

Social Security payments calculations:**First consideration:**

If you don't need SS income for expenses and can wait until the normal retirement age (66) or even later to age 70 that means you could start receiving the SS payments early and simply invest this income each month allowing it to compound grow undisturbed. So the big question is:

Question:

Are you better off financially if you start receiving SS payments at age 62 (early retirement), or waiting until age 66 (normal retirement), or holding off until age 70 lured by the higher monthly payments received when starting later? Let's see.

Part 1: Considers early retirement SS payments starting at age 62 with monthly payments of \$1,000

Part 2: (Starts on page 4 below) Considers "normal retirement" payments starting at age 66 with monthly payments of: \$1,326.

Monthly payments are \$1,750 if payments start at age 70.

Input data to SS calculator: DOB: 09-16-44, Adjust earnings to \$48,700 in 2004 at SSA site below to give an even \$1,000 in monthly SS payments starting at age 62.

Required: \$1000/month invested in a NYS Tax Exempt Municipal Bond Fund at 3.6% annual yield. This is a reasonable yield for the Vanguard NYS bond fund.

Realized: These calculations do not address taxes on the SS payments themselves.

Links:

See this Social Security Administration link for the payment calculator.

<http://www.ssa.gov/OACT/quickcalc/index.html>

A compound interest calculator can be found at:

http://www.moneychimp.com/calculator/compound_interest_calculator.htm

Another calculator with monthly additions and monthly compounding is:

<http://www.math.com/students/calculators/source/compound.htm>

Formula: from: <http://math.about.com/library/weekly/aa042002a.htm>

P is the principal (the initial amount you borrow or deposit)

r is the annual rate of interest (percentage)

n is the number of years the amount is deposited or borrowed for.

A is the amount of money accumulated after n years, including interest.

When the interest is compounded once a year: $A = P(1 + r)^n$

However, if you borrow for 5 years the formula will look like: $A = P(1 + r)^5$

This formula applies to both money invested and money borrowed.

Frequent Compounding of Interest:

What if interest is paid more frequently?

Here are a few examples of the formula:

Annually = $P \times (1 + r) =$ (annual compounding)

Quarterly = $P (1 + r/4)^4 =$ (quarterly compounding)

Monthly = $P (1 + r/12)^{12} =$ (monthly compounding)

Part 1: \$1,000 SS payment invested the first day of the month for each month of the eight years (96 months) between age 62 and 70. No withdrawals assumed for this calculation.

$\$1,000 \times (1+0.036/12) =$ first months principal and interest = \$1003

First month of saving

1. \$1,003 - at age 62	33. \$34,739	66. \$73,086
2. \$2,009	34. \$35,846	67. \$74,308
3. \$3,018	35. \$36,956	68. \$75,534
4. \$4,030	36. \$38,070 - age 65	69. \$76,764
5. \$5045	37. \$39,187	70. \$77,997
6. \$6063	38. \$40,308	71. \$79,234
7. \$7084	39. \$41,432	72. \$80,475 - age 68
8. \$8109	40. \$42,559	73. \$81,719
9. \$9136	41. \$43,690	74. \$82,967
10. \$10,166	42. \$44,824	75. \$84,219
11. \$11,200	43. \$45,961	76. \$85,475
12. \$12,237 - age 63	44. \$47,102	77. \$86,734
13. \$13,277	45. \$48,247	78. \$87,998
14. \$14,320	46. \$49,394	79. \$89,265
15. \$15,366	47. \$50,546	80. \$90,535
16. \$16,415	48. \$51,700 - age 66	81. \$91,810
17. \$17,467	49. \$52,858	82. \$93,088
18. \$18,522	50. \$54,020	83. \$94,371
19. \$19,581	51. \$55,185	84. \$95,657 - age 69
20. \$20,643	52. \$56,353	85. \$96,947
21. \$21,707	53. \$57,525	86. \$98,241
22. \$22,776	54. \$58,701	87. \$99,539
23. \$23,847	55. \$59,880	88. \$100,840
24. \$24,921 - age 64	56. \$61,063	89. \$102,150
25. \$25,999	57. \$62,249	90. \$103,460
26. \$27,080	58. \$63,439	91. \$104,770
27. \$28,164	59. \$64,632	92. \$106,090
28. \$29,252	60. \$65,829 - age 67	93. \$107,410
29. \$30,343	61. \$67,029	94. \$108,730
30. \$31,437	62. \$68,234	95. \$110,060
31. \$32,534	63. \$69,441	96. \$111,390 - age 70
32. \$33,635	64. \$70,653	97. \$112,730
	65. \$71,868	

Below from: <http://www.math.com/students/calculators/source/compound.htm>

The figures below show continued (after age 70) monthly contributions of \$1000 ongoing, no withdrawals. These are just for reference; our study below will stop contributing to fund at age 70.

01: \$12,236.59 at age 63	15: \$238,921.36 at age 77
02: \$24,921.04 at age 64	16: \$259,902.47 at age 78
03: \$38,069.74 at age 65	17: \$281,651.49 at age 79
04: \$51,699.69 at age 66	18: \$304,196.52 at age 80
05: \$65,828.49 at age 67	19: \$327,566.70 at age 81
06: \$80,474.41 at age 68	20: \$351,792.23 at age 82
07: \$95,656.36 at age 69	21: \$376,904.41 at age 83
08: \$111,393.98 at age 70	22: \$402,935.70 at age 84
09: \$127,707.59 at age 71	23: \$429,919.73 at age 85
10: \$144,618.28 at age 72	24: \$457,891.38 at age 86
11: \$162,147.89 at age 73	25: \$486,886.79 at age 87
12: \$180,319.10 at age 74	26: \$516,943.43 at age 88
13: \$199,155.37 at age 75	27: \$548,100.15 at age 89
14: \$218,681.04 at age 76	28: \$580,397.19 at age 90

Now, at age 70, stop investing the monthly SS payments but leave balance intact (no withdrawals).
You start with: \$111,390 in the NYS Tax Exempt bond fund and it grows as follows from age 70:

- 01: \$115,466.87 - age 71
- 02: \$119,692.95
- 03: \$124,073.71
- 04: \$128,614.81
- 05: \$133,322.11
- 06: \$138,201.69
- 07: \$143,259.87
- 08: \$148,503.18
- 09: \$153,938.40
- 10: \$159,572.54 - at age 80

Municipal bond fund grew by $(\$159,572 - \$111,390) = \$48,182$ in 10 years untouched.
You received \$120,000 in SS payments in those ten years for a \$168,182 gain in 10 years.

The person who starts receiving SS payments at age 70 will have received:
 $(\$1,750 \times 120 \text{ months}) = \$210,000$ by age 80.

The person who started monthly investing SS payments at age 62 and then stopped investing the monthly SS payment to bond fund at age 70 but left balance intact to age 80 will have a net worth of: $\$159,572 + [(\$1,000 \times 12 \text{ months} \times 10 \text{ years}) = \$120,000] = \$279,572$ with \$159,572 of that still untouched (in the fund).

This person is **\$69,572** better off overall than the person who waited until age 70. If this early retirement person died at age 80 there would be \$159,572 in his bond fund which the other recipient would not have assuming none of the \$210,000 was saved.

Now continue on from age 80 to age 90 with \$159,572 in the bond fund at age 80.
The municipal bond fund grows without additional monthly contributions but no withdrawals.

- | | |
|---------------------------|---------------------------|
| 01: \$165,412.33 - age 81 | 06: \$197,981.16 - age 86 |
| 02: \$171,466.42 | 07: \$205,227.26 |
| 03: \$177,742.08 | 08: \$212,738.58 |
| 04: \$184,247.44 | 09: \$220,524.80 |
| 05: \$190,990.89 - age 85 | 10: \$228,596.01 - age 90 |

Municipal bond fund grew by $(\$228,596 - \$159,572) = \$69,024$ in 10 years untouched.
You received \$120,000 in SS payments in those ten years for a \$189,024 gain in 10 years.

The person who starts receiving at age 70 will have received: $\$1750 \times 120 \text{ months} = \$210,000$ by age 90 in those last ten years.

The person who started at age 62, invested all SS payments and reinvested interest until age 70 and then stopped contributing the monthly SS payments to bond fund but left principal intact to age 90 will have a net worth of: $\$228,596 + [(\$1,000 \times 12 \text{ months} \times 10 \text{ years}) = \$120,000] = \$348,596$ with \$228,596 of that still untouched in the fund. This person is **\$138,596** better off than the person who waited until age 70.

Part 2: Start receiving SS payments at normal retirement age of 66.

\$1,326 SS payment invested the first day of the month for each month of the four years (48 months) between age 66 and 70. No withdrawals assumed for this calculation.

$\$1,326 \times (1+0.036/12) =$ first months principal and interest = \$1330 (3.6% yield)

01. \$1,330 - age 66	18. \$24,560	35. \$49,003
02. \$2,664	19. \$25,963	36. \$50,480 - age 69
03. \$4,002	20. \$27,371	37. \$51,962
04. \$5,344	21. \$28,783	38. \$53,447
05. \$6,690	22. \$30,200	39. \$54,938
06. \$8,040	23. \$31,620	40. \$56,433
07. \$9,394	24. \$33,045 - age 68	41. \$57,932
08. \$10,752	25. \$34,474	42. \$59,436
09. \$12,114	26. \$35,908	43. \$60,944
10. \$13,481	27. \$37,345	44. \$62,457
11. \$14,851	28. \$38,787	45. \$63,974
12. \$16,226 - age 67	29. \$40,234	46. \$65,496
13. \$17,604	30. \$41,684	47. \$67,023
14. \$18,987	31. \$43,139	48. \$68,553 - age 70
15. \$20,374	32. \$44,599	49. \$70,089
16. \$21,765	33. \$46,062	
17. \$23,160	34. \$47,531	

Below from: <http://www.math.com/students/calculators/source/compound.htm>

These figures below assume continued (after age 70) \$1,326 in monthly contributions ongoing, no withdrawals. These are for reference. Our study below will stop contributing at age 70.

01: \$16,225.72 at age 67	14: \$289,971.07 at age 80
02: \$33,045.31 at age 68	15: \$316,809.73 at age 81
03: \$50,480.49 at age 69	16: \$344,630.68 at age 82
04: \$68,553.80 at age 70	17: \$373,469.88 at age 83
05: \$87,288.59 at age 71	18: \$403,364.59 at age 84
06: \$106,709.07 at age 72	19: \$434,353.45 at age 85
07: \$126,840.34 at age 73	20: \$466,476.50 at age 86
08: \$147,708.42 at age 74	21: \$499,775.26 at age 87
09: \$169,340.27 at age 75	22: \$534,292.74 at age 88
10: \$191,763.84 at age 76	23: \$570,073.57 at age 89
11: \$215,008.12 at age 77	24: \$607,163.98 at age 90
12: \$239,103.13 at age 78	
13: \$264,080.02 at age 79	

Now, at age 70, stop investing all monthly SS payments but keep balance intact (no withdrawals).
You start with: \$68,553 in the NYS municipal bond fund and it grows as follows from age 70:

01: \$ 71,062.87 - age 71
02: \$ 73,663.77
03: \$ 76,359.86
04: \$ 79,154.63
05: \$ 82,051.69
06: \$ 85,054.78
07: \$ 88,167.78
08: \$ 91,394.72
09: \$ 94,739.76
10: \$ 98,207.24- at age 80

Bond fund grew by $(\$98,207 - \$68,553) = \$29,654$ in 10 years untouched.

You received $(\$1,326 \times 12 \text{ months} \times 10 \text{ years}) = \$159,120$ in SS payments in those ten years for a gain of $(\$159,120 + \$29,654) = \$188,774$ in 10 years.

The person who starts receiving at age 70 will have received: $\$1,750 \times 120 \text{ months} = \$210,000$ by age 80.

The person who started at age 66, invested all SS payments and reinvested interest until age 70 and then stopped investing the monthly SS payments to bond fund but left balance intact to age 80 will have a net worth of: $\$98,207 + [(\$1,326 \times 12 \text{ months} \times 10 \text{ years}) = \$159,120] = \$257,327$ with $\$98,207$ of that still untouched (in the bond fund).

The normal retirement age person is **\$47,327** better off than the person who waited until age 70.

Now continue on from age 80 to age 90 with $\$98,207$ in the bond fund at age 80.

Bond fund growth without additional monthly contributions:

01: \$101,801.62- age 81
02: \$105,527.56
03: \$109,389.87
04: \$113,393.53
05: \$117,543.74
06: \$121,845.83
07: \$126,305.39
08: \$130,928.16
09: \$135,720.13
10: \$140,687.49 - age 90

Bond fund grew by $(\$140,687 - \$98,207) = \$42,480$ in 10 years untouched.

You received $\$159,120$ in SS payments in those ten years for a $\$201,600$ gain in 10 years.

The person who starts receiving at age 70 will have received: $\$1750 \times 120 \text{ months} = \$210,000$ by age 90 in those last ten years.

The person who started at age 66, invested all SS payments and reinvested interest until age 70 and then stopped contributing the monthly SS payments to bond fund but left balance intact to age 90 will have a net worth of: $\$140,687 + [(\$1,326 \times 12 \text{ months} \times 10 \text{ years}) = \$159,120] = \$299,807$ with $\$140,687$ of that still in the bond fund.

This person is **\$89,807** better off than the person who waited until age 70.