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A PRIMER ON CALCULATING SOCIAL SECURITY RETIREMENT BENEFITS

Examining how the Social Security Administration (SSA) calculates benefits provides insights into the current discussion surrounding Social Security solvency, such as how benefits are indexed to wages and prices. Retirement benefits provided by Social Security are determined by a complicated set of calculations. This primer offers a simple overview of how benefits are calculated.

The Retirement Age

Retirement benefits calculated by the SSA, also called “old-age insurance benefits,” are based on the amount a worker would receive upon retirement at his or her *normal retirement age*. The normal retirement age depends on when a worker was born. Normal retirement ages range from 65 years for anyone born in 1937 or before, to 67 years for anyone born in 1960 or later. Regardless of a worker’s normal retirement age, all workers become eligible for Social Security benefits (at a reduced level) at age 62.

For the purpose of receiving Social Security retirement benefits, a worker can choose to retire before or after the normal retirement age, meaning that a worker’s benefits can be significantly lower or higher than if they retired at the normal retirement age. Up to certain limits, *early* retirement generates benefit reductions and *delayed* retirement generates credits, or benefit increases.

Two Key Amounts: Primary Insurance Amount and Average Index of Monthly Earnings

The *Primary Insurance Amount (PIA)* is the monthly benefit that a worker would receive upon retirement at the worker’s normal retirement age. The PIA depends on another amount, called the *Average Index of Monthly Earnings (AIME)*, which is computed by taking a worker’s past wages, indexing those wages to present dollar values, and finding a monthly average. In particular, the AIME for a worker is computed by:

1. Adjusting, or “wage-indexing,” the worker’s past earnings to reflect changes in general wage levels that occurred between when the earnings were realized and the present.
2. Adding the highest 35 years of indexed earnings to arrive at an indexed total.
3. Dividing the indexed total by 420 (the number of months in 35 years) to determine the average index of monthly earnings.

Once a worker’s AIME is calculated, the PIA is arrived at by adding three separate percentages (90%, 32%, and 15%) of portions of the worker’s AIME. These portions, to which separate percentages apply, are indexed to wages and consequently grow through time to reflect growth in wages.

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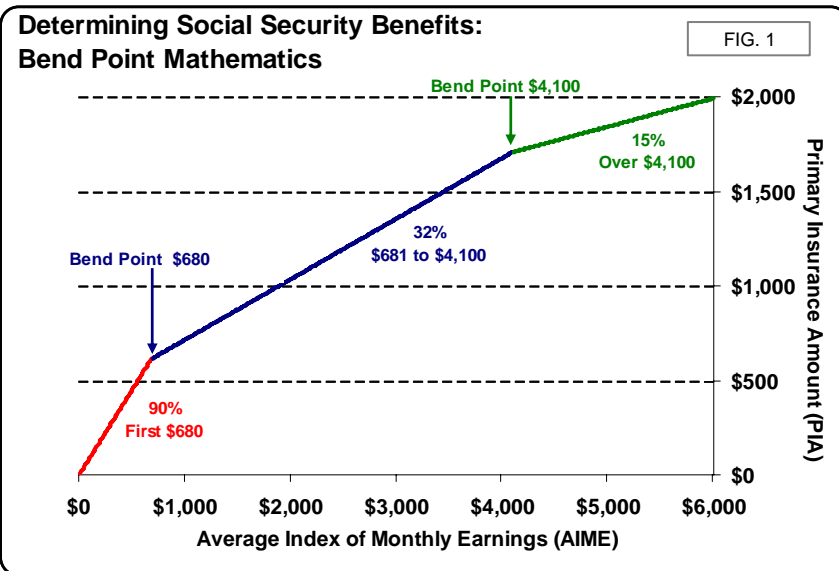
The PIA for a worker who first becomes eligible for retirement benefits in 2007 is the sum of:

1. 90% of the first \$680 of the worker's AIME;
2. 32% of the worker's AIME over \$680 and through \$4,100; and,
3. 15% of the worker's AIME above \$4,100.

The amounts \$680 and \$4,100 are referred to as *bend points* for the 2007 PIA formula. They are the amounts of AIME at which the fraction of additional dollars of AIME that become part of a worker's PIA changes (See Figure 1).

An Example

Consider a worker born in 1945 whose normal retirement age, for Social Security benefit purposes is 66 years. The SSA calculates the worker's PIA at the age of eligibility—age 62. The worker born in 1945 attains age 62 in 2007.



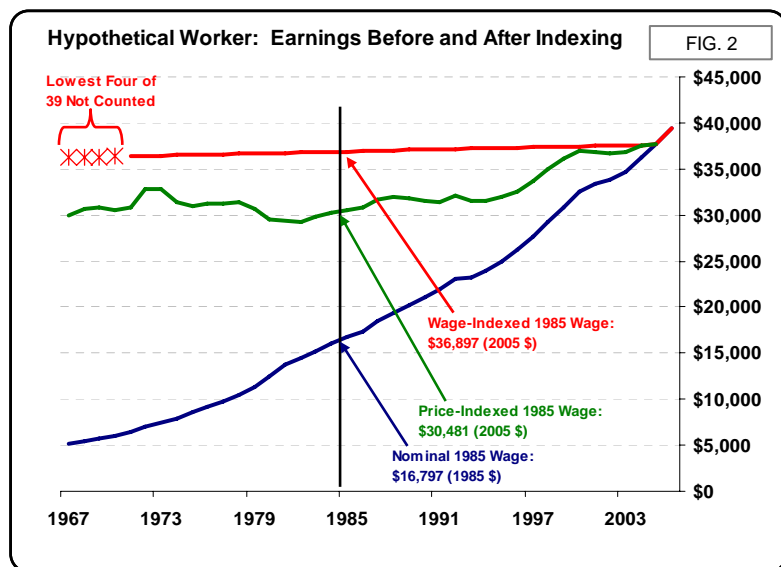
A Hypothetical Worker

- Born in 1945.
- Eligible for Social Security retirement benefits in 2007, at age 62.
- Normal Retirement Age is 66 years.
- Lifetime of earnings shown in blue in Figure 2.
- Wage-indexed earnings shown in red in Figure 2.
- AIME is \$3,091.
- PIA is \$1,383.50 (90% of the first \$680 of AIME plus 32% of AIME between \$680 and \$3,091, truncated to the nearest dime (for our worker, the 15% of AIME above the \$4,100 “bend point” does not apply). If our hypothetical worker starts to receive his Social Security retirement benefits at age 62, the worker's PIA is reduced to a monthly benefit of \$1,037.¹
- If the worker retires at the NRA of 66 (in 2011), the monthly Social Security retirement benefit received will be \$1,383.50 plus adjustments for price inflation between 2007 and 2011.²

¹ For our worker, who has a NRA of 66, the PIA reduction is 25% of the worker's AIME at age 62 (i.e., the benefit, as a percentage of the PIA is 75% at age 62). Similarly, for one whose NRA is 65 or 67, the benefit *reduction* is 20% and 30%, respectively; http://www.ssa.gov/OACT/ProgData/ar_drc.html; May 16, 2007.

² Bend points for 2007 retirees use 2005 numbers—age 60 is when the calculation locks in. Social Security Retirement Benefit Calculation; <http://www.ssa.gov/OACT/ProgData/retirebenefit2.html>; May 14, 2007.

Suppose that the worker has earned the amounts shown on the blue line in Figure 2 between 1967 and 2006—a working life of 39 years. To find the worker’s AIME, each year of past earnings, except the last two, are scaled up - indexed - to reflect changes in average wages that have occurred over the course of the worker’s working life.³ Those “*wage-indexed earnings*” are shown on the red line in Figure 2.



For our hypothetical worker’s AIME computation, the SSA indexes all but the last two years of earnings up to 2005 values. Earnings for 2005 and 2006 are not indexed. As an example of how the wage indexing is employed, the worker’s earnings of \$16,797 in 1985 dollars are scaled up by a factor of 2.1966. The factor 2.1966 means that average wages have a little more than doubled between 1985 and 2005. Taking into account that growth in wages, the worker’s 1985 earnings of \$16,797 of 1985 dollars are adjusted up to \$36,897

which is then used in the calculation of the worker’s AIME in 2007, when the worker is eligible for benefits.

The measure of average wages used by the SSA to determine the wage indexation factors is called the *average wage index*. That index is calculated from Internal Revenue Service records of payroll taxes, which are used in principle to fund Social Security benefits.

In determining the AIME for our hypothetical worker, the SSA picks out the highest 35 years of wage-indexed earnings for averaging. Our worker had 39 years of earnings, and the first four gave the lowest wage-indexed amounts. Consequently, the first four years of earnings (shown by red asterisks in Figure 2) are thrown out for purposes of calculating the worker’s AIME. The remaining 35 years of wage-indexed earnings (shown by the solid red line in Figure 2) are totaled and then divided by 420 (35 years times 12 months per year) to arrive at the average index of monthly earnings for our worker. The AIME for our worker depicted in Figure 2 works out to be \$3,091.

Wage Indexing is Used to Calculate the AIME and PIA; Price Indexing is Used to Adjust Benefits During Retirement

If our hypothetical worker retires at the normal retirement age of 66 (for someone born in 1945), the monthly benefit received in the last half of 2011 will be the PIA amount of \$1383.50 plus an

³ The maximum amount of wages that may be indexed for purposes of calculating a worker’s AIME is equal to the taxable maximum in a given year. In the case of a worker who earned \$150,000 in 1990, only \$51,300 of earnings – the taxable maximum in 1990 – would be indexed and counted in determining the worker’s AIME.

adjustment for price inflation that occurred between 2007, when benefits were first calculated, and 2011. Over the course of the worker's retirement years, the monthly benefit is indexed to consumer prices.⁴ This monthly benefit grows to preserve purchasing power over time. If annual inflation in consumer prices facing a typical wage earner is a steady 2% beyond 2011, for example, then the worker's Social Security retirement benefit will also grow by 2% in years beyond 2011. Price indexing is used to adjust benefits during retirement. Wage indexing is used to calculate workers' Social Security benefits in the years that they become eligible for benefits.

Wage Indexing and Price Indexing of Past Wages

Wage indexation of past earnings, used to determine a worker's AIME and PIA, is different from indexing for price inflation. Had our hypothetical worker's past wages been adjusted to reflect changes over time in the purchasing power of money (i.e. changes in *consumer prices*), then earnings would have been adjusted to keep pace with past inflation in prices of goods and services rather than to past changes in wages.

Adjusting our hypothetical worker's wages using price indexation, rather than wage indexation, gives a pattern of "*price-indexed earnings*" on the green line in Figure 2. For example, the worker's \$16,797 of 1985-dollar earnings would be increased by a factor of 1.81 to reflect changes in the prices of goods and services that took place between 1985 and 2005. Those price-indexed earnings for 1985 amount to \$30,481 expressed in 2005 dollars.⁵ In contrast, the wage-indexed earnings for 1985 amount to \$36,897 in 2005 wages.

Wage-indexed earnings tend to be larger than price-indexed earnings because wages typically grow faster than prices. Wages tend to grow faster than prices because of advances in productivity—the amount of goods and services a worker produces per hour of work. Productivity advances lead to increases in standards of living over time. Indexing a worker's past wages to wage growth that occurred over the worker's lifetime effectively credits the worker with past gains in productivity and living standards that occurred after the worker produced and earned wages and salaries.

It was relatively easy in the past to give credit to retiring workers for advances in productivity that occurred after they recorded their earnings because of favorable demographics. With a large number of payroll-tax-paying workers per Social Security recipient, receipts of the Social Security system have generally been more than sufficient to finance benefit payments on a pay-as-you-go basis. Pay-as-you-go refers to the past and current practice of funding benefit payments to current retirees with payroll tax receipts from current workers. However, demographics will shift considerably in the near future, making it particularly difficult to sustain a pay-as-you-go system. For example, with the large wave of baby boomers soon to enter their retirement years, there will be fewer and fewer payroll-tax-paying workers per Social Security benefit recipient. This means that it will become increasingly difficult to continue to credit retiring workers with past gains in productivity and living standards without significant changes to the system's structure.

⁴ Since June 1975, cost of living adjustments (COLAs) have been based on increases in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W), compiled by the Bureau of Labor Statistics.

⁵ This calculation utilizes the CPI-U (Consumer Price Index – All Urban Consumers) as the measure of price inflation.