

## 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.<sup>1</sup> The money's worth ratio is defined as the ratio of present value of expected benefits to the present value of expected payroll taxes (contributions) 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 is expected to be received in benefits than is expected to be paid in payroll taxes over the lifetime of that individual or cohort. Thus, money's worth ratios represent an attempt to answer the question: How large are scheduled future benefits for a group of workers and their dependents in comparison to (i.e., as a ratio to, or divided by) the amount that would be payable using their expected payroll tax contributions invested at a given interest rate or set of interest rates? In other words, would the particular individual or group get its "money's worth"?<sup>2</sup>

Money's worth ratios are presented in tables 1 through 6 for hypothetical scaled workers who differ by year of birth, earnings level, and family grouping. The ratios in tables 1 and 4 are based on the contributions and benefits scheduled in present law. This scenario is referred to as *Present Law Scheduled*.<sup>3</sup> Because scheduled income is not projected to be sufficient to fully finance scheduled benefits for the OASDI program after 2036, two additional scenarios are included and are described below.

- **Increased Payroll Tax** - Payroll-tax rates are increased above those scheduled in current law for each year after 2036. The amount of increase would be the amount needed so that total program income would fully finance the benefits scheduled in present law for each year. The money's worth

ratios for this scenario are presented in tables 2 and 5.

- **Payable Benefits** - Benefits scheduled in present law are reduced by an annual percentage for each year after 2036. The annual percentage reduction would be the amount needed so that present-law tax and other program income would be sufficient to pay the resulting benefits for each year.<sup>3</sup> The money's worth ratios for this scenario are presented in tables 3 and 6.

Because the Social Security program has operated on a largely pay-as-you-go (PAYGO) basis, the level of contributions of each generation of workers is not directly related to the benefits they will receive. Under a PAYGO plan, benefits are not based on the accumulation of individual contributions, as in a defined contribution plan, nor are annual contributions determined based on scheduled future benefits of current workers and beneficiaries, as in an advance-funded defined benefit plan. Rather, the combined amount of contributions from workers and employers needed to fund the system is largely determined by the total amount of benefits to be paid for any year.

Thus, money's worth ratios for a PAYGO-financed benefit program are only theoretical indicators of the apparent value for contributions on an individual or cohort basis. The real value of benefits under a PAYGO social insurance program is, of course, what is paid to beneficiaries each year in comparison to the total cost of (or resources used by) the program for that year. 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 full value of insurance in reducing the risk for extreme outcomes, such as death or disability at very young ages or survival to very old ages. In addition, calculations of the money's worth ratio from Social Security benefits are not fully adequate for making comparisons with private-sector plans, since many features of Social Security benefits are not typically available in private-sector plans. Examples include guaranteed cost-of-living adjustments

<sup>1</sup> Money's worth ratios are highly theoretical measures that in fact are not directly related to a PAYGO-financed benefit program, as discussed later in this section.

<sup>2</sup> 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.

<sup>3</sup> Based on the intermediate projections of the 2009 Trustees Report.

based on the Consumer Price Index, and benefits for life in the event of disability. However, money's worth ratios are of value for exploring the relative value of benefits provided across generations and types of workers.

Hypothetical workers are considered in this note for four different levels of *scaled pre-retirement earnings patterns*.<sup>4</sup> A worker with a *scaled* earnings pattern has earnings that vary with age as a percentage of the national average wage index (AWI). Scaled workers used here are assumed to enter the labor force at age 21 and to retire at age 65. In addition to the scaled workers, a hypothetical steady maximum worker is included in this note. This worker is assumed to have 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 has for years been producing theoretical money's worth ratios. Examples can be found in the 1994-96 Advisory Council Report on Social Security.<sup>5</sup> The analyses from the 1994-96 Advisory Council report were based 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. Non-steady hypothetical workers, referred to as scaled workers, were first introduced in Actuarial Note #144 in 2001.<sup>6</sup> Alternative approaches to considering non-steady earnings histories have been addressed by other authors, and it is recognized that a broader set of earnings patterns might be desirable to more fully explore the distributions of benefits payable and money's worth ratios under the OASDI program. However, for the sake of practicality, the number of cases considered in this note is limited.

## Methodology and Assumptions

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

<sup>4</sup> Additional details are provided on the development of scaled earnings patterns in the recurring Actuarial Note 2009.3, located at the following internet address:

<http://www.socialsecurity.gov/OACT/NOTES/ran3/an2009-3.html>.

<sup>5</sup> The final report is located at the following internet address:

<http://www.socialsecurity.gov/history/reports/adccouncil/report/toc.htm>

<sup>6</sup> This note was published in June 2001 and is located at the following internet address:

<http://www.socialsecurity.gov/OACT/NOTES/note2000s/note144.html>.

Under the *Increased Payroll Tax* scenario, payroll-tax rates are assumed to be increased as needed beginning with the year of trust-fund exhaustion so that present-law scheduled benefits would be payable in each year. The payroll-tax rate would begin to increase from the present law amount of 12.4 percent beginning in 2037. The payroll-tax rate increases to 16.28 percent for 2038 and continues to increase year-by-year, reaching 16.75 percent for 2083. It is expected that, under this scenario, further increases in the payroll tax rate would be needed after 2083 due to continuing increases in life expectancy.

The third scenario, *Payable Benefits*, assumes that benefits would be reduced to a level that could be paid using tax rates scheduled in present law for each year after Trust Fund exhaustion. The reductions from scheduled levels would apply to all types of benefits paid during the year. Under the intermediate projections of the 2009 Trustees Report, scheduled benefits under present law are not projected to be fully payable in 2037 and later. Thus, for this scenario, annual reductions would begin in 2037 and would increase each year thereafter. Program income using present-law tax rates is estimated to be sufficient to pay 76.2 percent of scheduled benefits in 2038 and 73.9 percent of scheduled benefits in 2083. It is expected that, under this scenario, annual reductions in the benefits would continue to increase after 2083 due to continuing increases in life expectancy.

The four different 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. The career-average level of earnings for these workers is assumed to be a specified percent of the AWI. For the scaled medium earner, the career-average level of earnings is assumed to about equal the AWI. For the scaled very low, low, and high earners, the career-average level of earnings is assumed to about equal 25, 45, and 160 percent of the AWI, respectively.

It is useful to see how overall earnings for these hypothetical workers compare to those of actual retiring workers. The Average Indexed Monthly Earnings<sup>7</sup> (AIME), which is calculated based on a worker's earnings, is a convenient measure of this. Table A shows the distribution of actual workers retiring in 2008 relative to the AIMEs of hypothetical scaled workers, based on a 1-percent sample of records from the Social Security administrative records.

<sup>7</sup> See <http://www.socialsecurity.gov/OACT/COLA/Benefits.html#aime> for more details on how the AIME is calculated.

**Table A.—Distribution of AIMEs of Actual Workers Retiring in 2008, Relative to AIMEs for Hypothetical Workers Retiring in 2008**

Hypothetical worker <sup>1</sup> (Career-average earnings) <sup>2</sup>	Percent with AIME less than AIME for hypothetical case			Percent with AIME closest to AIME for hypothetical case <sup>3</sup>		
	All males	All females	Total, all workers	All males	All females	Total, all workers
Very Low (\$10,101).....	6.2	19.1	12.3	10.0	28.9	19.0
Low (\$18,182).....	13.2	38.4	25.2	13.5	31.9	22.2
Medium (\$40,406).....	35.9	77.8	55.8	28.3	28.4	28.3
High (\$64,649).....	67.8	95.1	80.8	31.8	9.4	21.2
Maximum (\$90,952).....	100	100	100	16.4	1.5	9.3

<sup>1</sup> See text for definitions of hypothetical workers.

<sup>2</sup> Career-average earnings of hypothetical scaled workers retiring at age 62 in 2008. Earnings are wage indexed to 2007 in this calculation.

<sup>3</sup> 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.

The hypothetical workers presented in this note are grouped by sex and marital status into four categories: single males, single females, one-earner couples where only the husband is employed, and two-earner couples. The single-earner and one-earner couple examples are presented for all five earnings levels listed above. In addition, the two-earner couples are presented 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.

Each scaled worker is assumed to be born on January 2 and to start working on his/her 21<sup>st</sup> birthday.<sup>8</sup> The wife and husband of each couple are assumed to have the same date of birth. Each marriage is assumed to occur on the joint 22<sup>nd</sup> birthday of the wife and husband and to continue for life. Assuming that marriages are life-long means that the effects of divorce and of remarriage after death and divorce are not explicitly reflected. 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 is of

minor consequence. Two children are assumed, one born on the joint 27<sup>th</sup> birthday of the wife and husband, and one born on the joint 29<sup>th</sup> birthday of the wife and husband. All types of retirement, disability, and survivor benefits are considered, 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.

All nondisabled, surviving workers are assumed to retire at age 65. The mortality rates and disability incidence and termination rates used in these computations are taken from historical data, and from the intermediate projections of the 2009 Trustees Report by age, sex, and year of birth. No mortality is assumed for children through age 18 in this analysis. Benefit increases and earnings levels for these hypothetical workers are based on historical data and the 2009 Trustees Report assumptions for the future. 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 under the intermediate assumptions of the 2009 Trustees Report for future years. These interest rates are shown in the following table.

<sup>8</sup> The maximum steady worker is assumed to be born on January 2 and to start working on his/her 22<sup>nd</sup> 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	1982	11.2	4.9
1942	2.3	-7.9	1983	10.8	7.5
1943	2.1	-3.7	1984	11.6	7.9
1944	2.0	0.4	1985	11.2	7.4
1945	2.1	-0.2	1986	11.1	9.4
1946	2.0	-6.0	1987	10.1	6.2
1947	1.9	-11.0	1988	9.8	5.6
1948	2.8	-4.4	1989	9.6	4.5
1949	1.3	2.2	1990	9.3	3.9
1950	2.0	1.0	1991	9.1	4.9
1951	2.9	-4.8	1992	8.7	5.7
1952	2.2	-0.1	1993	8.3	5.3
1953	2.3	1.6	1994	8.0	5.4
1954	2.3	1.9	1995	7.8	4.9
1955	2.2	2.5	1996	7.6	4.6
1956	2.4	0.9	1997	7.5	5.2
1957	2.5	-0.8	1998	7.2	5.8
1958	2.5	-0.2	1999	6.9	4.6
1959	2.6	1.7	2000	6.9	3.3
1960	2.6	1.0	2001	6.6	3.8
1961	2.8	1.6	2002	6.4	5.0
1962	2.8	1.7	2003	6.0	3.7
1963	2.9	1.6	2004	5.7	3.0
1964	3.1	1.8	2005	5.5	1.9
1965	3.2	1.6	2006	5.3	2.0
1966	3.5	0.5	2007	5.3	2.4
1967	3.8	1.0	2008	5.1	0.8
1968	4.0	-0.2	2009	4.8	5.9
1969	4.4	-1.0	2010	4.7	3.0
1970	5.1	-0.7	2011	4.6	2.2
1971	5.3	0.9	2012	4.7	2.0
1972	5.4	2.0	2013	4.9	1.7
1973	5.8	-0.4	2014	5.0	1.9
1974	6.2	-4.3	2015	5.1	2.2
1975	6.6	-2.3	2016	5.1	2.3
1976	6.7	1.0	2017	5.2	2.4
1977	7.0	0.4	2018	5.3	2.5
1978	7.2	-0.4	2019	5.4	2.6
1979	7.5	-3.5	2020	5.5	2.6
1980	8.6	-4.3	2021	5.6	2.7
1981	9.9	-0.3	2022	5.7	2.8
			2023 and later	5.8	2.9

## Analysis of Results

The following tables present the theoretical money's worth ratios computed as described above. The tables are intended to 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 is because the benefit formula is weighted toward beneficiaries with lower earnings. The advantage for lower earners is partially offset by their lower life expectancy.<sup>9</sup> 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. This effect is only partially offset by lower rates of disability for women. 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 ratios often fall between the corresponding ratios for single male and single female workers. Where both spouses have the same earnings (tables 1, 2, and 3), 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. Where spouses have different earnings levels (tables 4, 5, and 6), the two-earner ratio is generally closer to the single female ratio, at the female's earnings level. This is for the reason stated above, plus the fact that a significant additional surviving spouse benefit may be payable to the lower earner (female in these examples). For the cases presented in this note, the wife's retired worker benefit is more than half of that of her husband's, so no spouse's benefit is payable.

It should be mentioned that this note does not include cases where a single individual has children, an increasingly common occurrence. Future analyses may address these cases. For now, it can be assumed that the ratio for such cases would fall between those for the single worker and one-earner couple.

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<sup>9</sup> 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.

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 as the year of birth advances. However, increasing life expectancies, the start of disability benefits in 1957, and generally increasing disability rates since then, tend to increase these money's worth ratios across succeeding generations in the *Present Law Scheduled* scenario. In addition, varying levels of interest rates could also affect the trend of money's worth ratios over time.

The level of interest used for computing values, and the relationship of interest rates to the growth rates in the average wage level and the level of prices, have specific and complicated implications for money's worth ratios. Nominal interest rates earned by the trust funds remained at 3 percent or less from 1937 to 1964, then began to increase substantially until they reached the 10 to 11 percent range in the 1980s, and then began to decline. Interest rates earned are expected to equal an ultimate rate of 5.8 percent.

Money's worth ratios for the first seven year-of-birth cohorts presented are the same for both *Present Law Scheduled* and *Increased Payroll Tax* for every family grouping, and every earnings level, because each of these year-of-birth cohorts reaches age 65 prior to 2037 (when the payroll tax rates for the *Increased Payroll Tax* scenario first depart from those scheduled in present law). However, the *Payable Benefits* scenario has ratios that begin to decrease slightly for some of the 1937 birth cohort cases relative to *Present Law Scheduled* and decrease more substantially across-the-board for the 1964 and later birth cohorts, because benefit payments in 2037 and later under *Payable Benefits* are projected to be less than scheduled benefits.

Every one of the 69 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) due to increasing payroll tax rates from 1937 to 1990, reflecting the maturation of the program. Also, the normal retirement age (NRA) increases from age 65 for the 1937 birth cohort to age 66 for the 1943 birth cohort. But for subsequent birth cohorts the trends vary.

For the *Present Law Scheduled* scenario (tables 1 and 4), from the 1943 to the 1949 birth cohort, the money's worth ratios generally are stable. For the 1955 birth cohort through the 2004 birth cohort, the money's worth ratios increase continually for all family groupings. As compared to the 1955 birth cohort, ratios for the 1964 birth cohort increase, despite an increase in the NRA, because of (1) mortality improvements, and (2) the vari-

ation in interest rates that applied to these cohorts during the contribution and benefit payout periods. The ratios for the 1973 and later cohorts continue to increase because of improving mortality rates combined with a fixed NRA and a fixed payroll tax rate.

For the *Increased Payroll Tax* scenario (tables 2 and 5), the money's worth ratios decrease across-the-board after the 1973 birth cohort. These decreases in the money's worth ratios result from the increasing tax rates under this scenario for years beginning with 2037. However, for the 1943 to 1973 birth cohorts, the ratios increase slightly from cohort to cohort, except for the maximum earner.

For the *Payable Benefits* scenario (tables 3 and 6), the money's worth ratios are generally the same as *Present Law Scheduled* for the 1920 through 1943 birth cohorts. The effects of trust fund exhaustion and lower benefits payable after 2036 start to fully appear in the 1949 birth cohort. From the 1949 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. 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

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

The significance of the money's worth ratio must be kept in proper perspective. A higher ratio does not nec-

essarily 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 22.0 years after reaching age 65. Her male counterpart born in 1975 may expect to live 19.8 years after reaching age 65.<sup>10</sup> Her expected number of years of life after age 65 exceeds that of his by 11 percent, and, as a result, her money's worth ratio is considerably higher than his with the same earnings record. However, the monthly benefit she receives is exactly the same as he would receive. 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, it is clear that the goal for the program has been to provide *monthly* benefit levels for men and women, and for married and non-married workers with a specific mix of equity (higher benefits for higher earners/contributors) and adequacy (replacement of a larger portion of pre-retirement earnings for lower earners). The goal has not been to provide similar lifetime benefits or money's worth ratios for these groups. Thus, while this note illustrates the fact that the money's worth ratio has varied considerably across and within generations and will continue to do so in the future, it is clear that this kind of variation was both expected and intended.

Finally, it should again be noted that money's worth ratios for a PAYGO-financed benefit program are only theoretical indicators of the apparent value for contributions on an individual or cohort basis. The real value of benefits under a PAYGO social insurance program is, of course, what is paid to beneficiaries each year in comparison to the total cost of (or resources used by) the program for that year. On this basis, with current administrative expenses of about 1 percent of total program cost, the real value of OASDI benefits is extraordinarily high.

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<sup>10</sup> Based on 2009 Trustees Report intermediate mortality assumptions.

**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
Very Low	1920	1985	2.46	3.02	5.48	2.86
	1930	1995	1.51	1.76	3.22	1.75
	1937	2002	1.36	1.55	2.83	1.59
	1943	2008	1.22	1.37	2.47	1.41
	1949	2014	1.25	1.41	2.47	1.41
	1955	2020	1.31	1.48	2.54	1.46
	1964	2029	1.42	1.60	2.65	1.56
	1973	2038	1.52	1.71	2.77	1.66
	1985	2050	1.57	1.73	2.79	1.69
	1997	2062	1.60	1.76	2.82	1.72
2004	2069	1.63	1.79	2.85	1.74	
Low	1920	1985	1.96	2.41	4.34	2.28
	1930	1995	1.11	1.29	2.37	1.30
	1937	2002	0.99	1.13	2.07	1.17
	1943	2008	0.89	1.00	1.80	1.03
	1949	2014	0.91	1.02	1.81	1.03
	1955	2020	0.96	1.08	1.86	1.07
	1964	2029	1.04	1.17	1.94	1.15
	1973	2038	1.11	1.25	2.03	1.23
	1985	2050	1.15	1.27	2.05	1.25
	1997	2062	1.17	1.29	2.07	1.27
2004	2069	1.19	1.30	2.09	1.29	
Medium	1920	1985	1.35	1.65	3.00	1.56
	1930	1995	0.82	0.95	1.78	0.96
	1937	2002	0.74	0.84	1.56	0.87
	1943	2008	0.66	0.74	1.36	0.77
	1949	2014	0.67	0.76	1.36	0.77
	1955	2020	0.71	0.80	1.39	0.80
	1964	2029	0.77	0.86	1.45	0.86
	1973	2038	0.82	0.92	1.52	0.91
	1985	2050	0.85	0.94	1.53	0.93
	1997	2062	0.87	0.95	1.54	0.94
2004	2069	0.88	0.96	1.56	0.96	
High	1920	1985	1.21	1.48	2.68	1.40
	1930	1995	0.71	0.83	1.55	0.84
	1937	2002	0.62	0.71	1.31	0.73
	1943	2008	0.55	0.61	1.12	0.64
	1949	2014	0.56	0.63	1.12	0.64
	1955	2020	0.59	0.66	1.16	0.66
	1964	2029	0.64	0.72	1.20	0.71
	1973	2038	0.68	0.77	1.26	0.76
	1985	2050	0.70	0.78	1.27	0.77
	1997	2062	0.72	0.79	1.28	0.79
2004	2069	0.73	0.80	1.30	0.80	
Maximum <sup>1</sup>	1920	1985	1.10	1.33	2.42	1.26
	1930	1995	0.64	0.74	1.37	0.74
	1937	2002	0.56	0.63	1.17	0.65
	1943	2008	0.48	0.53	0.97	0.55
	1949	2014	0.46	0.52	0.92	0.52
	1955	2020	0.45	0.50	0.88	0.51
	1964	2029	0.47	0.53	0.89	0.53
	1973	2038	0.51	0.57	0.94	0.57
	1985	2050	0.52	0.58	0.94	0.58
	1997	2062	0.53	0.58	0.95	0.58
2004	2069	0.54	0.59	0.96	0.59	

<sup>1</sup> Other earnings levels shown in this table are more representative of individuals’ actual earnings histories (see table A).

Note: 2009 Trustees Report Intermediate Assumptions

Actuarial Note No. 2009.7  
Office of the Chief Actuary,  
Social Security Administration  
July 2010

**Table 2.—Money’s Worth Ratios for Various Earning Level Scaled Workers**  
**OASDI Program--Increased Payroll Tax Scenario**  
(Percent)

Earnings level	Year of birth	Year attains age 65	Single male	Single female	One-earner couple	Two-earner couple
Very Low	1920	1985	2.46	3.02	5.48	2.86
	1930	1995	1.51	1.76	3.22	1.75
	1937	2002	1.36	1.55	2.83	1.59
	1943	2008	1.22	1.37	2.47	1.41
	1949	2014	1.25	1.41	2.47	1.41
	1955	2020	1.31	1.48	2.54	1.46
	1964	2029	1.42	1.60	2.65	1.56
	1973	2038	1.52	1.70	2.76	1.66
	1985	2050	1.48	1.64	2.64	1.60
	1997	2062	1.40	1.54	2.47	1.50
2004	2069	1.36	1.49	2.38	1.45	
Low	1920	1985	1.96	2.41	4.34	2.28
	1930	1995	1.11	1.29	2.37	1.30
	1937	2002	0.99	1.13	2.07	1.17
	1943	2008	0.89	1.00	1.80	1.03
	1949	2014	0.91	1.02	1.81	1.03
	1955	2020	0.96	1.08	1.86	1.07
	1964	2029	1.04	1.17	1.94	1.15
	1973	2038	1.11	1.24	2.03	1.22
	1985	2050	1.09	1.20	1.94	1.18
	1997	2062	1.03	1.12	1.81	1.11
2004	2069	0.99	1.09	1.74	1.07	
Medium	1920	1985	1.35	1.65	3.00	1.56
	1930	1995	0.82	0.95	1.78	0.96
	1937	2002	0.74	0.84	1.56	0.87
	1943	2008	0.66	0.74	1.36	0.77
	1949	2014	0.67	0.76	1.36	0.77
	1955	2020	0.71	0.80	1.39	0.80
	1964	2029	0.77	0.86	1.45	0.86
	1973	2038	0.82	0.92	1.51	0.91
	1985	2050	0.80	0.88	1.45	0.88
	1997	2062	0.76	0.83	1.35	0.83
2004	2069	0.73	0.80	1.30	0.80	
High	1920	1985	1.21	1.48	2.68	1.40
	1930	1995	0.71	0.83	1.55	0.84
	1937	2002	0.62	0.71	1.31	0.73
	1943	2008	0.55	0.61	1.12	0.64
	1949	2014	0.56	0.63	1.12	0.64
	1955	2020	0.59	0.66	1.16	0.66
	1964	2029	0.64	0.72	1.20	0.71
	1973	2038	0.68	0.76	1.26	0.76
	1985	2050	0.67	0.74	1.20	0.73
	1997	2062	0.63	0.69	1.12	0.69
2004	2069	0.61	0.67	1.08	0.66	
Maximum <sup>1</sup>	1920	1985	1.10	1.33	2.42	1.26
	1930	1995	0.64	0.74	1.37	0.74
	1937	2002	0.56	0.63	1.17	0.65
	1943	2008	0.48	0.53	0.97	0.55
	1949	2014	0.46	0.52	0.92	0.52
	1955	2020	0.45	0.50	0.88	0.51
	1964	2029	0.47	0.53	0.89	0.53
	1973	2038	0.51	0.57	0.93	0.57
	1985	2050	0.50	0.55	0.89	0.55
	1997	2062	0.47	0.52	0.84	0.52
2004	2069	0.46	0.50	0.81	0.50	

<sup>1</sup> Other earnings levels shown in this table are more representative of individuals’ actual earnings histories (see table A).

Note: 2009 Trustees Report Intermediate Assumptions

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**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
Very Low	1920	1985	2.46	3.02	5.48	2.86
	1930	1995	1.51	1.76	3.22	1.75
	1937	2002	1.36	1.55	2.83	1.59
	1943	2008	1.22	1.37	2.46	1.40
	1949	2014	1.24	1.38	2.44	1.39
	1955	2020	1.27	1.42	2.43	1.40
	1964	2029	1.29	1.43	2.36	1.41
	1973	2038	1.24	1.39	2.30	1.39
	1985	2050	1.24	1.37	2.23	1.35
	1997	2062	1.23	1.35	2.17	1.32
2004	2069	1.23	1.34	2.15	1.31	
Low	1920	1985	1.96	2.41	4.34	2.28
	1930	1995	1.11	1.29	2.37	1.30
	1937	2002	0.99	1.13	2.07	1.17
	1943	2008	0.89	0.99	1.80	1.03
	1949	2014	0.90	1.01	1.78	1.02
	1955	2020	0.93	1.03	1.79	1.03
	1964	2029	0.94	1.05	1.73	1.04
	1973	2038	0.91	1.02	1.69	1.03
	1985	2050	0.91	1.01	1.64	1.00
	1997	2062	0.90	0.99	1.60	0.98
2004	2069	0.90	0.98	1.58	0.97	
Medium	1920	1985	1.35	1.65	3.00	1.56
	1930	1995	0.82	0.95	1.78	0.96
	1937	2002	0.74	0.84	1.56	0.87
	1943	2008	0.66	0.74	1.35	0.77
	1949	2014	0.67	0.75	1.34	0.76
	1955	2020	0.68	0.76	1.34	0.77
	1964	2029	0.69	0.77	1.29	0.78
	1973	2038	0.67	0.75	1.26	0.77
	1985	2050	0.67	0.74	1.23	0.75
	1997	2062	0.67	0.73	1.19	0.73
2004	2069	0.66	0.72	1.18	0.72	
High	1920	1985	1.21	1.48	2.68	1.40
	1930	1995	0.71	0.83	1.55	0.84
	1937	2002	0.62	0.71	1.31	0.73
	1943	2008	0.54	0.61	1.12	0.64
	1949	2014	0.55	0.62	1.11	0.63
	1955	2020	0.57	0.63	1.11	0.64
	1964	2029	0.58	0.64	1.07	0.65
	1973	2038	0.56	0.62	1.05	0.64
	1985	2050	0.56	0.62	1.02	0.62
	1997	2062	0.55	0.61	0.99	0.61
2004	2069	0.55	0.60	0.98	0.60	
Maximum <sup>1</sup>	1920	1985	1.10	1.33	2.42	1.26
	1930	1995	0.64	0.74	1.37	0.74
	1937	2002	0.56	0.63	1.16	0.65
	1943	2008	0.47	0.53	0.97	0.55
	1949	2014	0.46	0.51	0.91	0.52
	1955	2020	0.43	0.48	0.85	0.49
	1964	2029	0.42	0.47	0.79	0.48
	1973	2038	0.42	0.47	0.78	0.48
	1985	2050	0.42	0.46	0.76	0.47
	1997	2062	0.41	0.45	0.73	0.45
2004	2069	0.41	0.45	0.72	0.45	

<sup>1</sup> Other earnings levels shown in this table are more representative of individuals’ actual earnings histories (see table A).

Note: 2009 Trustees Report Intermediate Assumptions

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**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	2.86	2.65	2.28	1.93	1.56	1.52	1.40
1930	1995	1.75	1.54	1.30	1.18	0.96	0.93	0.84
1937	2002	1.59	1.38	1.17	1.06	0.87	0.82	0.73
1943	2008	1.41	1.22	1.03	0.93	0.77	0.72	0.64
1949	2014	1.41	1.22	1.03	0.93	0.77	0.72	0.64
1955	2020	1.46	1.26	1.07	0.96	0.80	0.74	0.66
1964	2029	1.56	1.35	1.15	1.02	0.86	0.80	0.71
1973	2038	1.66	1.43	1.23	1.08	0.91	0.85	0.76
1985	2050	1.69	1.45	1.25	1.09	0.93	0.86	0.77
1997	2062	1.72	1.47	1.27	1.11	0.94	0.87	0.79
2004	2069	1.74	1.49	1.29	1.12	0.96	0.88	0.80

Note: 2009 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	2.86	2.65	2.28	1.93	1.56	1.52	1.40
1930	1995	1.75	1.54	1.30	1.18	0.96	0.93	0.84
1937	2002	1.59	1.38	1.17	1.06	0.87	0.82	0.73
1943	2008	1.41	1.22	1.03	0.93	0.77	0.72	0.64
1949	2014	1.41	1.22	1.03	0.93	0.77	0.72	0.64
1955	2020	1.46	1.26	1.07	0.96	0.80	0.74	0.66
1964	2029	1.56	1.35	1.15	1.02	0.86	0.80	0.71
1973	2038	1.66	1.42	1.22	1.08	0.91	0.85	0.76
1985	2050	1.60	1.37	1.18	1.03	0.88	0.81	0.73
1997	2062	1.50	1.29	1.11	0.97	0.83	0.76	0.69
2004	2069	1.45	1.24	1.07	0.94	0.80	0.74	0.66

Note: 2009 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	2.86	2.65	2.28	1.93	1.56	1.52	1.40
1930	1995	1.75	1.54	1.30	1.18	0.96	0.93	0.84
1937	2002	1.59	1.38	1.17	1.05	0.87	0.82	0.73
1943	2008	1.40	1.21	1.03	0.93	0.77	0.72	0.64
1949	2014	1.39	1.20	1.02	0.92	0.76	0.71	0.63
1955	2020	1.40	1.21	1.03	0.92	0.77	0.72	0.64
1964	2029	1.41	1.22	1.04	0.92	0.78	0.72	0.65
1973	2038	1.39	1.20	1.03	0.92	0.77	0.72	0.64
1985	2050	1.35	1.16	1.00	0.88	0.75	0.69	0.62
1997	2062	1.32	1.13	0.98	0.86	0.73	0.67	0.61
2004	2069	1.31	1.12	0.97	0.85	0.72	0.67	0.60

Note: 2009 Trustees Report Intermediate Assumptions

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