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# Is Social Security a Good Investment?

An examination for various wage earners

An often-voiced comment about Social Security retirement benefits is the belief that one could do a better job than the government on providing his or her own retirement income. Is this true? To find out, the following methodology was used to determine that the answer (unsurprisingly!) is complicated.

## A COMPARATIVE ANALYSIS

Social Security provides recipients with a life-only annuity. If a spouse is in the picture, the benefit is a life-only annuity with a two-thirds survivor benefit. The question then becomes, what would it cost to buy a commercial annuity from an insurance company that provides the same retirement income as Social Security?

### *Step 1: Calculating Social Security Payouts*

The first step was to determine the benefits paid by Social Security. The **Social Security Administration's Detailed Calculator** allows one to input annual earnings, birth date and date of retirement to calculate estimated retirement benefits. Using this tool, earnings data for a person turning age 66 in 2019 (full retirement age) was entered; the estimated working life of the person was from 1971 through 2018.

As a check on the calculator, data from the actual Social Security statement voluntarily provided by a husband and wife was used; the difference in income between the estimate from the calculator and the actual Social Security Statements was less than one percent.

### *Step 2: Calculating Annuity Payouts*

The Vanguard.com annuity service was used to run multiple income annuity scenarios with several highly rated annuity carriers using different monthly payouts. Life only was chosen to reflect a single individual, and life with two-thirds survivor* to reflect the treatment of a married couple with a lower earning or non-earning spouse. Social Security increases the benefits based on annual changes in the cost of living; this precise option was not available. Instead, an option was selected whereby the income payout increases by three percent each year. The service rendered quotes of the premium needed to provide this monthly income from the top three life annuity carriers. An average of the top two least expensive quotes for the premium was used. This premium is the effective dollar value of the Social Security retirement benefit.

*Life only was chosen to reflect a single individual, and life with two-thirds survivor* to reflect the treatment of a married couple with a lower earning or non-earning spouse.*

*In the case of a married couple living together, each spouse receives the greater of his or her own calculated benefit or one-half of the other spouse's benefit. Upon death of either spouse, benefits are reduced by the lesser amount. Example: Spouse R would receive a full retirement age benefit of $1,000. Spouse T at full retirement age qualifies for a benefit of $400 a month, but because that is less than one-half of $1,000, Spouse T receives $500. Together the couple gets $1,500. Upon the death of either Spouse R or T the benefit will drop to $1,000 – or 66.67% of the former combined benefits.

### *Step 3: Leveling the Playing Field*

For each scenario, the contributions from both employee and employer were entered onto the spreadsheet and the premium needed to purchase the life annuity at retirement. The Excel IRR formula was then used to determine the internal rate of return.

The annualized rate of return decreases as the dollar amount of contributions increase. Part of this is because there is a ceiling on the maximum benefit at retirement age — currently $2,861 a month. The major reason is because the Social Security tax is progressive.

The primary insurance amount (PIA) for the benefit is calculated based on a formula that has "bend points" to compute the averaged indexed earnings. For 2019, workers receive credit for 90% of the first $11,112 they earn, then 32% credit for earnings between $11,112 and $66,996, and finally 15% credit for earnings between $66,996 and $132,900. The end result is the lower the averaged indexed earnings, the higher the percentage of income used to calculate the retirement benefit.**

## THE RESULTS

The first case run was on the couple that volunteered their statement. At full retirement age of 66, the Social Security monthly benefit of the higher earning spouse was $2,456; adding a spousal benefit for an age 66 spouse brings the benefit to $3,684. The annuity calculator determined the premium needed for a single life-only annuity paying $2,456 was $608,000. In other words, the present value of the Social Security retirement benefit was $608,000 because that was the dollar equivalent needed to buy a life annuity paying $2,456 a month. The premium required for a joint life annuity with two-thirds survivor initially paying $3,684 was $1,060,763.

*... the annualized or compounded rate of return needed to purchase the single life-only annuity was 5.63%.*

Throughout the subject's earning years, the employee, employer and self-employed OASDI (Old-Age, Survivors, and Disability Insurance) taxes paid in from all sources totaled $220,000; this does not include the Medicare taxes. This was, of course, paid in over time. The dollar amount of Social Security taxes paid for each year since 1971 was entered into the spreadsheet; the final entry was an outgo representing the purchase of the life annuity (in this case either $608,000 or $1,060,763). Based on the taxes paid, the annualized or compounded rate of return needed to purchase the single life-only annuity was 5.63%. The annualized or compounded rate of return needed to purchase the joint with two-thirds survivor annuity was 7.73%.

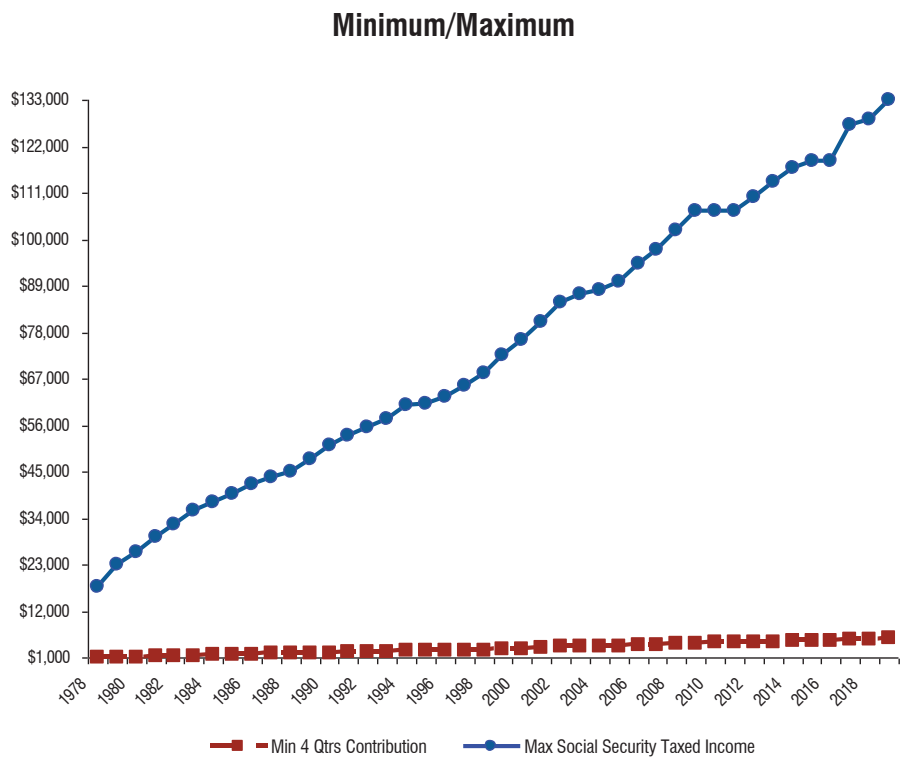
### *Minimum & Maximum*

Social Security requires 40 quarters of minimum earnings to receive retirement benefits. Prior to 1978, the minimum earnings were $150 a year. In 1978, it changed to a quarterly system that increased the minimum annually, which was set at $1,000 ($250 a quarter). The current annual minimum required to earn four quarterly credits is $5,440. Unlike the Medicare tax, the amount of income subject to Social Security tax has a ceiling.

**As an illustration, if one makes $20,000 he or she will receive credit for 90% of the first $11,112 ($11,112 x 90% = $10,001) and 32% of the difference between $20,000 and $11,112 ($20,000 - $,11,112 = $8,888 x 32% = $2,844) for a total income credit of $12,845. This is 64% of total earnings. ($12,845/$20,000). By contrast, if one makes $50,000, while he or she still receives 90% on the first $11,112, the worker will receive 32% on the rest ($50,000 - $11,112). To cut to the end, only 45% of total income is used to calculate the benefit.

In 1971, the earnings ceilings was $7,800; in 2018, it was $128,400.

One can also qualify for a special minimum benefit that is higher than the primary insurance amount would suggest. In 1971, the qualifying annual income amount to get the special minimum benefit was $1,950, and in 2018, it was $14,310. In other words, last year if someone earned at least $14,310 at their job — and had similar low wages in previous years for their entire working lives — he or she qualified for the special minimum benefit that provided far higher retirement benefits than the Social Security taxes paid in would have justified under normal crediting.




## *Benefits Table*

The following table shows the total employer/employee amount paid in over a lifetime, the monthly Social Security benefit received at full retirement age for an individual and a couple with non-employed spouse, the premium required, and the annualized compounded return needed to buy the annuity.

| | | Monthly Income | | Single | Joint | Single | Joint |
|---|---|---|---|---|---|---|---|
| | Total Tax | Single | Joint | Annuity | Annuity | IRR | IRR |
| Min. Earnings | $15,374 | $193 | $289 | $48,000 | $83,150 | 5.88% | 8.18% |
| Min. Benefit | $45,747 | $872 | $1,310 | $210,500 | $370,000 | 6.70% | 8.71% |
| Average | $150,902 | $1,778 | $2,667 | $427,000 | $749,000 | 5.19% | 7.46% |
| Maximum | $377,442 | $2,861 | $4,292 | $701,500 | $1,280,000 | 3.35% | 6.07% |

## *Reading the Table*

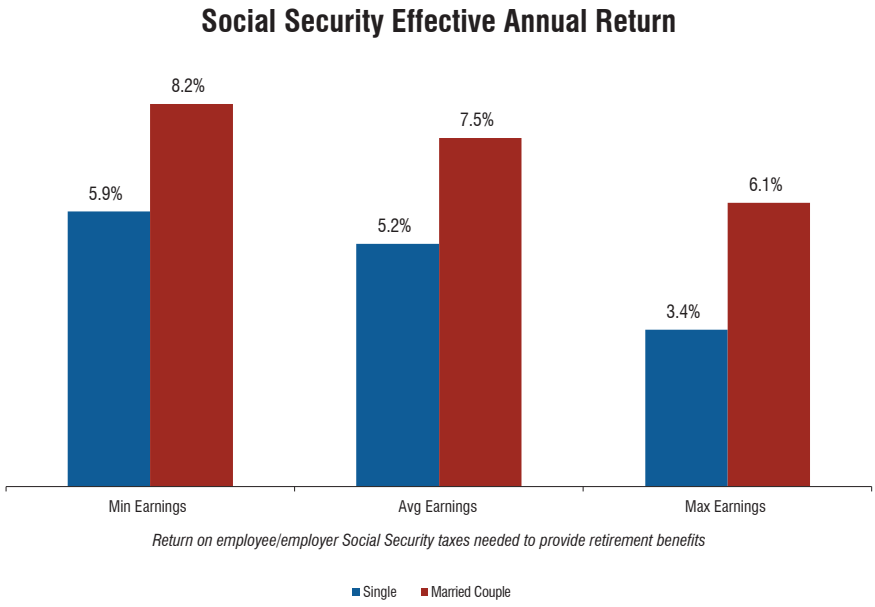
The first entry assumes someone managed to only hit the minimum wages or self-employed earnings. For example, the worker earned $1,000 in 1978, was still only making $1,880 in 1988, and earned $5,280 in 2018. The Social Security taxes paid in by the worker and employer totaled $15,374 (again, not counting the Medicare taxes). This produced a monthly Social Security check of $193 at age 66 (full retirement age). If the worker had a non-employed spouse, the joint benefit was $289 as they began enjoying retirement in 2019.

The second entry is what is needed to get the special minimum benefit. Using the same markers, in 1978 the worker earned $4,425, made $8,400 in 1988, and earned $14,310 in 2018. In total, the worker/employer Social Security tax paid in was $45,747 — or roughly three times more than the absolute minimum earnings. However, the monthly Social Security benefit at full retirement age was $872 (single) and $1,310 (joint), or four and half times bigger than the minimum earnings checks.

The third entry is for what Social Security determines is the average worker. The worker plus employer tax total was $150,902, and the benefit was $1,778 (single) and $2,667 (joint). The final line is for the worker that has always earned and paid the maximum tax on Social Security up to the yearly limits. In 1978, that limit was $17,700; in 2018, it was $128,400. The total tax paid in was $377,442 and the monthly full retirement benefit if he or she retired at age 66 in 2019 was $2,861 (single) and $4,292 (joint).

### *Annualized Rate of Return*

For the average or below average earner, the compounded rate of return is around 5% to 7% for an individual and 7% to 9% for a married couple if a spouse is in the home. The analysis examined several different scenarios with fluctuating income, or leaving and reentering the wage-force, and was able to get the single life return above 8% and the joint return nearing 10% in several instances.




For those paying near or at the maximum tax each year, the returns were much lower. A single high-earning individual consistently averages a return of 3% to 4% a year. A couple with a big earner and a non-employed spouse averaged 6% for a joint income benefit.

The worst-case joint return was where the retirement benefit of the lower earning spouse was exactly one-half of that of the higher earning spouse. This effectively meant that the lower earning spouse received no retirement benefit from their earnings; it also dropped the annualized joint return to 5%.

## ***Disability & Survivor Benefits***

Looking at only full retirement benefits, the effective annualized return ranges from around 3% to just above 9%, depending upon the level of contributions and whether single or married. However, this completely ignores the insurance aspects of Social Security. If a contributor dies and leaves a family, Social Security will pay a monthly income to help support the family. If a person has met the minimum qualifying period, he or she is entitled to disability benefits. For a more accurate reflection of the true return on the retirement benefit, one would need to deduct the annual cost of this social insurance.

### *Survivor*

The survivor benefit acts as a life and period certain combination. At age 60, the surviving spouse is eligible for Social Security, which acts as a life annuity.

A surviving spouse with minor children may receive a monthly income until the children age out and then restart at age 60, which effectively is a period certain annuity lasting until the youngest child is no longer eligible for benefits.

The maximum family benefit is 150-180% of the basic benefit. The Social Security survivor income for the average family is $2,000 a month to a maximum of around $4,300 a month. This works like a period certain annuity that pays out anywhere from one to 18 years, depending on the age of the children. After the children are grown, it then pays a discounted life income benefit of $1,300 to $1,800 a month beginning at age 60 for the surviving spouse.

**Annuity Premium Required to Purchase Equivalent Survivor Benefits**

| | Period Certain - No Life | | | Life Only |
|---|---|---|---|---|
| Monthly Benefit | 5 Yrs | 10 Yrs | 15 Yrs | @ Age 60 |
| $4,300 | $247,873 | $456,868 | $630,748 | - |
| $2,000 | $138,348 | $254,996 | $353,046 | - |
| $1,800 | - | - | - | $377,692 |
| $1,300 | - | - | - | $272,777 |

Using the same income annuity calculators, it was determined that the income annuity cost of providing a $4,300 monthly income for 15 years and then $1,800 for the surviving spouse alone beginning at age 60 would total $1,008,440 ($630,748 for a 15-year period certain annuity plus $377,692 for a life-only annuity beginning at age 60). Most other scenarios required combined premiums ranging from $500,000 to $750,000.

Given that the worker may not have had $1,008,440 in the bank, the most efficient way to pay for these life and period certain annuities was by using term life insurance, wherein the death benefit is used to buy the annuities. Quotes were obtained for 30-year level term life insurance policies from various sources. At age 31, the annual premium for a $500,000 death benefit was around $420; at age 47, the annual premium for a $1 million death benefit was $1,300. Assuming the wage earner is insurable, and statistically the odds are very high he or she is, the survivor benefit could be essentially replaced by private insurance at a cost of $400 to $1,500 a year that would be used to buy the annuities to provide the equivalent income.

## *Disability*

For those unable to work that have qualified, Social Security pays a disability benefit. Even though this cost is not specifically broken out in the OASDI tax, the percentage allocated to the Disability Trust Fund is 2.37%[1]. In 2019, the average monthly disability benefit paid was about $1,200 with the maximum at $2,861.

For those near or over the second income bend point of $66,996 in income, the imputed cost of 2.37% is typically much higher than the market would charge. For example, to receive a $2,000 per month disability benefit until age 65, **a premium quote was calculated** for a 47-year-old of $1,400 a year; for a 31 year old, it was $840 a year.

Applying this to the 2.37% Social Security cost means it would be less expensive for a 47-year-old making more than $59,000 — or a 31-year-old making more than $35,500 — to get the same coverage from an insurance company. The disability insurance cost for those in blue or gray collar jobs is higher and makes the Social Security cost closer to the market.

[1]William R. Morton, The Social Security Disability Trust Fund: Background and Current Status. Congressional Research Service, 2016.

### *Disability-Survivor Cost/Benefit*

The top taxed Social Security individual in 2018 paid an imputed cost of $3,043 for a disability benefit that could often have been purchased for $1,300 to $3,200, depending on age. For someone making $50,000 a year, the imputed disability coverage cost is $1,185. The survivor benefit, for most, is the rough equivalent of buying a life insurance policy with an annual premium cost of $400 to $800.

For the average worker and below, which was defined as someone with an income of $50,323 in 2018, these benefits give a significant boost to the retirement-only return. Indeed, for those in the lower quintiles of income, the value of the disability and survivor benefits may cost more than the Social Security taxes paid in, meaning that the retirement benefit they receive costs them nothing. For those paying in or near the maximum tax, the social insurance increases the effective retirement portion annualized return to more than 4% for a single life only and near 7% for a joint life.

## CONCLUSION

For a single person and couples whose lifetime earnings have been in the low part of the income rankings, Social Security has been an incredible investment. For many in this group the costs of the pre-retirement insurance aspects of the coverage used up most to all of the Social Security taxes paid in.

For a single person earning average wages, the annualized equivalent return, including disability coverage, is 7% or better. For couples where one spouse had average or below average lifetime wages and the other spouse never or seldom had earnings from work, the effective net annualized return of Social Security is 8% to 9%. A strong argument can be made that for these people Social Security was a very good investment, providing a measure of financial security throughout both their working and retirement lives.

Higher earning individuals could have done better if they'd been allowed to invest those Social Security taxes in their own personal investment accounts, especially if both spouses are high earners. Even after allowing for the survivor and disability benefits the rate of return never gets much better than 4.5%.

If everyone acted as *homo economicus* — the completely rational creation of economists — it appears that higher-than-average earners could have done better on their own. However, this assumes their investments would have always been prudent, that they never reacted emotionally to extreme market dips or gains, and that their employer freely gave them all of the employer portion of the Social Security tax as additional untaxed compensation.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