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SOME ASPECTS OF THE DYNAMIC PROJECTION OF BENEFITS UNDER THE 1972 SOCIAL SECURITY AMENDMENTS

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This Note analyzes some of the effects of the automatic increase provisions included in the 1972 Amendments on the benefits that will be payable in the future. The analysis is based on the following group of seven sets of economic assumptions regarding increases in earnings and in the Consumers Price Index (CPI) which revolves around a central set of assumptions of annual increases in earnings of 5 percent, and in the CPI of 2¾ percent:

Assumed Increase In Earnings	Assumed Increase In CPI	Implied Increase in Real Earnings
5 %	3 %	2 %
4¾	2¾	2
5¼	3	2¼
5	2¾	2¼
4¾	2½	2¼
5¼	2¾	2½
5	2½	2½

The above increases were assumed for each year in the future.[1] These increases were used to compute old-age benefits to a male worker retiring at age 65 under the following three earning assumptions: maximum taxable earnings (also known as the earnings base), estimated median taxable earnings for a male worker, and low taxable earnings taken as $3,200 [2] in 1972 and following the trends in the median in the past. All calculations were based on the procedure for extending the benefit table (whenever the taxable earnings base is increased) that is included in the 1972 Amendments.

Tables 1, 2, and 3 show for selected years, projections for the three earning schedules based upon the central economic assumption (5–2¾ percent). Included are the computation period, the taxable earnings, AMW (Average Monthly Wage) for worker retiring at beginning of year, PIA (Primary Insurance Amount) at the time of benefit award, and replacement ratio (ratio of PIA at award to monthly taxable earnings in the year just prior to retirement).

The computation period is the number of years over which the AMW is computed and is based on an age 62 computation point as included in the 1972 Amendments. For the male worker, attaining age 62 before 1975, the computation point is later than age 62—age 63 for those born in 1912, age 64 for 1911, and age 65 for 1910 or before. The computation period for 1972–1978 is 16, 17, 18, 19, 19, 19, 19, respectively; it will become 20 in 1979, and it will increase by one each year thereafter until it reaches a maximum of 35 years in 1994.

The dollar amounts shown for the later calendar years in tables 1, 2, and 3, 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 increase in prices and earnings for periods as long as 75 years. Even 50 years from

[1] The Amendments require an increase in CPI of at least 3 percent from the previous computation quarter before an automatic adjustment is "triggered." However, for simplicity of the analysis in this Note the 3 percent "triggering" requirement was disregarded. The first automatic adjustment, under the law was computed to become effective on January 1, 1975; for benefit purposes this adjustment was assumed to recognize two years of CPI increases (although technically it should recognize only 1¾ years); for earnings base purposes one year of increase in earnings was recognized.

[2] A value of $3,200 in 1972 was selected as representative of low earnings for a steady worker. The federal minimum wages would be slightly higher than this value, but there is a large number of workers covered by Social Security who are not affected by the federal standards.

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today, the Consumer Price Index would be nearly four times as high as present levels, and therefore, the value of the dollar would depreciate by nearly 75 percent, if, as assumed, the CPI in fact increases at 2¾ percent per year. Similarly, the earnings levels will be nearly 12 times as high as today, and therefore, the standard of living about three times as high, under the economic assumptions underlying these tables. Because of the difficulty of interpreting dollar amounts under these conditions, Tables 1, 2, and 3 are most useful when emphasis is placed on the replacement ratio shown in the last column, rather than in the absolute dollar amounts shown.

We can notice from these tables that the replacement ratios are lowest for the maximum earning schedule and highest for the low earning schedule. This phenomenon is due to the weighted nature of the social security benefit formula whereby benefits are relatively higher for lower AMW's.

Tables 4, 5, and 6 show the replacement ratio for each of the three earning schedules under the group of seven economic assumptions. As it was indicated earlier, we observe that due to the weighted nature of the benefit formula, the replacement ratios are highest for the lowest earning schedule and lowest for the maximum earning schedule. The results of these projections are summarized below:

Earning Schedule	Range of Rplacement Ratio
Maximum	29–40%
Median	37–47
Low	50–74

For a worker with a wife retiring at the same age (65), the ratios should be increased by 50 percent relatively. The percent range for maximum, median, and low earnings would become: 44–60 percent, 56–71 percent, and 75–111 percent, respectively.

A dip in the replacement ratios generally occurs around 1994 when the computation period first reaches the maximum of 35 years; for 1995 and after, the ratios tend to rise. The rising trend is steady for an assumption of 2 percent increase in real earnings. Only slight increases are projected with an assumption of 2¼ percent increase in real earnings. On the other hand, the replacement ratios tend to remain level or decrease with an assumption of 2½ percent increase in real earnings.

We can also observe that for the same level of implied 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

MAN RETIRING AT AGE 65 IN YEAR
MAXIMUM TAXABLE EARNINGS IN ALL YEARS
EARNINGS INCREASING AT 5 PERCENT AND CPI AT 2¾ PERCENT

Calendar Year	Computation Period	Taxable Earnings In Year	AMW	PIA At Award	Replacement Ratio [1]
1972	16	$ 9,000	$ 471	$ 259.40 [2]	.399 [2]
1973	17	10,800	488	266.10	.355
1974	18	12,000	511	274.60	.305
1975	19	12,600	536	299.00	.299
1980	21	15,900	709	417.30	.334
1985	26	20,400	856	521.90	.321
1990	31	26,100	1,021	649.80	.313
1995	35	33,300	1,237	814.40	.307
2000	35	42,600	1,619	1,057.10	.313
2005	35	54,300	2,098	1,366.40	.318
2010	35	69,600	2,701	1,760.00	.319
2015	35	88,800	3,453	2,257.20	.320
2020	35	113,400	4.412	2,893.50	.322
2025	35	144,900	5,636	3,707.50	.322
2030	35	184,800	7,198	4,747.60	.324
2035	35	235,800	9,190	6,077.70	.325
2040	35	300,600	11,731	7,778.90	.326
2045	35	383,700	14,970	9,949.80	.327

[1] Replacement Ratio represents the ratio of PIA at award to monthly taxable earnings in the year just prior to retirement.

[2] After the 20 percent benefit increase in P.L. 92–336.

Table 2

MAN RETIRING AT AGE 65 IN YEAR
MEDIAN TAXABLE EARNINGS IN ALL YEARS
EARNINGS INCREASING AT 5 PERCENT AND CPI AT 2¾ PERCENT

Calendar Year	Computation Period	Taxable Earnings In Year	AMW	PIA At Award	Replacement Ratio [1]
1972	16	$ 7,012	$ 387	$ 227.80 [2]	.409 [2]
1973	17	7,362	398	231.60	.396
1974	18	7,731	410	236.90	.386
1975	19	8,117	423	255.70	.397
1980	21	10,360	518	334.60	.407
1985	26	13,222	602	429.40	.409
1990	31	16,875	701	546.20	.408
1995	35	21,537	834	675.80	.395
2000	35	27,488	1,068	870.40	.399
2005	35	35,082	1,367	1,119.60	.402
2010	35	44,774	1,745	1,436.00	.404
2015	35	57,145	2,227	1,843.70	.407
2020	35	72,933	2,843	2,363.30	.408
2025	35	93,083	3,628	3,029.00	.410
2030	35	118,800	4,631	3,880.80	.412
2035	35	151,622	5,911	4,970.40	.413
2040	35	193,512	7,544	6,362.40	.414
2045	35	246,976	9,628	8,143.70	.416

[1] Replacement Ratio represents the ratio of PIA at award to monthly taxable earnings in the year just prior to retirement.

[2] After the 20 percent benefit increase in P.L. 92–336.

Table 3

MAN RETIRING AT AGE 65 IN YEAR
LOW TAXABLE EARNINGS ($3,200 IN 1972) IN ALL YEARS
EARNINGS INCREASING AT 5 PERCENT AND CPI AT 2¾ PERCENT

Calendar Year	Computation Period	Taxable Earnings In Year	AMW	PIA At Award	Replacement Ratio [1]
1972	16	$ 3,200	$ 176	$ 145.20 [2]	.572 [2]
1973	17	3,360	182	147.20	.552
1974	18	3,528	187	148.80	.531
1975	19	3,705	193	159.40	.542
1980	21	4,728	236	205.10	.547
1985	26	6,035	274	255.20	.533
1990	31	7,702	320	321.20	.526
1995	35	9,830	380	412.30	.529
2000	35	12,546	487	551.70	.554
2005	35	16,012	624	765.00	.602
2010	35	20,436	796	996.80	.615
2015	35	26,082	1,016	1,279.30	.618
2020	35	33,288	1,297	1,642.30	.622
2025	35	42,485	1,656	2,109.10	.626
2030	35	54,223	2,113	2,703.40	.628
2035	35	69,204	2,697	3,466.20	.631
2040	35	88,324	3,443	4,443.10	.634
2045	35	112,726	4,394	5,690.20	.636

[1] Replacement Ratio represents the ratio of PIA at award to monthly taxable earnings in the year just prior to retirement.
[2] After the 20 percent benefit increase in P.L. 92-336.

Table 4

REPLACEMENT RATIOS [1]
MAN RETIRING AT AGE 65 IN YEAR
MAXIMUM TAXABLE EARNINGS IN ALL YEARS

	Assumed Annual Increases in Earnings and in CPI						
Calendar Year	5.00%–3.00%	4.75%–2.75%	5.25%–3.00%	5.00%–2.75%	4.75%–2.50%	5.25%–2.75%	5.00%–2.50%
1972 [2]	.399	.399	.399	.399	.399	.399	.399
1975	.301	.299	.301	.299	.298	.299	.298
1980	.340	.334	.333	.334	.328	.327	.328
1985	.331	.330	.327	.321	.320	.317	.312
1990	.327	.326	.320	.313	.313	.307	.301
1995	.324	.321	.317	.307	.305	.301	.292
2000	.333	.329	.323	.313	.309	.304	.294
2005	.341	.335	.328	.318	.311	.305	.296
2010	.345	.338	.330	.319	.312	.305	.295
2015	.349	.341	.333	.320	.313	.306	.294
2020	.352	.344	.334	.322	.313	.305	.293
2025	.355	.347	.335	.322	.314	.305	.293
2030	.359	.348	.337	.324	.314	.304	.292
2035	.362	.351	.339	.325	.314	.305	.292
2040	.365	.352	.340	.326	.314	.305	.292
2045	.367	.354	.341	.327	.314	.305	.292

[1] Replacement Ratio represents the ratio of PIA at award to monthly taxable earnings in the year just prior to retirement.
[2] After the 20 percent benefit increase in P.L. 92-336.

Table 5

REPLACEMENT RATIOS[1]
MAN RETIRING AT AGE 65 IN YEAR
MEDIAN TAXABLE EARNINGS IN ALL YEARS

Calendar Year	Assumed Annual Increases in Earnings and in CPI						
	5.00%–3.00%	4.75%–2.75%	5.25%–3.00%	5.00%–2.75%	4.75%–2.50%	5.25%–2.75%	5.00%–2.50%
1972[2]	.409	.409	.409	.409	.409	.409	.409
1975	.399	.399	.397	.397	.397	.395	.395
1980	.414	.414	.409	.407	.407	.403	.400
1985	.421	.419	.414	.409	.407	.402	.398
1990	.425	.420	.411	.408	.403	.394	.391
1995	.417	.412	.401	.395	.391	.380	.375
2000	.426	.418	.406	.399	.392	.381	.374
2005	.434	.424	.411	.402	.393	.381	.373
2010	.440	.429	.415	.404	.393	.381	.371
2015	.447	.433	.419	.407	.394	.381	.370
2020	.452	.437	.422	.408	.394	.381	.369
2025	.457	.440	.424	.410	.394	.381	.368
2030	.462	.443	.427	.412	.394	.381	.367
2035	.466	.446	.429	.413	.395	.381	.366
2040	.470	.449	.431	.414	.395	.381	.366
2045	.473	.451	.432	.416	.395	.381	.365

[1] Replacement Ratio represents the ratio of PIA at award to monthly taxable earnings in the year just prior to retirement.
[2] After the 20 percent benefit increase in P.L. 92–336.

Table 6

REPLACEMENT RATIOS[1]
MAN RETIRING AT AGE 65 IN YEAR
LOW TAXABLE EARNINGS ($3,200 IN 1972) IN ALL YEARS

Calendar Year	Assumed Annual Increases in Earnings and in CPI						
	5.00%–3.00%	4.75%–2.75%	5.25%–3.00%	5.00%–2.75%	4.75%–2.50%	5.25%–2.75%	5.00%–2.50%
1972[2]	.572	.572	.572	.572	.572	.572	.572
1975	.545	.545	.542	.542	.542	.540	.539
1980	.556	.549	.547	.547	.540	.538	.537
1985	.549	.543	.533	.533	.527	.518	.518
1990	.548	.538	.531	.526	.517	.510	.505
1995	.557	.548	.537	.529	.519	.509	.501
2000	.592	.580	.569	.554	.543	.533	.519
2005	.651	.623	.625	.602	.576	.579	.558
2010	.673	.655	.631	.615	.599	.577	.562
2015	.684	.660	.640	.618	.596	.578	.558
2020	.696	.669	.646	.622	.597	.578	.555
2025	.707	.677	.653	.626	.598	.579	.553
2030	.716	.683	.659	.628	.597	.578	.551
2035	.726	.689	.663	.631	.598	.578	.549
2040	.734	.695	.667	.634	.598	.578	.548
2045	.741	.699	.671	.636	.599	.578	.546

[1] Replacement Ratio represents the ratio of PIA at award to monthly taxable earnings in the year just prior to retirement.
[2] After the 20 percent benefit increase in P.L. 92–336.