# MONEY'S WORTH RATIOS UNDER THE OASDI PROGRAM FOR HYPOTHETICAL WORKERS

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## Introduction

This note presents analysis of theoretical money's worth ratios for hypothetical workers with various earnings patterns and levels under the Old-Age, Survivors, and Disability Insurance (OASDI) program.[1] The money's worth ratio is the ratio of present value of expected benefits to the present value of expected payroll taxes (contributions)[2] for an individual or a cohort of workers. A value of greater than one for this ratio indicates that, on a present value basis, more money will be received in benefits than will be paid in payroll taxes over the lifetime of that individual or cohort. For a group of workers and their dependents, money's worth ratios attempt to answer the question: How do benefits compare to payroll tax contributions? In other words, do particular individuals or groups get their "money's worth"?[3]

All estimates in this note use the methods and assumptions from the intermediate scenario of the 2012 Trustees Report. Tables 1 through 6 present money's worth ratios for hypothetical scaled workers who differ by year of birth, earnings level, and family grouping. Tables 1 and 4 show the money's worth ratios for the ***Present Law Scheduled*** scenario, which uses contributions and benefits scheduled under present law. Because projected scheduled income will not fully finance scheduled benefits for the OASDI program after 2032, we include two additional scenarios described below.

- ***Increased Payroll Tax*** - Increase payroll-tax rates above those scheduled in current law for each year after 2032, such that total program income finances fully the benefits scheduled in present law for each year. Tables 2 and 5 present the money's worth ratios for this scenario.

- ***Payable Benefits*** - Reduce benefits below those scheduled in present law by a specified percentage for each year after 2032, such that present-law program income is sufficient to pay the resulting benefits. Tables 3 and 6 present the money's worth ratios for this scenario.

Because the OASDI program has operated on a largely pay-as-you-go (PAYGO) basis, the level of contributions for each generation of workers does not directly relate to the benefits these workers will receive. Under a PAYGO plan, benefit levels do not depend on the accumulation of individual contributions, as in a defined contribution plan, nor do annual contributions depend on scheduled future benefits of current workers and beneficiaries, as in an advance-funded defined benefit plan. Rather, the total benefits paid in a year determine the combined amount that workers and employers need to contribute to fund the system for that year.

Thus, money's worth ratios for a PAYGO-financed benefit program reflect only theoretical values for contributions on a cohort basis. Payments to beneficiaries each year, in comparison to the total cost of (or resources used by) the program for that year, determine the real value of benefits under a PAYGO social insurance program. On this basis, with current administrative expenses of about 1 percent of total program cost, the real value of OASDI benefits is extraordinarily high.

Money's worth ratios do not reflect the value of reducing the risk to individuals for extreme outcomes, such as death or disability at very young ages or survival to very old ages. In addition, OASDI money's worth ratios do not compare adequately with similar ratios from private-sector plans, because many features of OASDI benefits are not typically available in private-sector plans. Two such features are annual cost-of-living adjustments and benefits for life in the event of disability. However, money's worth ratio analysis does indicate the relative value of benefits that the OASDI program provides across generations and types of workers.

This note presents hypothetical workers with four different levels of *scaled* pre-retirement earnings patterns.[4] A worker with a *scaled* earnings pattern has earnings that

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[1] Money's worth ratios are highly theoretical measures that in fact are not directly related to a pay-as-you-go financed benefit program, as discussed later in this section.

[2] Payroll taxes include any amounts transferred from the General Fund of the Treasury to substitute for employee/employer contributions, such as the 2 percent employee payroll tax reduction in 2011 and 2012 under Public Laws 111-312, 112-78, and 112-96.

[3] Because the OASDI Trust Funds receive transfers from the General Fund of the Treasury equal to a portion of taxes on benefits, money's worth ratios that ignore these transfers may arguably overstate the ratio. Due to the difficulty of determining the level of income tax on benefits, this factor is not addressed in this note.

[4] Additional details on developing scaled earnings patterns appear in recurring Actuarial Note 2012.3, at:
http://www.socialsecurity.gov/OACT/NOTES/ran3/an2012-3.html.

vary with age as a percentage of the national average wage index (AWI). The scaled worker enters the labor force at age 21 and retires at age 65. The scaled earnings level at each age reflects both the average earnings level of workers at that age and the percentage of individuals at that age who work. In addition to the scaled workers, this note presents a hypothetical steady maximum worker who has earnings at or above the OASDI contribution and benefit base for each year from age 22 to retirement at age 65.

The Office of the Chief Actuary (OCACT) has been producing theoretical money's worth ratios for a number of years, including for the 1994-96 Advisory Council Report on Social Security.[5] OCACT based the analyses in the 1994-96 Advisory Council report on hypothetical workers with *steady* earnings patterns, that is, workers with earnings that are a constant percentage of the AWI for each year of work. OCACT first introduced non-steady hypothetical workers, referred to as scaled workers, in Actuarial Note #144 in 2001.[6] Other authors have addressed alternative approaches to considering non-steady earnings histories, and we recognize that a broader set of earnings patterns may provide additional insights into the distributions of benefits payable and money's worth ratios under the OASDI program. However, for the sake of practicality, we limit the number of cases considered in this note.

## Methodology and Assumptions

This note presents theoretical money's worth ratios for three hypothetical scenarios of the OASDI program: *Present Law Scheduled, Increased Payroll Tax,* and *Payable Benefits.* The *Present Law Scheduled* scenario utilizes the taxes and benefits specified in present law, even though projected program income and assets under present law are inadequate to pay all benefits through the 75-year projection period.

The *Increased Payroll Tax* scenario raises payroll-tax rates, beginning with the year of Trust Fund reserve depletion, to finance scheduled benefits fully in every

year. The payroll-tax rate increases from the present law amount of 12.4 percent beginning in 2033. The payroll-tax rate increases to 16.54 percent for 2034 and continues to increase year-by-year, reaching 16.89 percent for 2086. Under this scenario, the payroll-tax rate increases further after 2086 due to continuing increases in life expectancy.

Under the third scenario, *Payable Benefits*, payroll-tax rates hold constant while benefits decrease for each year after Trust Fund reserve depletion so that, for the Trust Funds as a whole, benefits paid equal taxes received. The reductions from scheduled levels apply equally proportionally to all types of benefits paid during the year. The intermediate projections of the 2012 Trustees Report show that program income does not fully pay scheduled benefits in 2033 and later. Thus, for the *Payable Benefits* scenario, annual benefit reductions begin in 2033 and generally increase each year thereafter. Projected program income, using present-law tax rates, pays 75.1 percent of scheduled benefits in 2034 and 73.3 percent of scheduled benefits in 2086. Under this scenario, annual reductions in the benefits continue to grow after 2086 due to continuing increases in life expectancy.

The four earnings patterns for the hypothetical scaled workers reflect very low, low, medium, and high career-average levels of pre-retirement earnings patterns starting at age 21. OCACT sets the career-average level of earnings for these workers at a specified percent of the AWI. For the scaled medium earner, the career-average level of earnings is approximately equal to the AWI. For the scaled very low, low, and high earners, the career-average level of earnings is approximately equal to 25, 45, and 160 percent of the AWI, respectively.

Table A compares overall earnings for these hypothetical workers to those of actual retiring workers. We use the Average Indexed Monthly Earnings[7] (AIME), which is based on a worker's earnings, as a measure of overall earnings. We develop the distribution of actual workers retiring in 2011 from a one–percent sample of Social Security administrative records.

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[5] The final report is located at the following internet address:
http://www.socialsecurity.gov/history/reports/adcouncil/report/toc.htm
[6] This note appears at the following internet address:
http://www.socialsecurity.gov/OACT/NOTES/note2000s/note144.html.

[7] See http://www.socialsecurity.gov/OACT/COLA/Benefits.html#aime for more details on how to calculate the AIME.

**Table A.—Distribution of AIMEs of Actual Workers Retiring in 2011,
Compared to AIMEs for Hypothetical Workers Retiring in 2011**

| Hypothetical worker[1] (Career-average earnings)[2] | Percent with AIME less than AIME for hypothetical case | | | Percent with AIME closest to AIME for hypothetical case[3] | | |
|---|---|---|---|---|---|---|
| | All males | All females | Total, all workers | All males | All females | Total, all workers |
| Very Low  ($10,413) . . . . . . . . . . . . . | 7.1 | 17.6 | 12.2 | 11.5 | 27.0 | 18.9 |
| Low        ($18,744) . . . . . . . . . . . . . | 15.4 | 35.7 | 25.2 | 15.0 | 31.1 | 22.7 |
| Medium   ($41,655) . . . . . . . . . . . . | 39.4 | 74.7 | 56.4 | 28.7 | 28.6 | 28.7 |
| High        ($66,648) . . . . . . . . . . . . | 69.8 | 93.8 | 81.3 | 29.5 | 11.5 | 20.8 |
| Maximum ($97,322) . . . . . . . . . . . . | 100 | 100 | 100 | 15.4 | 1.9 | 8.9 |

[1] See text for definitions of hypothetical workers.

[2] Career-average earnings of hypothetical scaled workers retiring at age 62 in 2011. Earnings are wage indexed to 2010 in this calculation.

[3] Rounded values do not necessarily sum to 100 percent.

Note: Worker distributions include individuals who are dually entitled, or may become dually entitled to a higher benefit in the future, based on another worker's account. A significant proportion of entitled female workers, especially those with lower earnings, will receive higher benefits as aged spouse or aged widow beneficiaries. If such dually entitled workers were excluded from this analysis, the distributions would be skewed more toward the higher-level hypothetical workers.

This note groups the hypothetical workers into four categories: single males, single females, one-earner couples where only the husband is employed, and two-earner couples. The note presents the single-earner and one-earner couple examples for the four earnings patterns listed above as well as for the hypothetical steady maximum worker. In addition, the note presents the two-earner couples at seven earnings combinations as follows:

(1) Husband high, wife high;

(2) Husband high, wife medium;

(3) Husband medium, wife medium;

(4) Husband medium, wife low;

(5) Husband low, wife low;

(6) Husband low, wife very low; and

(7) Husband very low, wife very low.

We assume that each scaled worker is born on January 2 and starts working on his/her 21st birthday.[8] The wife and husband of each couple have the same date of birth. Each marriage occurs on the joint 22nd birthday of the wife and husband and continues for life. Assuming that marriages are life-long means that the calculated money's worth ratios do not reflect the effects of divorce and of remarriage after death or divorce. However, because each individual may receive a total benefit equal only to the highest of any spouse, widow(er), or worker benefit that may be available, this omission has only a minor consequence. We assume that the couples have two children, one on the joint 27th birthday of the wife and husband, and the other on the joint 29th birthday of the wife and husband. We consider all types of retirement, disability, and survivor benefits, except for benefits to student children, disabled-adult children, and parents based on caring for a disabled-adult child. Omission of these benefits results in a very small understatement of the theoretical money's worth ratio.

We assume that all nondisabled, surviving workers retire at age 65. We assume no mortality for children through age 18 in this analysis. The interest rates used in these computations are the effective interest rates earned by the assets of the combined OASI and DI Trust Funds for past years and those projected for future years. Table B shows these interest rates.

[8] The maximum steady worker is assumed to be born on January 2 and to start working on his/her 22nd birthday.

**Table B.—Effective Nominal and Real Interest Rates Earned by the Combined OASI and DI Trust Funds (percent)**

| Year | Effective nominal interest rate | Effective real interest rate | Year | Effective nominal interest rate | Effective real interest rate |
|------|------|------|------|------|------|
| 1941 | 2.4 | -2.4 | 1984 | 11.6 | 7.9 |
| 1942 | 2.3 | -7.9 | 1985 | 11.2 | 7.4 |
| 1943 | 2.1 | -3.7 | 1986 | 11.1 | 9.4 |
| 1944 | 2.0 | 0.4 | 1987 | 10.1 | 6.3 |
| 1945 | 2.1 | -0.2 | 1988 | 9.8 | 5.6 |
| 1946 | 2.0 | -6.0 | 1989 | 9.6 | 4.6 |
| 1947 | 1.9 | -11.0 | 1990 | 9.3 | 3.8 |
| 1948 | 2.8 | -4.4 | 1991 | 9.1 | 4.9 |
| 1949 | 1.3 | 2.2 | 1992 | 8.7 | 5.7 |
| 1950 | 2.0 | 1.0 | 1993 | 8.3 | 5.3 |
| 1951 | 2.9 | -4.8 | 1994 | 8.0 | 5.4 |
| 1952 | 2.2 | -0.1 | 1995 | 7.8 | 4.9 |
| 1953 | 2.3 | 1.6 | 1996 | 7.6 | 4.6 |
| 1954 | 2.3 | 1.9 | 1997 | 7.5 | 5.2 |
| 1955 | 2.2 | 2.5 | 1998 | 7.2 | 5.8 |
| 1956 | 2.4 | 0.9 | 1999 | 6.9 | 4.6 |
| 1957 | 2.5 | -0.8 | 2000 | 6.9 | 3.3 |
| 1958 | 2.5 | -0.2 | 2001 | 6.6 | 3.8 |
| 1959 | 2.6 | 1.7 | 2002 | 6.4 | 5.0 |
| 1960 | 2.6 | 1.0 | 2003 | 6.0 | 3.7 |
| 1961 | 2.8 | 1.6 | 2004 | 5.7 | 3.0 |
| 1962 | 2.8 | 1.7 | 2005 | 5.5 | 1.9 |
| 1963 | 2.9 | 1.6 | 2006 | 5.3 | 2.0 |
| 1964 | 3.1 | 1.8 | 2007 | 5.3 | 2.3 |
| 1965 | 3.2 | 1.6 | 2008 | 5.1 | 1.0 |
| 1966 | 3.5 | 0.5 | 2009 | 4.9 | 5.6 |
| 1967 | 3.8 | 1.0 | 2010 | 4.6 | 2.5 |
| 1968 | 4.0 | -0.2 | 2011 | 4.4 | 0.7 |
| 1969 | 4.4 | -1.0 | 2012 | 4.2 | 2.1 |
| 1970 | 5.1 | -0.7 | 2013 | 4.0 | 2.0 |
| 1971 | 5.3 | 0.9 | 2014 | 3.9 | 1.9 |
| 1972 | 5.4 | 2.0 | 2015 | 4.0 | 1.8 |
| 1973 | 5.8 | -0.4 | 2016 | 4.0 | 1.7 |
| 1974 | 6.2 | -4.3 | 2017 | 4.1 | 1.6 |
| 1975 | 6.6 | -2.3 | 2018 | 4.2 | 1.6 |
| 1976 | 6.7 | 1.0 | 2019 | 4.3 | 1.5 |
| 1977 | 7.0 | 0.4 | 2020 | 4.4 | 1.5 |
| 1978 | 7.2 | -0.4 | 2021 | 4.5 | 1.6 |
| 1979 | 7.5 | -3.5 | 2022 | 4.7 | 1.9 |
| 1980 | 8.6 | -4.3 | 2023 | 5.0 | 2.1 |
| 1981 | 9.9 | -0.3 | 2024 | 5.2 | 2.4 |
| 1982 | 11.2 | 4.9 | 2025 | 5.5 | 2.6 |
| 1983 | 10.8 | 7.5 | 2026 and later | 5.8 | 2.9 |

## Analysis of Results

The following tables present the theoretical money's worth ratios. The tables facilitate comparison of ratios across different family groups, different years of birth, and different career-average levels of earnings.

Tables 1 through 6 present results for single males, single females, one-earner couples, and two-earner couples under the following three OASDI program scenarios:

- *Present Law Scheduled,*

- *Increased Payroll Tax,* and

- *Payable Benefits.*

For each sex, family grouping, and year-of-birth cohort, the money's worth ratios decrease as earnings increase. This decrease occurs because the benefit formula replaces a higher proportion of career-average earnings for beneficiaries with lower earnings. The advantage for lower earners is partially offset by their lower life expectancy.[9] Females have lower mortality than males, resulting in higher likelihood of surviving to retirement age, longer life after retirement, and therefore higher ratios, even when earnings levels are the same. The one-earner couples have the highest ratios because of the auxiliary spouse, child, and widow(er) benefits payable based on one earnings record.

For two-earner couples, the money's worth ratios often fall between the corresponding ratios for single male and single female workers. In tables 1, 2, and 3, where both spouses have the same earnings, the ratio for the two-earner couples is closer to the higher (female) single ratio because of the inclusion of child benefits not reflected for single cases. In tables 4, 5, and 6, where spouses have different earnings levels, the two-earner ratio is generally closer to the single female ratio, at the female's earnings level, because of the inclusion of child and surviving spouse benefits. For the cases presented in this note, the lower earner's (wife's) retired worker benefit is always more than half of her husband's, so no aged spouse's benefit is payable.

This note does not include cases where a single individual has children, an increasingly common occurrence. We believe that the ratio for such cases will fall between those for the single worker and one-earner couple.

Based on the rising tax rates for the OASDI program (combined employer and employee tax went from 2 percent in 1941 to 12.4 percent starting in 1990), and the declining relative value of benefits due to an increase in the normal retirement age, one might expect that the

money's worth ratio would decline steadily for later years of birth. In fact, every one of the combinations of sex, family groupings, and earnings levels shows substantial decreases in the money's worth ratios from the first to the fourth year-of-birth cohorts (1920, 1930, 1937, and 1943). However, increasing life expectancies, the start of disability benefits in 1957, and generally increasing disability rates since then, contribute toward higher money's worth ratios after the 1943 birth cohort. In addition, varying levels of interest rates affect the trend of money's worth ratios over time.

Interest rates and their relationship to the growth rates in the average wage level and the level of prices have specific and complicated implications for money's worth ratios. Effective interest rates earned by the trust funds remained below 3 percent from 1940 (when the trust funds began) through 1963. After 1963, they gradually increased to about 11 percent in the mid-1980s, and then gradually decreased to below 5 percent in 2011. Projected interest rates ultimately reach about 5.8 percent.

For the *Present Law Scheduled* scenario (tables 1 and 4), from the 1943 to the 1949 birth cohort, the money's worth ratios are generally stable. For these cohorts, improved mortality largely offsets increases in tax rates. For the 1949 birth cohort through the 1973 birth cohort, the money's worth ratios generally increase for all family groupings. As compared to the 1955 birth cohort, ratios for the 1964 birth cohort increase for all family groupings, despite an increase in the NRA, because of: (1) mortality improvements; and (2) the variation in interest rates that applied to these cohorts during the contribution and benefit payout periods. The ratios for the 1973 and later cohorts hold relatively stable, with decreases due to changes in interest rates roughly offsetting increases due to higher life expectancy.

For the *Increased Payroll Tax* scenario (tables 2 and 5), money's worth ratios for the first seven year-of-birth cohorts (from the 1920 through the 1964 cohort) are the same as for the *Present Law Scheduled* scenario (tables 1 and 4) for all family groupings and earnings levels. This occurs because each of these year-of-birth cohorts reaches age 65 prior to 2033, when the payroll tax rates for the *Increased Payroll Tax* scenario first depart from those scheduled in present law. From the 1964 to the 1973 cohort, money's worth ratios increase, but slightly less so than for the *Present Law Scheduled* scenario in all categories. After the 1973 birth cohort, however, the money's worth ratios decrease across the board for the *Increased Payroll Tax* scenario, because of increasing tax rates starting in 2033.

For the *Payable Benefits* scenario (tables 3 and 6), benefits decrease from those scheduled in present law beginning in 2033. For the 1920 through 1937 birth cohorts, only retired beneficiaries at very advanced ages are

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[9] While the rates in this note do not reflect any differences in mortality by earnings level, we recognize the tendency for higher paid earners to have greater life expectancy, which would offset, to some degree, the progressive nature of benefits on a lifetime basis.

affected and there is little significant change from the *Present Law Scheduled* scenario. The effects of Trust Fund reserve depletion, and resulting lower benefits payable after 2032, start to fully appear in the 1943 birth cohort. From the 1943 to the 1964 birth cohorts, the trends in money's worth ratios vary, with increases due to higher life expectancy competing against decreases due to reductions in benefits payable at older ages. Thereafter, the cumulative effect of reductions in benefits payable causes the money's worth ratios to generally decrease for all worker combinations and earnings levels.

## Conclusion

This note presents theoretical money's worth ratios over time for various illustrative demographic groups and earnings levels. We could have used a variety of other approaches, methods, and assumptions in this type of analysis. However, these hypothetical examples provide useful insight into how individual and cohort money's worth ratios vary across generations, and within generations by sex, earnings level and pattern, and family grouping.

It is important to keep the significance of the money's worth ratio in proper perspective. A higher ratio does not necessarily mean a higher monthly benefit, even for two individuals with the same earnings. As one example, consider a man and a woman with the same earnings. A woman born in 1975 may expect to live 22.4 years on average after reaching age 65. Her male counterpart born in 1975 may expect to live 20.6 years on average after reaching age 65. Her expected number of years of life after age 65 exceeds his by 9 percent, and, as a result, her money's worth ratio is considerably higher than his. However, the monthly benefit she receives is exactly the same as he receives. Her higher money's worth ratio derives solely from her longer expected lifetime.

Based on the provisions for benefits in the Social Security Act that have evolved since 1935, a primary goal of the OASDI program is to provide monthly benefit levels with a mix of equity (higher benefits for higher earners/ contributors) and adequacy (replacement of a larger portion of pre-retirement earnings for lower earners). The program's goal is not to provide similar lifetime benefits or money's worth ratios across earnings levels and family groupings.

Money's worth ratios for a PAYGO-financed benefit program reflect only theoretical values for contributions on a cohort basis. Payments to beneficiaries each year, in comparison to the total cost of (or resources used by) the program for that year, determine the real value of benefits under a PAYGO social insurance program. On this basis, with current administrative expenses of about 1 percent of total program cost, the real value of OASDI benefits is extraordinarily high.

**Table 1.—Money's Worth Ratios for Various Earning Level Scaled Workers**
OASDI Program—*Present Law Scheduled Scenario*
(Percent)

| Earnings level | Year of birth | Year attains age 65 | Single male | Single female | One-earner couple | Two-earner couple |
|---|---|---|---|---|---|---|
| | 1920 | 1985 | 2.52 | 3.07 | 5.55 | 2.92 |
| | 1930 | 1995 | 1.57 | 1.83 | 3.32 | 1.82 |
| | 1937 | 2002 | 1.45 | 1.63 | 2.99 | 1.68 |
| | 1943 | 2008 | 1.33 | 1.48 | 2.70 | 1.52 |
| | 1949 | 2014 | 1.36 | 1.51 | 2.70 | 1.52 |
| Very Low | 1955 | 2020 | 1.46 | 1.64 | 2.83 | 1.61 |
| | 1964 | 2029 | 1.63 | 1.81 | 3.04 | 1.77 |
| | 1973 | 2038 | 1.71 | 1.91 | 3.13 | 1.86 |
| | 1985 | 2050 | 1.71 | 1.87 | 3.05 | 1.83 |
| | 1997 | 2062 | 1.68 | 1.82 | 2.96 | 1.79 |
| | 2004 | 2069 | 1.70 | 1.84 | 2.97 | 1.80 |
| | 1920 | 1985 | 2.01 | 2.45 | 4.39 | 2.33 |
| | 1930 | 1995 | 1.16 | 1.34 | 2.45 | 1.35 |
| | 1937 | 2002 | 1.05 | 1.19 | 2.19 | 1.23 |
| | 1943 | 2008 | 0.97 | 1.08 | 1.97 | 1.11 |
| | 1949 | 2014 | 0.99 | 1.10 | 1.98 | 1.11 |
| Low | 1955 | 2020 | 1.07 | 1.19 | 2.07 | 1.18 |
| | 1964 | 2029 | 1.19 | 1.32 | 2.23 | 1.31 |
| | 1973 | 2038 | 1.25 | 1.39 | 2.29 | 1.37 |
| | 1985 | 2050 | 1.25 | 1.37 | 2.24 | 1.35 |
| | 1997 | 2062 | 1.23 | 1.33 | 2.18 | 1.32 |
| | 2004 | 2069 | 1.24 | 1.34 | 2.18 | 1.33 |
| | 1920 | 1985 | 1.38 | 1.68 | 3.04 | 1.60 |
| | 1930 | 1995 | 0.85 | 0.99 | 1.83 | 1.00 |
| | 1937 | 2002 | 0.78 | 0.88 | 1.65 | 0.92 |
| | 1943 | 2008 | 0.71 | 0.80 | 1.48 | 0.83 |
| | 1949 | 2014 | 0.73 | 0.81 | 1.48 | 0.83 |
| Medium | 1955 | 2020 | 0.79 | 0.88 | 1.55 | 0.88 |
| | 1964 | 2029 | 0.88 | 0.98 | 1.67 | 0.97 |
| | 1973 | 2038 | 0.92 | 1.03 | 1.71 | 1.02 |
| | 1985 | 2050 | 0.92 | 1.01 | 1.67 | 1.01 |
| | 1997 | 2062 | 0.91 | 0.98 | 1.62 | 0.98 |
| | 2004 | 2069 | 0.92 | 0.99 | 1.63 | 0.99 |
| | 1920 | 1985 | 1.24 | 1.50 | 2.72 | 1.43 |
| | 1930 | 1995 | 0.74 | 0.86 | 1.59 | 0.87 |
| | 1937 | 2002 | 0.66 | 0.74 | 1.39 | 0.77 |
| | 1943 | 2008 | 0.59 | 0.66 | 1.23 | 0.69 |
| | 1949 | 2014 | 0.61 | 0.68 | 1.23 | 0.69 |
| High | 1955 | 2020 | 0.65 | 0.73 | 1.29 | 0.73 |
| | 1964 | 2029 | 0.73 | 0.81 | 1.38 | 0.81 |
| | 1973 | 2038 | 0.77 | 0.86 | 1.42 | 0.85 |
| | 1985 | 2050 | 0.77 | 0.84 | 1.39 | 0.84 |
| | 1997 | 2062 | 0.75 | 0.82 | 1.35 | 0.82 |
| | 2004 | 2069 | 0.76 | 0.82 | 1.35 | 0.83 |
| | 1920 | 1985 | 1.12 | 1.35 | 2.45 | 1.29 |
| | 1930 | 1995 | 0.66 | 0.77 | 1.41 | 0.77 |
| | 1937 | 2002 | 0.59 | 0.66 | 1.23 | 0.69 |
| | 1943 | 2008 | 0.52 | 0.58 | 1.06 | 0.59 |
| | 1949 | 2014 | 0.50 | 0.55 | 1.00 | 0.56 |
| Maximum[1] | 1955 | 2020 | 0.50 | 0.56 | 0.98 | 0.56 |
| | 1964 | 2029 | 0.53 | 0.59 | 1.01 | 0.59 |
| | 1973 | 2038 | 0.57 | 0.64 | 1.06 | 0.63 |
| | 1985 | 2050 | 0.57 | 0.63 | 1.04 | 0.63 |
| | 1997 | 2062 | 0.56 | 0.61 | 1.00 | 0.61 |
| | 2004 | 2069 | 0.56 | 0.61 | 1.00 | 0.61 |

[1] Other earnings levels shown in this table are more representative of individuals' actual earnings histories (see table A).

Note: 2012 Trustees Report Intermediate Assumptions

Actuarial Note No. 2012.7
Office of the Chief Actuary,
Social Security Administration
March 2013

| Earnings level | Year of birth | Year attains age 65 | Single male | Single female | One-earner couple | Two-earner couple |
|---|---|---|---|---|---|---|
| | 1920 | 1985 | 2.52 | 3.07 | 5.55 | 2.92 |
| | 1930 | 1995 | 1.57 | 1.83 | 3.32 | 1.82 |
| | 1937 | 2002 | 1.45 | 1.63 | 2.99 | 1.68 |
| | 1943 | 2008 | 1.33 | 1.48 | 2.70 | 1.52 |
| | 1949 | 2014 | 1.36 | 1.51 | 2.70 | 1.52 |
| Very Low | 1955 | 2020 | 1.46 | 1.64 | 2.83 | 1.61 |
| | 1964 | 2029 | 1.63 | 1.81 | 3.04 | 1.77 |
| | 1973 | 2038 | 1.68 | 1.87 | 3.07 | 1.82 |
| | 1985 | 2050 | 1.55 | 1.70 | 2.78 | 1.67 |
| | 1997 | 2062 | 1.40 | 1.52 | 2.47 | 1.49 |
| | 2004 | 2069 | 1.34 | 1.46 | 2.35 | 1.43 |
| | 1920 | 1985 | 2.01 | 2.45 | 4.39 | 2.33 |
| | 1930 | 1995 | 1.16 | 1.34 | 2.45 | 1.35 |
| | 1937 | 2002 | 1.05 | 1.19 | 2.19 | 1.23 |
| | 1943 | 2008 | 0.97 | 1.08 | 1.97 | 1.11 |
| | 1949 | 2014 | 0.99 | 1.10 | 1.98 | 1.11 |
| Low | 1955 | 2020 | 1.07 | 1.19 | 2.07 | 1.18 |
| | 1964 | 2029 | 1.19 | 1.32 | 2.23 | 1.31 |
| | 1973 | 2038 | 1.23 | 1.37 | 2.25 | 1.34 |
| | 1985 | 2050 | 1.13 | 1.24 | 2.04 | 1.23 |
| | 1997 | 2062 | 1.02 | 1.11 | 1.81 | 1.10 |
| | 2004 | 2069 | 0.98 | 1.06 | 1.73 | 1.06 |
| | 1920 | 1985 | 1.38 | 1.68 | 3.04 | 1.60 |
| | 1930 | 1995 | 0.85 | 0.99 | 1.83 | 1.00 |
| | 1937 | 2002 | 0.78 | 0.88 | 1.65 | 0.92 |
| | 1943 | 2008 | 0.71 | 0.80 | 1.48 | 0.83 |
| | 1949 | 2014 | 0.73 | 0.81 | 1.48 | 0.83 |
| Medium | 1955 | 2020 | 0.79 | 0.88 | 1.55 | 0.88 |
| | 1964 | 2029 | 0.88 | 0.98 | 1.67 | 0.97 |
| | 1973 | 2038 | 0.91 | 1.01 | 1.68 | 1.00 |
| | 1985 | 2050 | 0.84 | 0.92 | 1.52 | 0.92 |
| | 1997 | 2062 | 0.76 | 0.82 | 1.35 | 0.82 |
| | 2004 | 2069 | 0.73 | 0.79 | 1.29 | 0.79 |
| | 1920 | 1985 | 1.24 | 1.50 | 2.72 | 1.43 |
| | 1930 | 1995 | 0.74 | 0.86 | 1.59 | 0.87 |
| | 1937 | 2002 | 0.66 | 0.74 | 1.39 | 0.77 |
| | 1943 | 2008 | 0.59 | 0.66 | 1.23 | 0.69 |
| | 1949 | 2014 | 0.61 | 0.68 | 1.23 | 0.69 |
| High | 1955 | 2020 | 0.65 | 0.73 | 1.29 | 0.73 |
| | 1964 | 2029 | 0.73 | 0.81 | 1.38 | 0.81 |
| | 1973 | 2038 | 0.75 | 0.84 | 1.39 | 0.83 |
| | 1985 | 2050 | 0.70 | 0.76 | 1.26 | 0.76 |
| | 1997 | 2062 | 0.63 | 0.68 | 1.12 | 0.68 |
| | 2004 | 2069 | 0.60 | 0.65 | 1.07 | 0.65 |
| | 1920 | 1985 | 1.12 | 1.35 | 2.45 | 1.29 |
| | 1930 | 1995 | 0.66 | 0.77 | 1.41 | 0.77 |
| | 1937 | 2002 | 0.59 | 0.66 | 1.23 | 0.69 |
| | 1943 | 2008 | 0.52 | 0.58 | 1.06 | 0.59 |
| | 1949 | 2014 | 0.50 | 0.55 | 1.00 | 0.56 |
| Maximum[1] | 1955 | 2020 | 0.50 | 0.56 | 0.98 | 0.56 |
| | 1964 | 2029 | 0.53 | 0.59 | 1.01 | 0.59 |
| | 1973 | 2038 | 0.56 | 0.62 | 1.03 | 0.62 |
| | 1985 | 2050 | 0.52 | 0.58 | 0.95 | 0.58 |
| | 1997 | 2062 | 0.47 | 0.51 | 0.85 | 0.52 |
| | 2004 | 2069 | 0.45 | 0.49 | 0.81 | 0.49 |

[1] Other earnings levels shown in this table are more representative of individuals' actual earnings histories (see table A).

Note: 2012 Trustees Report Intermediate Assumptions

Actuarial Note No. 2012.7
Office of the Chief Actuary,
Social Security Administration
March 2013

**Table 3.—Money's Worth Ratios for Various Earning Level Scaled Workers**
OASDI Program--*Payable Benefits Scenario*
(Percent)

| Earnings level | Year of birth | Year attains age 65 | Single male | Single female | One-earner couple | Two-earner couple |
|---|---|---|---|---|---|---|
| | 1920 | 1985 | 2.52 | 3.07 | 5.55 | 2.92 |
| | 1930 | 1995 | 1.57 | 1.83 | 3.32 | 1.82 |
| | 1937 | 2002 | 1.44 | 1.63 | 2.99 | 1.68 |
| | 1943 | 2008 | 1.32 | 1.46 | 2.67 | 1.50 |
| | 1949 | 2014 | 1.32 | 1.46 | 2.61 | 1.47 |
| Very Low | 1955 | 2020 | 1.36 | 1.52 | 2.61 | 1.50 |
| | 1964 | 2029 | 1.38 | 1.53 | 2.54 | 1.51 |
| | 1973 | 2038 | 1.35 | 1.51 | 2.52 | 1.49 |
| | 1985 | 2050 | 1.32 | 1.44 | 2.38 | 1.43 |
| | 1997 | 2062 | 1.27 | 1.38 | 2.24 | 1.35 |
| | 2004 | 2069 | 1.27 | 1.37 | 2.21 | 1.34 |
| | 1920 | 1985 | 2.01 | 2.45 | 4.39 | 2.33 |
| | 1930 | 1995 | 1.16 | 1.34 | 2.45 | 1.35 |
| | 1937 | 2002 | 1.05 | 1.19 | 2.19 | 1.23 |
| | 1943 | 2008 | 0.96 | 1.06 | 1.95 | 1.10 |
| | 1949 | 2014 | 0.96 | 1.06 | 1.91 | 1.08 |
| Low | 1955 | 2020 | 1.00 | 1.11 | 1.92 | 1.10 |
| | 1964 | 2029 | 1.01 | 1.12 | 1.87 | 1.12 |
| | 1973 | 2038 | 0.99 | 1.10 | 1.85 | 1.10 |
| | 1985 | 2050 | 0.96 | 1.06 | 1.75 | 1.06 |
| | 1997 | 2062 | 0.93 | 1.01 | 1.65 | 1.00 |
| | 2004 | 2069 | 0.93 | 1.00 | 1.63 | 0.99 |
| | 1920 | 1985 | 1.38 | 1.68 | 3.04 | 1.60 |
| | 1930 | 1995 | 0.85 | 0.99 | 1.83 | 1.00 |
| | 1937 | 2002 | 0.78 | 0.88 | 1.65 | 0.92 |
| | 1943 | 2008 | 0.71 | 0.79 | 1.46 | 0.82 |
| | 1949 | 2014 | 0.71 | 0.78 | 1.43 | 0.80 |
| Medium | 1955 | 2020 | 0.74 | 0.82 | 1.43 | 0.82 |
| | 1964 | 2029 | 0.75 | 0.83 | 1.40 | 0.83 |
| | 1973 | 2038 | 0.73 | 0.81 | 1.38 | 0.82 |
| | 1985 | 2050 | 0.71 | 0.78 | 1.31 | 0.79 |
| | 1997 | 2062 | 0.68 | 0.74 | 1.23 | 0.74 |
| | 2004 | 2069 | 0.68 | 0.74 | 1.21 | 0.74 |
| | 1920 | 1985 | 1.24 | 1.50 | 2.72 | 1.43 |
| | 1930 | 1995 | 0.74 | 0.86 | 1.59 | 0.87 |
| | 1937 | 2002 | 0.66 | 0.74 | 1.39 | 0.77 |
| | 1943 | 2008 | 0.59 | 0.66 | 1.21 | 0.68 |
| | 1949 | 2014 | 0.59 | 0.65 | 1.18 | 0.67 |
| High | 1955 | 2020 | 0.61 | 0.68 | 1.19 | 0.68 |
| | 1964 | 2029 | 0.62 | 0.69 | 1.16 | 0.69 |
| | 1973 | 2038 | 0.61 | 0.68 | 1.15 | 0.69 |
| | 1985 | 2050 | 0.59 | 0.65 | 1.09 | 0.66 |
| | 1997 | 2062 | 0.57 | 0.62 | 1.02 | 0.62 |
| | 2004 | 2069 | 0.57 | 0.61 | 1.01 | 0.62 |
| | 1920 | 1985 | 1.12 | 1.35 | 2.45 | 1.29 |
| | 1930 | 1995 | 0.66 | 0.77 | 1.41 | 0.77 |
| | 1937 | 2002 | 0.59 | 0.66 | 1.23 | 0.68 |
| | 1943 | 2008 | 0.51 | 0.57 | 1.05 | 0.59 |
| | 1949 | 2014 | 0.48 | 0.53 | 0.97 | 0.55 |
| Maximum[1] | 1955 | 2020 | 0.46 | 0.51 | 0.90 | 0.52 |
| | 1964 | 2029 | 0.45 | 0.50 | 0.85 | 0.51 |
| | 1973 | 2038 | 0.45 | 0.50 | 0.86 | 0.51 |
| | 1985 | 2050 | 0.44 | 0.49 | 0.82 | 0.50 |
| | 1997 | 2062 | 0.42 | 0.46 | 0.76 | 0.46 |
| | 2004 | 2069 | 0.42 | 0.45 | 0.75 | 0.46 |

[1] Other earnings levels shown in this table are more representative of individuals' actual earnings histories (see table A).

Note: 2012 Trustees Report Intermediate Assumptions

**Table 4.—Money's Worth Ratios for Scaled Two-Earner Couples with Selected Earnings Levels**
OASDI Program—*Present Law Scheduled Scenario*
(Percent)

| Year of birth | Year attains age 65 | H: very low W: very low | H: low W: very low | H: low W: low | H: med W: low | H: med W: med | H: high W: med | H: high W: high |
|---|---|---|---|---|---|---|---|---|
| 1920 | 1985 | 2.92 | 2.71 | 2.33 | 1.97 | 1.60 | 1.55 | 1.43 |
| 1930 | 1995 | 1.82 | 1.59 | 1.35 | 1.22 | 1.00 | 0.96 | 0.87 |
| 1937 | 2002 | 1.68 | 1.45 | 1.23 | 1.12 | 0.92 | 0.87 | 0.77 |
| 1943 | 2008 | 1.52 | 1.31 | 1.11 | 1.00 | 0.83 | 0.78 | 0.69 |
| 1949 | 2014 | 1.52 | 1.32 | 1.11 | 1.01 | 0.83 | 0.78 | 0.69 |
| 1955 | 2020 | 1.61 | 1.39 | 1.18 | 1.06 | 0.88 | 0.82 | 0.73 |
| 1964 | 2029 | 1.77 | 1.53 | 1.31 | 1.16 | 0.97 | 0.90 | 0.81 |
| 1973 | 2038 | 1.86 | 1.59 | 1.37 | 1.21 | 1.02 | 0.95 | 0.85 |
| 1985 | 2050 | 1.83 | 1.57 | 1.35 | 1.19 | 1.01 | 0.93 | 0.84 |
| 1997 | 2062 | 1.79 | 1.53 | 1.32 | 1.16 | 0.98 | 0.91 | 0.82 |
| 2004 | 2069 | 1.80 | 1.54 | 1.33 | 1.17 | 0.99 | 0.92 | 0.83 |

Note: 2012 Trustees Report Intermediate Assumptions


**Table 5.—Money's Worth Ratios for Scaled Two-Earner Couples with Selected Earnings Levels**
OASDI Program—*Increased Payroll Tax Scenario*
(Percent)

| Year of birth | Year attains age 65 | H: very low W: very low | H: low W: very low | H: low W: low | H: med W: low | H: med W: med | H: high W: med | H: high W: high |
|---|---|---|---|---|---|---|---|---|
| 1920 | 1985 | 2.92 | 2.71 | 2.33 | 1.97 | 1.60 | 1.55 | 1.43 |
| 1930 | 1995 | 1.82 | 1.59 | 1.35 | 1.22 | 1.00 | 0.96 | 0.87 |
| 1937 | 2002 | 1.68 | 1.45 | 1.23 | 1.12 | 0.92 | 0.87 | 0.77 |
| 1943 | 2008 | 1.52 | 1.31 | 1.11 | 1.00 | 0.83 | 0.78 | 0.69 |
| 1949 | 2014 | 1.52 | 1.32 | 1.11 | 1.01 | 0.83 | 0.78 | 0.69 |
| 1955 | 2020 | 1.61 | 1.39 | 1.18 | 1.06 | 0.88 | 0.82 | 0.73 |
| 1964 | 2029 | 1.77 | 1.53 | 1.31 | 1.16 | 0.97 | 0.90 | 0.81 |
| 1973 | 2038 | 1.82 | 1.56 | 1.34 | 1.19 | 1.00 | 0.93 | 0.83 |
| 1985 | 2050 | 1.67 | 1.43 | 1.23 | 1.08 | 0.92 | 0.85 | 0.76 |
| 1997 | 2062 | 1.49 | 1.28 | 1.10 | 0.97 | 0.82 | 0.76 | 0.68 |
| 2004 | 2069 | 1.43 | 1.22 | 1.06 | 0.92 | 0.79 | 0.73 | 0.65 |

Note: 2012 Trustees Report Intermediate Assumptions


**Table 6.—Money's Worth Ratios for Scaled Two-Earner Couples with Selected Earnings Levels**
OASDI Program—*Payable Benefits Scenario*
(Percent)

| Year of birth | Year attains age 65 | H: very low W: very low | H: low W: very low | H: low W: low | H: med W: low | H: med W: med | H: high W: med | H: high W: high |
|---|---|---|---|---|---|---|---|---|
| 1920 | 1985 | 2.92 | 2.71 | 2.33 | 1.97 | 1.60 | 1.55 | 1.43 |
| 1930 | 1995 | 1.82 | 1.59 | 1.35 | 1.22 | 1.00 | 0.96 | 0.87 |
| 1937 | 2002 | 1.68 | 1.45 | 1.23 | 1.11 | 0.92 | 0.87 | 0.77 |
| 1943 | 2008 | 1.50 | 1.30 | 1.10 | 0.99 | 0.82 | 0.77 | 0.68 |
| 1949 | 2014 | 1.47 | 1.28 | 1.08 | 0.98 | 0.80 | 0.76 | 0.67 |
| 1955 | 2020 | 1.50 | 1.29 | 1.10 | 0.98 | 0.82 | 0.76 | 0.68 |
| 1964 | 2029 | 1.51 | 1.30 | 1.12 | 0.99 | 0.83 | 0.77 | 0.69 |
| 1973 | 2038 | 1.49 | 1.30 | 1.10 | 0.99 | 0.82 | 0.77 | 0.69 |
| 1985 | 2050 | 1.43 | 1.23 | 1.06 | 0.93 | 0.79 | 0.73 | 0.66 |
| 1997 | 2062 | 1.35 | 1.16 | 1.00 | 0.88 | 0.74 | 0.69 | 0.62 |
| 2004 | 2069 | 1.34 | 1.15 | 0.99 | 0.87 | 0.74 | 0.68 | 0.62 |

Note: 2012 Trustees Report Intermediate Assumptions


Actuarial Note No. 2012.7
Office of the Chief Actuary,
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March 2013