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PROJECTING OASDI LONG-RANGE PROGRAM COST AS A PERCENTAGE OF GROSS NATIONAL PRODUCT

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Introduction

Projected expenditures of the Old-Age, Survivors, and Disability Insurance (OASDI) programs have traditionally been expressed as a percentage of taxable payroll, that is, as a percentage of the wages, salaries, and self-employment income subject to OASDI taxation. The advantage of expressing projected expenditures in this manner is that they can be compared directly to the combined employee and employer tax rate to determine if the program would be operating under a deficit or surplus. The disadvantage is that the program is being considered in isolation from the national economy rather than as one of many programs competing for the limited resources of the nation.

One way to illustrate the relative commitment which the OASDI program represents for the nation is to express program expenditures as a percentage of Gross National Product (GNP). This note presents projected OASDI expenditures as a percentage of GNP and taxable payroll, compares the two, and presents a method to convert from one to the other.

Projecting GNP

To insure consistency with other OASDI projections, GNP was projected on the basis of the taxable payroll used in the annual valuation of the program, and on a relationship that we believe exists between GNP and taxable payroll. This relationship was constructed using concepts and data of the National Income Accounts (NIA) and of the Social Security Administration. It is best identified by separating the wage and salary component and the self-employed component of taxable payroll due to their different trends through time. The following equations describe the relationship. Note that equations (a) and (b) link GNP to the components of taxable payroll, while equations (c) and (d) present the linkages in each component.

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(a) $\text{GNP} = \text{taxable payroll} \div \frac{\text{taxable payroll}}{\text{GNP}}$

(b) $\frac{\text{taxable payroll}}{\text{GNP}} = \frac{\text{wage and salary taxable payroll}}{\text{GNP}} + \frac{\text{self-employed taxable payroll}}{\text{GNP}}$

(c) $\frac{\text{wage and salary taxable payroll}}{\text{GNP}} = \frac{\text{wage and salary taxable payroll}}{\text{wages and salaries in covered employment under the wage base}} \times$

$\frac{\text{wages and salaries in covered employment under the wage base}}{\text{wages and salaries in covered employment}} \times$

$\frac{\text{wages and salaries in covered employment}}{\text{NIA wages and salaries}} \times \frac{\text{NIA wages and salaries}}{\text{employee compensation}} \times$

$\frac{\text{employee compensation}}{\text{national income}} \times \frac{\text{national income}}{\text{GNP}}$

(d) $\frac{\text{self-employed taxable payroll}}{\text{GNP}} = \frac{\text{self-employed taxable payroll}}{\text{self-employed income in covered employment under the wage base}} \times$

$\frac{\text{self-employed income in covered employment under the wage base}}{\text{self-employed income in covered employment}} \times$

$\frac{\text{self-employed income in covered employment}}{\text{NIA net proprietors income}} \times \frac{\text{NIA net proprietors income}}{\text{national income}} \times$

$\frac{\text{national income}}{\text{GNP}}$

Projected values for these linkages are based on consideration of the historical observations and expected future trends. Historical and projected values of the linkages in equations (c) and (d) are presented in tables 1 and 2, respectively. 1/

1/ I am indebted to Ken Sander of the Office of Research and Statistics, Social Security Administration, for his assistance in developing these linkages and projections.

Table 1.--Linkages of GNP to Wage and Salary Taxable Payroll

Calendar Year	Ratio of wage and salary taxable payroll to GNP	Ratio of wage and salary taxable payroll to wages and salaries in covered employment under the wage base	Ratio of wages and salaries in covered employment under the wage base to wages and salaries in covered employment	Ratio of wages and salaries in covered employment to wages and salaries	Ratio of wages and salaries to employee compensation	Ratio of employee compensation to national income	Ratio of national income to GNP
1955	.351	.989	.826	.811	.941	.686	.821
1960	.369	.990	.799	.868	.922	.716	.814
1965	.329	.976	.741	.860	.913	.701	.827
1970	.391	.988	.804	.885	.897	.763	.813
1975	.405	.994	.866	.892	.866	.766	.795
1980	.424	.996	.902	.906	.839	.767	.810
1990	.424	.997	.919	.910	.806	.778	.810
2000	.408	.997	.919	.910	.775	.780	.810
2010	.392	.997	.919	.910	.744	.780	.810
2020	.377	.997	.919	.910	.715	.780	.810
2030	.362	.997	.919	.910	.687	.780	.810
2040	.348	.997	.919	.910	.660	.780	.810
2050	.334	.997	.919	.910	.634	.780	.810

Table 2.--Linkages of GNP to Self-Employed Taxable Payroll

Calendar Year	Ratio of self-employed taxable payroll to GNP	Ratio of self-employed taxable payroll to self-employed income in covered employment under the wage base	Ratio of self-employment income in covered employment under the wage base to self-employment income in covered employment	Ratio of self-employment income in covered employment to net proprietors income	Ratio of net proprietors income to national income	Ratio of national income to GNP
1955	.029	.750	.619	.576	.130	.821
1960	.027	.750	.631	.621	.114	.814
1965	.022	.745	.494	.711	.100	.827
1970	.021	.750	.561	.737	.082	.813
1975	.020	.707	.633	.790	.072	.795
1980	.026	.694	.674	.884	.063	.810
1990	.021	.750	.690	.960	.052	.810
2000	.020	.750	.690	.975	.050	.810
2010	.020	.750	.690	.975	.050	.810
2020	.020	.750	.690	.975	.050	.810
2030	.020	.750	.690	.975	.050	.810
2040	.020	.750	.690	.975	.050	.810
2050	.020	.750	.690	.975	.050	.810

Linkages Between GNP and Taxable Payroll

The linkage of wages and salaries to employee compensation is necessary because employee compensation includes supplements to wages and salaries which are not subject to OASDI taxation. This linkage is probably the most unpre-predictable and the most critical in the wage and salary taxable payroll to GNP ratio. It is the principal cause of the projected decline in the ratio of wage and salary taxable payroll to GNP, and its projection implies a shrinking potential OASDI tax base relative to the total compensation of workers. The rate of decline in this ratio has accelerated from an average annual rate of .28 percent in 1951-1968 to a rate of .59 percent in 1968-1973, and further to .74 percent in 1973-1978. Relative growths in both mandatory and voluntary supplements are responsible for this increasing rate of decline.

The ratio of wages and salaries to employee compensation is projected to continue declining at its average 1951-1978 rate of .4 percent per year. The annual rate of decrease in this ratio is projected to decline, as compared to recent experience, primarily because of slower growth in mandatory supplements. However, the many advantages that supplements offer to employees and employers are expected to keep their long run relative growth at the levels of the past thirty years.

Voluntary supplements have both financial and psychological advantages which can be expected to result in their continued growth. For employees, the taxes on some supplements are deferred (as for private pension benefits) or eliminated (as for social security benefits). Some services, such as health and life insurance, can be provided to employees through a group plan with comparatively lower costs and more coverage than the employees could individually obtain. Many employers regard an extensive supplement package as an inducement to prospective employees. Some supplements also provide a more stable work force by tying benefits to employee tenure.

Assumptions regarding National Income are displayed in the last two columns of tables 1 and 2. National Income differs from GNP mainly by the exclusion of depreciation allowances and indirect business taxes. The ratio of National Income to GNP has been relatively constant over the historical period shown and is projected to remain at about its average of the past 28 years. The sum of employee compensation and Net Proprietors Income has been a relatively constant proportion of National Income and is projected to remain so in the future. Increases in employee compensation relative to National Income have coincided with about equal relative decreases in Net Proprietors Income. These ratios are projected to stabilize as the composition of employment between the wage and salary component and the self-employment component stabilizes.

The ratio of wages and salaries in covered employment to NIA wages and salaries has increased because of labor shifts into covered employment areas and legislated increases in coverage. For this projection, it is assumed that employment growth in covered and non-covered employment will be about equal. Changes in historical values of the ratio of wages and salaries in covered employment under the wage base to wages and salaries in covered employment resulted from changes in both the wage

base and wage levels. Projected values are affected by ad hoc changes in the base in present law, and by automatic adjustments to the base to match increases in wages. Wage and salary taxable payroll differs from wages and salaries in covered employment under the wage base because of multiple-employer wage refunds and the tax treatment of tips.

The ratio of self-employed income in covered employment to Net Proprietors Income has increased because of legislated increases in mandatory self-employment coverage, and employment shifts from the farm sector to nonfarm self-employment, where covered income is proportionately larger than that in the farm sector. This trend is projected to stabilize as the composition of self-employment stabilizes. The linkage of self-employed taxable payroll to self-employed income in covered employment under the wage base is necessary because self-employment income is taxed at a different rate than wage and salary income. This linkage adjusts self-employment income to an equivalent wage and salary amount in terms of its tax potential for the program.

Expenditures as a Percentage of GNP

Table 3 presents OASDI expenditures as a percentage of taxable payroll (as projected in the 1979 Trustees Report), OASDI expenditures as a percentage of Gross National Product, and the conversion factor between these two expressions, which is the ratio of taxable payroll to GNP.

Table 3.--OASDI Expenditures as a Percentage of Taxable Payroll and as a Percentage of Gross National Product, 1979-2053

Calendar Year	Expenditures as a Percentage of Taxable Payroll 1/	Expenditures as a Percentage of Gross National Product	Ratio of Taxable Payroll To Gross National Product
1979	10.36	4.58	.442
1980	10.56	4.75	.450
1981	10.39	4.74	.456
1982	10.41	4.69	.450
1983	10.44	4.77	.457
1984	10.48	4.80	.458
1985	10.50	4.76	.453
1986	10.51	4.74	.451
1987	10.51	4.72	.449
1988	10.49	4.70	.448
1989	10.60	4.73	.446
1990	10.70	4.76	.445
1991	10.69	4.75	.444
1992	10.68	4.71	.441
1993	10.68	4.70	.440
1994	10.67	4.67	.438
1995	10.67	4.65	.436
1996	10.66	4.64	.435
1997	10.64	4.61	.433
1998	10.64	4.59	.431
1999	10.64	4.58	.430
2000	10.65	4.56	.428
2001	10.66	4.54	.426
2002	10.69	4.54	.425
2003	10.74	4.54	.423
2005	10.83	4.55	.420
2010	11.58	4.77	.412
2015	12.79	5.17	.404
2020	14.29	5.67	.397
2025	15.67	6.10	.389
2030	16.44	6.28	.382
2035	16.58	6.22	.375
2040	16.29	5.99	.368
2045	16.12	5.82	.361
2050	16.15	5.72	.354
25-yr averages:			
1979-2003	10.59	4.67	.441
2004-2028	13.26	5.33	.403
2029-2053	16.30	5.97	.366
75-yr average:			
1979-2053	13.38	5.32	.404

1/ As projected under alternative II in the 1979 OASDI Trustees Report.

Conclusions

Several observations and conclusions may be drawn from this discussion and the statistics in table 3:

1) It is estimated that in 1979 $4.58 of every $100 of GNP was used to make OASDI benefit payments. This amount is projected to rise to a high of $6.28 in 2030, and average $5.32 over the next 75 years.

2) Views about the future national commitment that OASDI represents could depend on how that commitment is measured. In terms of taxable earnings, the cost of the OASDI program is projected to increase from 10.36 percent of payroll in 1979 to 16.58 percent of payroll in 2035, a relative increase of 60 percent. However, in terms of GNP, the cost of the OASDI program is projected to increase from 4.58 percent of GNP in 1979 to 6.22 percent of GNP in 2035, a relative increase of 36 percent.

3) As wages and salaries as a percentage of total compensation continues to decline, a smaller proportion of workers' total compensation will be covered under the OASDI program. This will lower both taxes paid and benefits received relative to what they otherwise would be.