic
Old-Age, Survivors and Disability Insurance (OASDI)			
Full 75 years (1983-2057)			
Average Cost	16.56	12.84	9.81
Average Income	13.04	12.87	12.73
Balance	-3.51	+0.02	+2.92
First 25 years (1983-2007)			
Average Cost	11.44	10.66	9.22
Average Income	12.53	12.50	12.45
Balance	+1.08	+1.83	+3.23
Second 25 years (2008-2032)			
Average Cost	15.50	12.64	9.80
Average Income	13.08	12.95	12.83
Balance	-2.42	+.32	+3.03
Third 25 years (2033-2057)			
Average Cost	22.73	15.23	10.42
Average Income	13.52	13.15	12.91
Balance	-9.21	-2.08	+2.49
Hospital Insurance (HI)			
25 years (1983-2007)			
Average Cost	5.38	4.11	3.21
Average Income	2.87	2.87	2.87
Balance	-2.51	-1.24	-0.34

Source: U.S. Congress (1983b), Table 31 and U.S. Congress (1983a), Table 11.

TABLE 5

Economic Assumptions Used for the 1983 Legislation

Year	Real GNP[a]	Average[a] Covered Earnings	CPI[a]	Real Wage Differential[b]	Interest Rate	Unemployment Rate
			Historical			
1960-69	4.20	4.40	2.34	2.06	4.45	4.75
1970-71	1.58	4.90	5.10	-0.20	6.65	5.40
1972-76	2.97	7.28	7.03	0.25	6.90	6.51
1977-82	2.15	7.99	9.17	-1.18	10.23	7.23
			Pessimistic Projections			
1983 - 89	2.47	6.09	5.89	0.20	8.54	9.14
1990-95	2.37	6.12	5.00	1.12	6.72	6.78
2000 and beyond	2.10	6.00	5.00	1.00	6.60	6.50
			Intermediate (B) Projections			
1983-89	3.18	5.26	4.30	0.94	7.08	8.17
1990-1995	2.77	5.57	4.00	1.57	6.12	5.88
2000 and beyond	2.60	5.50	4.00	1.50	6.10	5.50
			Optimistic Projections			
1983-89	4.60	5.24	2.97	2.27	6.15	7.33
1990-95	4.15	4.95	2.00	2.95	5.10	4.48
2000 and beyond	3.60	4.50	2.00	2.50	5.10	4.00

Source: U.S. Congress (1983b), Table 10.
a. Average annual increases.
b. Arithmetic difference between earnings and price growth rates.

Bibliography

Bartlett, Dwight K., and Applebaum, Joseph A. "Economic Forecasting: Effect of Errors on OASDI Fund Ratios," Social Security Bulletin, January 1982, 45(1), pp. 9-14

Burkhauser, Richard V. and Holden, Karen C., eds. A Challenge to Social Security: The Changing Roles of Women and Men in American Society. New York: Academic Press, 1982.

Rosen, Sherwin. "Some Arithmetic of Social Security," in Colin D. Campbell, ed. Controlling the Cost of Social Security. Washington DC: American Enterprise Institute, 1984, pp. 233-255.

Snee, John and Ross, Mary. "Social Security Amendments of 1977: Legislative History and Summary of Provisions," Social Security Bulletin, March 1978, 41(3), pp. 3-20.

Svahn, John A. and Ross, Mary. "Social Security Amendments of 1983: Legislative History and Summary of Provisions," Social Security Bulletin, July 1983, 46(7), pp. 3-48.

Thompson, Lawrence H. and Van de Water, Paul N. "The Short-Run Behavior of the Social Security Trust Funds," Public Finance Quarterly, July 1977, 5(3), pp. 351-372.

Thompson, Warren S. and Whelpton, P.K. "Estimates of the Future Population of the United States, 1940 to 2000." Paper prepared for the National Resources Planning Board, 1943.

Social Security Bulletin. Annual Statistical Supplement, 1982.

U.S. Advisory Council on Social Security, 1979. Social Security Financing and Benefits. Washington, DC: U.S. Government Printing Office, 1979.

U.S. Bureau of the Census. Current Population Reports. "Illustrative Projections of the Population of the United States, by Age and Sex, 1960 to 1980," Series P-25, No. 187. Washington, DC: U.S. Government Printing Office, 1958.

U.S. Congress. House. 1983 Annual Report, Federal Hospital Insurance Trust Fund. H. Doc. 98-75, 98th Cong., 1st Sess., June 1983. (a)

U.S. Congress. House. 1983 Annual Report -- Federal Old-Age and Survivors Insurance and Disability Insurance Trust Fund. H. Doc. 98-74. 98th Cong., 1st Sess., June 1983. (b)