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THE EFFECT OF THE 1976 AUTOMATIC BENEFIT INCREASE ON DYNANIC PROJECTIONS OF BENEFITS [1]

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This Note analyzes the effect that the automatic increases under the Social Security Act as amended in 1973 will have on benefits payable in the future.[2] The analysis is based on five alternative sets of economic assumptions regarding increases in average annual earnings and in benefits,[3] which are shown in Table 1.

These increases were used to compute old-age benefits payable to workers retiring at age 65 in the month of January of each successive year. The workers in the three series represent cases of maximum taxable earnings, median taxable earnings, and low taxable earnings and are assumed to have taxable earnings in 1976 of $15,300; $8,293; and $3,690,[4] respectively. For each alternative the earnings of every worker were assumed to follow the increases shown in Table 1. The automatic increases in benefits and in the earnings base were assumed to occur every year.[5] All calculations were based on the procedure specified in the Social Security Act for extending the benefit table whenever the taxable earnings base is increased. The resulting taxable earnings bases [6] are shown for the years 1977-83 in Table 2.

Tables 3, 4, and 5 show, for selected years, projections for the three series of cases based on alternative C (the intermediate set of economic assumptions with ultimate assumed 5.75%-4% increases). Included are the computation period, the taxable earnings, the AMW (Average Monthly Wage) for worker retiring in the year, the Annual Benefit Amount (total benefits for the first year including five months at the pre-benefit-increase rate and seven months at the post-benefit-increase rate), and the replacement ratio (ratio of Annual Benefit Amount to final year's gross earnings). In the preparation of Table 3, the wages in years prior to 1976 needed to calculate the AME for the cases of low taxable earnings were assumed to follow the trends of the median wage in past years.

Tables 6, 7, and 8 show the replacement ratios for each of the three series and for each of the five alternative sets of economic assumptions.

Under present law the number of benefit computation years is defined as the number of years over which the AMW is computed and is based on an age–62 computation point as provided by the 1972 Amendments. For male workers retiring at age 65, this number is 19 in the years 1976–78: it will become 20 in 1979; and it will increase by one each year thereafter until it reaches a maximum of

[1] For further discussion of the automatic increase provisions refer to "Social Security Benefits After the June 1976 Automatic Benefit Increase", Actuarial Note No. 89, July 1976, Social Security Administration, Baltimore, Md.

[2] For previous discussion of this subject refer to "Some Aspects of the Dynamic Projection of Benefits Under the 1972 Social Security Amendments", Actuarial Note No. 81, January 1973, and "Some Aspects of the Dynamic Projection of Benefits Under the 1973 Social Security Amendments", Actuarial Note No. 87, April 1974, Social Security Administration, Baltimore, Md.

[3] The benefit increase in any year is based on the CPI increase in the four calendar quarters ending in the first quarter in that year. Ultimate level rates in benefit, CPI, and earnings are assumed after 1981.

[4] The Federal minimum wage, $2.30 per hour for a 40 hour week, would be slightly higher than that value, but there is a large number of workers covered by Social Security who are not affected by the Federal standards.

[5] This is contrary to the automatic adjustment provision in the law, which requires at least a 3% increase in CPI from the previous computation quarter in order for a benefit increase and a corresponding base increase in the following year to be "triggered". However, it was decided to disregard this "triggering" requirement for simplicity of analysis and we assume that there would be annual adjustments in benefits and in the taxable earnings base regardless of the assumed increases in CPI.

[6] According to P.L. 94–202 increases in the taxable earnings base will be computed after 1979 on the basis of the increase in average annual total wages in the year preceding the year of determination. For a fuller discussion of how the taxable earnings base would be adjusted, refer to "Social Security Benefits After the June 1976 Automatic Benefit Increase" Actuarial Note No. 89, July 1976, Social Security Administration, Baltimore, Md.

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35 years in 1994. For female workers, the number of benefit computation years is 17 in 1976, and it increases by one for each year thereafter, so that after 1977 it will be the same as for male workers. Since this note is intended for analysis of long-range trends, it was decided to use the age–62 computation point in all cases.

The dollar amounts shown for the later calendar years in Tables 3, 4, and 5 may appear to be high when compared with today's earnings and benefits. This is due to the fact that they reflect the effects of the assumed increases in prices and earnings for periods as long as 75 years. Even 50 years from today, the Consumer Price Index would be nearly 8 times as high as the present level, and therefore the value of the dollar would be 1/8 of its present value, if, as assumed, the CPI in fact increases at 4% per year. Similarly, the earnings levels will be more than 18 times as high as today, and therefore, the standard of living would be more than twice as high (18 divided by 8) under the economic assumptions underlying these tables. Because of the difficulty of interpreting dollar amounts under these conditions, the tables are most useful when emphasis is placed on the replacement ratio rather than on the absolute dollar amounts shown.

From tables 6, 7, and 8, we can notice that the replacement ratios are lowest for the maximum-earnings cases and highest for the low-earnings cases. This phenomenon is due to the weighted nature of the benefit formula, whereby benefits are relatively higher for lower AMW's.

A point to note is that the trend of the replacement ratio, for all three series, becomes relatively level when the assumed increase in CPI is approximately one-half the assumed increase in earnings (i.e., Alternative A).

This is not intended to imply that we believe it would be appropriate to assume that CPI will increase in the future at half the rate of increase in wages, but it does imply that the replacement rates could be stabilized if the adjustments in the benefit table were limited to half the increases in wages.

Based on the assumptions used and the period shown, the ranges of the replacement ratios could be summarized as follows:

Earnings Schedule	*Range of Replacement Ratio*
Maximum	32–62%
Median	46–98
Low	63–172

Since wife's benefits at age 65 are equal to 50% of the worker's benefits, the above ratios could be multiplied by 1.5 to obtain the married couple's replacement ratios.

After 1994 when the computation period for workers retiring at age 65 first reaches the maximum of 35 years, the replacement ratios are shown to increase at a relatively fast pace.

It can also be observed that, for the same level of increase in real earnings, the level of the replacement ratio will depend on the assumed increase in CPI; the ratios will be higher for higher CPI increases.

Table 1

Assumed Increases in Average Earnings and in Benefits

Calendar Year	A Earnings	A Benefits	B Earnings	B Benefits	C Earnings	C Benefits	D Earnings	D Benefits	E Earnings	E Benefits
	Alternative Set of Economic Assumptions									
1977	8.20%	5.60%	8.40%	5.90%	8.50%	5.90%	8.60%	5.90%	8.80%	6.20%
1978	8.70	5.30	9.10	6.00	9.40	6.00	9.70	6.00	10.10	6.70
1979	7.50	4.80	8.10	5.80	8.50	5.80	8.90	5.80	9.50	6.80
1980	6.40	3.90	7.20	5.20	7.70	5.20	8.20	5.20	9.00	6.50
1981	5.00	3.10	6.10	4.80	6.70	4.80	7.30	4.80	8.40	6.50
1982 and thereafter	3.75	2.00	5.00	4.00	5.75	4.00	6.50	4.00	7.75	6.00

Table 2

Assumed Earnings Bases, 1977-83

Calendar Year	Alternative Set of Economic Assumptions [1]				
	A	B	C	D	E
1977	16,500	16,500	16,500	16,500	16,500
1978	17,700	17,700	17,700	17,700	17,700
1979	19,200	19,200	19,200	19,200	19,200
1980	21,000	21,000	21,000	21,000	21,000
1981	22,500	22,800	22,800	22,800	23,100
1982	24,000	24,300	24,600	24,600	25,200
1983	25,200	25,800	26,100	26,400	27,300

[1] The earnings bases are assumed to increase after 1983 at the ultimate annual rates of wage increase shown in Table 1.

Table 3

Retiree at Age 65 in Year
Maximum Taxable Earnings in All Years
Alternative C
Earnings Increasing at 5.75% and CPI at 4% after 1981 [1]

Year of Attainment of Age 65	Computation Period	Taxable Earnings in Year	AMW	Annual Benefit Amount [2]	Replacement Ratio [3]
1976	17	$ 15,300	$ 613	$ 4,691.40	.333
1977	18	16,500	650	5,218.80	.341
1978	19	17,700	688	5,683.20	.344
1979	20	19,200	727	6,186.60	.350
1980	21	21,000	769	6,690.60	.348
1981	22	22,800	813	7,203.60	.343
1982	23	24,600	860	7,702.80	.338
1983	24	26,100	910	8,224.20	.334
1985	26	29,100	1,012	9,372.60	.340
1990	31	38,700	1,289	12,747.00	.348
1995	35	51,000	1,646	17,286.60	.358
2000	35	67,500	2,270	24,137.40	.378
2005	35	89,100	3,092	33,441.00	.397
2010	35	117,600	4,165	45,879.60	.412
2015	35	155,700	5,540	62,443.80	.424
2020	35	205,800	7,330	84,573.60	.434
2025	35	272,100	9,687	114,221.40	.444
2030	35	359,700	12,805	153,914.40	.452
2035	35	475,800	16,927	207,065.40	.460
2040	35	629,100	22,379	278,071.20	.467
2045	35	832,500	29,594	372,944.40	.474
2050	35	1,101,300	39,141	499,560.00	.480

[1] See Table 1 for earnings and benefit increases before 1982.

[2] Total benefits paid during year.

[3] Replacement Ratio represents the ratio of annual benefit amount to taxable earnings in the year just prior to retirement.

Table 4

Retiree at Age 65 in Year
Median Taxable Earnings In All Years
Alternative C
Earnings Increasing at 5.75% and CPI at 4% after 1981 [1]

Year of Attainment of Age 65	Computation Period	Taxable Earnings in Year	AMW	Annual Benefit Amount [2]	Replacement Ratio [3]
1976	17	$ 8,293	$ 428	$ 3,621.60	.470
1977	18	8,998	442	3,925,20	.473
1978	19	9,844	459	4,246.20	.472
1979	20	10,680	477	4,615.80	.469
1980	21	11,503	496	4,999.20	.468
1981	22	12,273	517	5,419.20	.471
1982	23	12,979	539	5,831.40	.475
1983	24	13,725	562	6,237.60	.481
1985	26	15,349	609	7,202.40	.496
1990	31	20,300	742	9,896.40	.516
1995	35	26,847	920	13,249.20	.522
2000	35	35,505	1,232	18,498.60	.551
2005	35	45,956	1,648	25,595.40	.576
2010	35	62,100	2,198	35,257.80	.600
2015	35	82,129	2,919	48,332.40	.622
2020	35	108,617	3,862	65,917.80	.642
2025	35	143,648	5,107	89,575.20	.659
2030	35	189,977	6,754	121,381.80	.676
2035	35	251,249	8,933	164,062.80	.690
2040	35	332,281	11,814	221,250.60	.704
2045	35	439,448	15,625	297,835.20	.717
2050	35	581,178	20,664	400,227.60	.728

[1] See Table 1 for earnings and benefit increases before 1982.

[2] Total benefits paid during year.

[3] Replacement Ratio represents the ratio of annual benefit amount to taxable earnings in the year just prior to retirement.

Table 5

Retiree at Age 65 in Year
Low Taxable Earnings In All Years
Alternative C
Earnings Increasing at 5.75% and CPI at 4% after 1981 [1]

Year of Attainment of Age 65	Computation Period	Taxable Earnings in Year	AMW	Annual Benefit Amount [2]	Replacement Ratio [3]
1976	17	$ 3,690	$ 190	$ 2,240.40	.654
1977	18	4,003	197	2,407.80	.653
1978	19	4,380	204	2,614.20	.653
1979	20	4,752	212	2,831.40	.646
1980	21	5,118	221	3,021.60	.636
1981	22	5,461	230	3,247.80	.635
1982	23	5,775	240	3,501.00	.641
1983	24	6,107	250	3,722.40	.645
1985	26	6,829	271	4,194.00	.649
1990	31	9,032	330	5,769.00	.676
1995	35	11,945	409	8,081.40	.716
2000	35	15,787	548	11,905.20	.797
2005	35	20,892	733	17,711.40	.896
2010	35	27,631	978	24,594.00	.941
2015	35	36,542	1,299	34,124.40	.988
2020	35	48,328	1,718	46,948.20	1.027
2025	35	63,914	2,272	64,410.60	1.066
2030	35	84,528	3,005	88,096.80	1.102
2035	35	111,789	3,974	120,063.60	1.136
2040	35	147,843	5,256	163,149.60	1.167
2045	35	195,526	6,952	221,044.80	1.196
2050	35	258,587	9,194	298,652.40	1.221

[1] See Table 1 for earnings and benefit increases before 1982.
[2] Total benefits paid during year.
[3] Replacement Ratio represents the ratio of annual benefit amount to taxable earnings in the year just prior to retirement.

Table 6

Replacement Ratios[1] Worker Retiring at Age 65 in Year Maximum Taxable Earnings in All Years

Calendar Year	Alternative Set of Economic Assumptions and Ultimate Rate of Increases in Earnings and CPI[2]				
	A 3.75%–2%	B 5.00%–4%	C 5.75%–4%	D 6.50%–4%	E 7.75%–6%
1976	.333	.333	.333	.333	.333
1980	.340	.348	.348	.348	.357
1985	.318	.346	.340	.333	.359
1990	.323	.364	.348	.332	.375
1995	.324	.384	.358	.332	.393
2000	.334	.416	.378	.343	.425
2005	.341	.448	.397	.351	.456
2010	.345	.473	.412	.357	.482
2015	.348	.496	.424	.362	.506
2020	.348	.514	.434	.366	.528
2025	.347	.534	.444	.370	.547
2030	.346	.552	.452	.372	.565
2035	.346	.569	.460	.375	.582
2040	.346	.586	.467	.377	.597
2045	.344	.602	.474	.379	.611
2050	.344	.617	.480	.381	.624

[1] Replacement Ratio represents the ratio of annual benefit amount to taxable earnings in the year just prior to retirement.

[2] See Table 1 for earnings and benefit increases before 1982.

Table 7

Replacement Ratios[1] Worker Retiring at Age 65 in Year Median Taxable Earnings in All Years

Calendar Year	Alternative Set of Economic Assumptions and Ultimate Rate of Increases in Earnings and CPI[2]				
	A 3.75%–2%	B 5.00%–4%	C 5.75%–4%	D 6.50%–4%	E 7.75%–6%
1976	.470	.470	.470	.470	.470
1980	.465	.472	.468	.468	.474
1985	.481	.514	.496	.482	.514
1990	.491	.548	.516	.484	.539
1995	.488	.570	.527	.478	.563
2000	.497	.617	.551	.493	.612
2005	.504	.661	.576	.503	.660
2010	.507	.704	.600	.513	.707
2015	.507	.746	.622	.522	.750
2020	.506	.785	.642	.529	.789
2025	.505	.822	.659	.535	.825
2030	.504	.858	.676	.541	.858
2035	.503	.891	.690	.546	.889
2040	.502	.923	.704	.550	.917
2045	.502	.954	.717	.554	.942
2050	.501	.983	.728	.558	.966

[1] Replacement Ratio represents the ratio of annual benefit amount to taxable earnings in the year just prior to retirement.

[2] See Table 1 for earnings and benefit increases before 1982.

Table 8

Replacement Ratios [1]
Worker Retiring at Age 65 in Year
Low Taxable Earnings in All Years

Calendar Year	Alternative Set of Economic Assumptions and Ultimate Rate of Increases in Earnings and CPI[2] A 3.75%–2%	B 5.00%–4%	C 5.75%–4%	D 6.50%–4%	E 7.75%–6%
1976	.654	.654	.654	.654	.654
1980	.632	.641	.636	.531	.640
1985	.635	.675	.649	.632	.670
1990	.637	.716	.676	.638	.715
1995	.651	.774	.716	.660	.789
2000	.691	.878	.797	.734	.950
2005	.736	1.024	.896	.784	1.039
2010	.787	1.100	.941	.809	1.136
2015	.789	1.176	.988	.829	1.228
2020	.790	1.254	1.027	.844	1.316
2025	.789	1.329	1.066	.857	1.397
2030	.788	1.407	1.102	.870	1.472
2035	.785	1.482	1.136	.880	1.541
2040	.783	1.555	1.167	.890	1.604
2045	.781	1.623	1.196	.899	1.663
2050	.780	1.689	1.221	.907	1.716

[1] Replacement Ratio represents the ratio of annual benefit amount to taxable earnings in the year just prior to retirement.

[2] See Table 1 for earnings and benefit increases before 1982.