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DIMINISHING EFFECT OF THE SPECIAL MINIMUM PIA

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Background

The Primary Insurance Amount (PIA) is the amount that a primary beneficiary (that is, a worker) receives if he or she becomes entitled to Social Security benefits at Normal Retirement Age. The benefit amounts of the worker's auxiliaries or survivors are based on specified percentages of the PIA. There are several formulas for determining the PIA, but for most beneficiaries it is determined under a wage-indexed formula (described later) if the worker attained age 62, became disabled, or died after 1978.

Enacted in 1972 by Public Law 92-603, the special minimum PIA is an alternative to the wage-indexed PIA to give people with low earnings over a long working lifetime, along with their auxiliaries and survivors, higher monthly Social Security benefits than would be generated by the wage-indexed formula. In Actuarial Note 143, we investigated how much gain over the wage-indexed PIA a beneficiary could possibly receive from the special minimum PIA, and we also presented data on current recipients of the special minimum. In this note, we update Actuarial Note 143.

The Special Minimum PIA

The special minimum PIA for a worker is a function of the number of *years of coverage*, n, before the year of entitlement and after 1936 in which a specific amount of earnings are credited. The years of coverage are determined as follows:[1]

(a) Prior to 1951—one year of coverage for each $900 of aggregate earnings, not to exceed 14.

(b) After 1950 through 1978—one year of coverage for any year with earnings no less than 25% of the contribution and benefit base for that year.

(c) After 1978 through 1990—one year of coverage for any year with earnings no less than 25% of what the contribution and benefit base would have been for that year had the 1977 Social Security Amendments not been enacted (in other words, 25% of the "old-law" contribution and benefit base).

(d) After 1990 to present—one year of coverage for any year with earnings no less than 15% of the "old-law" contribution and benefit base for that year.

Thus, for a worker with no earnings prior to 1951, the number of years of coverage, n, is the number of years in which the earnings of the worker equal or exceed a specified amount, $\boldsymbol{m_j}$, for given year j.

When n ≤ 10, the special minimum PIA is zero; otherwise, it is equal to a specific base value, b, times the minimum of {20, n-10}, times the product of the cost-of-living adjustments (COLAs), based on increases in prices, from the year 1979 (if applicable). The specific base value, b, is determined by the date of entitlement:

(a) For dates of entitlement from January 1973 through February 1974, b = $8.50.

(b) For dates of entitlement from March 1974 through December 1978, b = $9.00.

(c) For dates of entitlement in 1979 or later, b = $11.50.

For the years 1979 to 1981, after each COLA is applied the product is rounded up to the next dime. Beginning in 1982, after each COLA is applied the product is rounded down to the next dime.[2]

The Wage-Indexed PIA

For a worker born in or after 1930 who lives to attain age 62[3] without any pension based on non-covered employment, the wage-indexed PIA is a function of the total of the 35 highest indexed annual earnings, with the indexing based on the growth in national average wages.[4] The total of the indexed annual earnings from

[1] http://www.socialsecurity.gov/OACT/COLA/yoc.html

[2] http://www.socialsecurity.gov/cola/automatic-cola.htm

[3] The age of first eligibility for a retirement benefit.

[4] http://www.socialsecurity.gov/OACT/COLA/AWI.html

these 35 years is converted to a monthly average by dividing by 420 (=12×35) and then rounding down to the next dollar. This amount is called the Average Indexed Monthly Earnings (AIME). The wage-indexed PIA at age 62 is then calculated by rounding down to the next dime the sum of:

(a) 90 percent of the first b_1 dollars of the AIME, plus

(b) 32 percent of the AIME over b_1 dollars and through b_2 dollars, plus

(c) 15 percent of the AIME over b_2 dollars,

where b_1 and b_2 are the two *bend points* for the appropriate year of first eligibility.[5] Beginning in the year of attainment of age 62, the wage-indexed PIA is increased by applying COLAs each June before 1983 and each December after 1982.[6]

The Maximum Gain of the Special Minimum PIA Over the Wage-Indexed PIA

Consider a person born in 1951 who is first eligible for benefits in 2013 with no earnings before 1973, the year of attainment of age 22. We want to find the maximum possible gain that he or she can obtain if his or her PIA is the special minimum PIA, rather than the wage-indexed PIA. This problem can be thought of as the optimization problem:

Maximize **{SPMIN – PIA}** *over all possible earnings histories*,

where we denote by SPMIN the special minimum PIA and we denote by PIA the wage-indexed PIA.

We can show that the solution to this problem must be a payment history in which the earnings in any of the 35 years of highest indexed earnings which is a year of coverage do not exceed the minimum amount required for a year of coverage in that year. To show this, assume that we have a solution to the stated maximization problem, i.e., an earnings history which maximizes the difference {SPMIN – PIA}. If in this earnings history there is a year of coverage, j, which is one of the 35 highest indexed annual earnings years and in which the earnings exceed $\boldsymbol{m_j}$, we can construct an earnings history identical to the earnings history of that solution except that the earnings for year j equal $\boldsymbol{m_j}$. For this modified earnings history, SPMIN will stay the same but the AIME, and hence the PIA, will decrease, so the difference {SPMIN – PIA} will increase, contradicting our assumption that the original solution maximizes that difference. Therefore, for an earnings history to maximize the difference {SPMIN – PIA}, earnings in any of the 35 highest indexed earnings years which is a year of coverage, must not exceed $\boldsymbol{m_j}$.

Using a similar argument, we can also show that:

(a) the solution to this problem must consist of an earnings history in which the earnings in the 40 years that are not years of coverage equal zero; and

(b) the number of years of coverage in the solution will not exceed 30.

Combining these results, we see that the 40 earnings amounts in the earnings history (from the year of attainment of age 22 through the year of attainment of age 61) that solve our maximization problem must either be $\boldsymbol{m_j}$ or 0, and the number of years that have earnings $\boldsymbol{m_j}$ is no less than 11 and no more than 30. Now, for each n = 11,…, 30, the amount of the special minimum PIA does not depend on which of the n years among the 40 are the years with earnings of $\boldsymbol{m_j}$, but the amount of the wage-indexed PIA does. In fact, the wage-indexed PIA will be smallest when the n years are those with the n smallest values of $\boldsymbol{M_j}$, where $\boldsymbol{M_j}$ denotes the wage-indexed value of $\boldsymbol{m_j}$. So to find a solution to our problem, we only need to consider 20 possible solutions, namely the earnings histories consisting of $\boldsymbol{m_j}$ for each year j with one of the n smallest values of $\boldsymbol{M_j}$ and zero for all other years. Once we find the maximum gain from the special minimum PIA among these 20 possible solutions, we obtain our answer.

Computational Results

Using the projected values for the national average wage index, COLAs, bend points, and minimum amounts required for a year of coverage based on the 2013 Trustees Report,[7] we found a solution to the stated problem by the method described above. In addition, we also solved the problem for persons born in the years after 1951 and correspondingly first eligible for benefits after 2013. For years of first eligibility after 2012, the following table presents for the earnings histories that solve the optimization problem the special minimum PIA, the wage-indexed PIA when government pension receipt is not involved, and the advantage of the special minimum:

[5] http://www.socialsecurity.gov/OACT/COLA/bendpoints.html

[6] https://www.socialsecurity.gov/cola/automatic-cola.htm

[7] http://www.socialsecurity.gov/oact/tr/2013/

Table 1.—PIAs Based on Earnings Histories Which Optimize the Effect of the Special Minimum PIA Computation for Workers in Year of First Eligibility, Based on the 2013 Trustees Report

Year of first eligibility	Special minimum PIA	Wage-indexed PIA	Difference between special minimum and wage-indexed PIA
2013	$804.00	$762.40	$41.60
Intermediate assumptions (Alternative II)			
2014	820.00	773.40	46.60
2015	836.40	788.20	48.20
2016	857.30	818.60	38.70
2017	879.50	857.40	22.10
2018	903.20	898.90	4.30
2019	928.40	940.60	-12.20
Low-cost assumptions (Alternative I)			
2014	818.40	773.40	45.00
2015	830.60	798.40	32.20
2016	844.70	835.20	9.50
2017	859.90	872.50	-12.60
High-cost assumptions (Alternative III)			
2014	821.60	772.50	49.10
2015	842.10	777.10	65.00
2016	869.80	798.50	71.30
2017	898.50	832.80	65.70
2018	930.80	873.40	57.40
2019	966.10	920.50	45.60
2020	1,002.80	970.00	32.80
2021	1,040.90	1,017.40	23.50
2022	1,080.40	1,071.10	9.30
2023	1,121.40	1,126.20	-4.80

This estimate is very sensitive to the assumed path of assumed future wage and price increases. In order to give a sense of the scope of this sensitivity, we also replicated the estimation procedure using alternatively the low-cost and high-cost assumptions in the 2013 Trustees Report. Based on these assumptions, we found that it will be impossible for workers with years of first eligibility of 2017 and 2023 respectively to receive a special minimum PIA instead of a wage-indexed PIA, as indicated in table 1. The reason for the decrease over time of the maximum gain from the special minimum PIA relative to the wage-indexed PIA is that the special minimum increases from one cohort to the next with COLAs while the wage-indexed PIA increases from one cohort to the next with wage growth and prices have generally grown more slowly than wages in the past, and are projected to continue to do so under the Trustees' assumptions.

For the person born in 1951, table 2 displays, in order by the value of M_j, the rank, n, of M_j, the calendar year j, the value of m_j, the value of M_j, and the maximum gain of the special minimum given n years of coverage:

Table 2.—Maximal Effect of the Special Minimum PIA Computation for a Worker Born in 1951 and Retiring at Age 62 in 2013

n	Year of earnings j	Amount required for year of coverage m_j	m_j indexed by average wages M_j	Maximum gain given n years of coverage
1	1998	$7,605.00	$11,325.14	N/A
2	1999	8,055.00	11,362.08	N/A
3	2000	8,505.00	11,368.17	N/A
4	1997	7,290.00	11,424.25	N/A
5	1996	6,975.00	11,568.42	N/A
6	2007	10,890.00	11,583.77	N/A
7	1992	6,210.00	11,637.17	N/A
8	2006	10,485.00	11,659.11	N/A
9	2005	10,035.00	11,671.61	N/A
10	2001	8,955.00	11,690.76	N/A
11	1991	5,940.00	11,704.73	-$233.00
12	2004	9,765.00	11,773.15	-217.90
13	1995	6,795.00	11,821.03	-202.70
14	2008	11,385.00	11,837.99	-187.80
15	2011	11,880.00	11,880.00	-174.00
16	1993	6,435.00	11,955.98	-158.70
17	2003	9,675.00	12,206.91	-144.60
18	1994	6,750.00	12,213.44	-130.40
19	2002	9,450.00	12,214.49	-116.30
20	2010	11,880.00	12,252.24	-102.00
21	2012	12,285.00	12,285.00	-88.70
22	2009	11,880.00	12,541.82	-74.80
23	1973	2,700.00	15,309.04	-67.20
24	1981	5,550.00	17,319.04	-63.90
25	1980	5,100.00	17,516.82	-61.70
26	1975	3,525.00	17,553.53	-58.60
27	1974	3,300.00	17,661.18	-38.60
28	1979	4,725.00	17,690.61	-11.70
29	1976	3,825.00	17,817.96	15.10
30	1982	6,075.00	17,968.14	41.60

Thus, the minimum number of years of coverage in order to receive the special minimum upon attainment of age 62 in the year 2013 is 29. Additional analysis showed that this number increased to 30 for attainments in 2017.

Furthermore, we can see that the gain from the special minimum for a worker born in 1951 and retiring in 2013 is greatest when the number of years of coverage, n, equals 30. Again, additional analysis showed that for the years from 2014 to 2018, the gain of the special minimum was also greatest when n equals 30.

Recipients of the Special Minimum PIA Benefit

The Master Beneficiary Record (MBR) is the administrative file of records of benefit entitlement for the OASI and DI programs. We obtained information from the MBR regarding the beneficiaries who are receiving the special minimum PIA in June 2013, including the amount of the "support PIA"—the PIA which would have been used if not for the special minimum. For most of the beneficiaries receiving the special minimum, we calculated the gain in benefit due to the special minimum PIA as:

$$\boldsymbol{GAIN = MBA - \left(\frac{SUPPIA}{SPMIN}\right) MBA}$$

where SUPPIA is the support PIA and MBA is the Monthly Benefit Amount. The MBA may be less than or greater than the PIA because the beneficiaries may have retired earlier or later than the Normal Retirement Age or because of the family maximum provision. For auxiliaries, the MBA is also based on a specified percentage of the applicable PIA.

Some beneficiaries are entitled to both a primary and secondary benefit. For dually-entitled beneficiaries whose secondary benefit is based on a special minimum PIA, we modified the formula to:

$$\boldsymbol{GAIN = MBA - MAX\ \{\left(\frac{SUPPIA}{SPMIN}\right) MBA,\ SAMBA\}}$$

to recognize the possibility that the secondary benefit based on the support PIA might be smaller than the primary's PIA. SAMBA represents the smaller actuarially-reduced MBA, the primary benefit.

The following table shows the number of entitled beneficiaries and the average gain due to the special minimum PIA by year of current entitlement and beneficiary type as of June 2013, for those beneficiaries entitled in December 2012 or earlier. We have not included beneficiaries who are receiving a primary benefit based on the special minimum but are dually entitled to a larger secondary benefit not based on the special minimum, and hence are not really gaining from the special minimum calculation.

Table 3.—Number of Entitled Beneficiaries and Average Gain in Monthly Benefit Amount Due to the Special Minimum PIA by Year of Current Entitlement and Beneficiary Type, as of June 2013

	Worker		Spouse		Child		Widow		All beneficiary types	
Entitlement Year	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain
1965-1969	1	$94.15	—	—	24	$23.56	—	—	25	$26.38
1970-1974	29	37.01	—	—	83	22.80	8	$34.95	120	27.04
1975-1979	159	37.96	1	$22.57	117	26.66	58	25.28	335	31.77
1980-1984	2,638	45.89	33	26.92	263	31.52	226	33.49	3,160	43.61
1985-1989	7,213	44.70	218	21.00	305	33.09	672	34.48	8,408	42.84
1990-1994	6,807	51.99	377	22.49	159	31.06	1,079	35.87	8,422	48.21
1995-1999	3,389	61.53	305	26.19	88	31.57	1,250	37.80	5,032	52.97
2000-2004	2,180	59.24	261	28.62	74	28.62	1,292	34.28	3,807	48.07
2005-2009	1,802	53.11	210	26.02	38	23.89	1,294	36.38	3,344	44.60
2010-2013	1,115	54.91	121	27.44	48	18.16	794	38.58	2,078	46.22
Total	25,333	51.28	1,526	25.04	1,199	29.67	6,673	36.03	34,731	46.45

We see that the number of entitlements has dropped since the late 1990's, while the average gain of the special minimum over the support PIA has dropped for entitlements in 2000 and later.

In the above table, the child category is the aggregated result of children of three different categories of insured workers. An eligible child beneficiary[8] has a parent who is either a retired worker beneficiary, a disabled worker beneficiary, or a deceased insured worker. Children of retired and disabled workers are eligible for a monthly benefit of one-half of the PIA, and children of deceased

[8] Children are eligible if they are in one of three categories: a minor child under age 18, a student child aged 18 or19, or a disabled adult child age 18 or older whose disability began before age 18.

workers are eligible for a monthly benefit of three-fourths of the PIA.

Widows, including widowers, may be aged widow(er)s, disabled widow(er)s, or young widow(er)s. Aged and disabled widow(er)s are eligible for monthly benefits equal to the full applicable PIA, with appropriate reductions for entitlement prior to Normal Retirement Age. Young widow(er)s must be caring for a dependent child under age 16 and are paid at the rate of three-fourths of the PIA. Table 4 presents data for children and widows by type of child and widow.

Table 4.—Number of Entitled Child and Widow(er) Beneficiaries and Average Gain in Monthly Benefit Amount Due to the Special Minimum PIA by Year of Current Entitlement and Beneficiary Type, as of June 2013

	Children of...				Widow(er)s					
	Retired or disabled workers		Deceased workers		Aged		Disabled		Young	
Entitlement Year	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain	Number of beneficiaries	Average gain
1965-1969	—	—	24	$23.56	—	—	—	—	—	—
1970-1974	1	$25.70	82	22.76	8	$34.95	—	—	—	—
1975-1979	—	—	117	26.66	58	25.28	—	—	—	—
1980-1984	11	24.33	252	31.83	226	33.49	—	—	—	—
1985-1989	30	21.11	275	34.40	671	34.48	—	—	1	$30.82
1990-1994	23	25.56	136	31.99	1,077	35.89	—	—	2	23.70
1995-1999	17	26.90	71	32.69	1,242	37.85	8	$29.34	—	—
2000-2004	32	29.51	42	27.93	1,273	34.39	16	29.22	3	13.22
2005-2009	26	21.01	12	30.12	1,269	36.56	25	27.00	—	—
2010-2013	40	19.11	8	13.42	784	38.84	9	18.28	1	16.50
Total	180	23.48	1,019	30.76	6,608	36.13	58	26.58	7	19.20

The following table provides information on the eligibility year of the worker and the basis for the support PIA, for families receiving the special minimum PIA entitled in December 2012 or earlier:

Table 5.—Number of Families with Benefit Entitlements Receiving the Special Minimum PIA, by the Eligibility Year of the Worker and the Basis for the Support PIA, as of June 2013

	Basis for the support PIA				
Year of worker's eligibility	Average monthly wage (Eligibility before 1979)	Average indexed monthly earnings (AIME)	AIME with windfall elimination provision	Others[1]	Total
Pre-1979	1,530	16	1	108	1,655
1979	—	107	—	39	146
1980	—	277	2	36	315
1981	—	937	3	39	979
1982	—	1,780	7	43	1,830
1983	—	1,924	6	68	1,998
1984	—	1,873	19	65	1,957
1985	—	2,037	19	99	2,155
1986	—	1,805	70	142	2,017
1987	—	1,332	146	107	1,585
1988	—	1,723	643	130	2,496
1989	—	1,171	882	111	2,164
1990	—	874	1,158	57	2,089

Table 5.—Number of Families with Benefit Entitlements Receiving the Special Minimum PIA, by the Eligibility Year of the Worker and the Basis for the Support PIA, as of June 2013 (Cont.)

1991	—	896	1,106	1	2,003
1992	—	369	748	—	1,117
1993	—	137	753	—	890
1994	—	38	518	—	556
1995	—	67	522	—	589
1996	—	75	558	—	633
1997	—	47	595	—	642
1998	—	10	573	—	583
1999	—	—	437	—	437
2000	—	—	405	—	405
2001	—	—	411	—	411
2002	—	—	340	—	340
2003	—	—	300	—	300
2004	—	—	400	—	400
2005	—	—	383	—	383
2006	—	—	367	—	367
2007	—	—	311	—	311
2008	—	—	367	—	367
2009	—	—	260	—	260
2010	—	—	171	—	171
2011	—	—	151	—	151
2012	—	—	104	—	104
Total	1,530	17,495	12,736	1,045	32,806

[1] Includes 1990 Old-start PIAs, 1990 New-start PIAs, Old-start guarantee PIAs, New-start guarantee PIAs, and Frozen minimum PIAs.

The diminishing effect of the special minimum is even more obvious from table 5; in later eligibility years the special minimum never exceeds the regular AIME PIA and exceeds the WEP PIA relatively infrequently. Even though it was theoretically possible for first eligibilities from 1999 to 2012 for a family with a PIA based on the AIME to receive a special minimum PIA, the probability of such a family receiving a special minimum PIA was very small. The worker in such a family would have to have had earnings for at least 27 years that were no lower than but not much higher than 25% of the “old law” contribution and benefit base for years 1950 to 1990 and 15% of the “old law” contribution and benefit base for years after 1990.

The only recipients of the special minimum in recent years are workers who are also receiving a pension based on work not covered by the Social Security program and their dependents and would have otherwise received the Windfall Elimination Provision PIA, which is also based on indexed earnings but pays a less generous PIA than the regular formula.

The following table provides information on the number of years of coverage for families receiving the special minimum PIA in June 2013:

Table 6.—Number of Families Receiving the Special Minimum PIA, by Number of Years of Coverage and June 2013 Special Minimum PIA, as of June 2013

Years of coverage	June 2013 Special Minium PIA	Number of Families
11	$38.80	—
12	79.10	3
13	119.50	34
14	159.60	149
15	199.50	227
16	240.00	285
17	280.20	459
18	320.50	780
19	360.70	929
20	401.10	1,175
21	441.40	1,119
22	481.40	1,167
23	522.30	1,316
24	562.50	1,367
25	602.50	1,418
26	643.40	1,494
27	683.20	1,783
28	723.50	2,316
29	763.80	3,091
30	804.00	13,694
Total	668.14[1]	32,806

[1] Weighted average.

Conclusion

For first eligible beneficiaries in recent years, the probability is very small that an earnings record will yield a higher special minimum PIA than a regular wage-indexed PIA, and, in fact, there are no recent eligible beneficiaries with a special minimum PIA except those affected by the WEP - and relatively few of them. Projections indicate that only under very limited circumstances will one be able to benefit from the special minimum now and in the future.

The minimum earnings that qualify for a year of coverage were dropped in 1991 from 25% to 15% of the "old-law" contribution and benefit base to give more people the opportunity to receive the special minimum. However, as we observed from the MBR records, the number of people who received the special minimum continued to drop even for people with eligibility years after 1990.