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## Historical Net Discount Rates—An Update Through 2004

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### Introduction:

The following eight tables are updated versions of the eight tables that were presented in publications by this author that contained calculations through 1999 [Ireland, 2000] and updates through 2001 [Ireland, 2000-01] and 2003 [Ireland, 2002]. A basic rule for all calculations provided in this series has been that the data in making the calculations must come from the *Economic Report of the President* (henceforth ERP) for the most current year or the year preceeding the current year. Tables 1-4 have been prepared on the same basis as in all three previous versions of the table except that the tables now include data for the year 2004. Tables 1-4 now begin with 1955 and end with 2004, allowing 50 year comparisons to be made between various discount rates and both the CPI (Consumer Price Index) and the MCPI (Medical Consumer Price Index). Tables 5-8 begin with 1965 and end with 2004, allowing 40 year comparisons to be made between various discount rates and Average Weekly Earnings for all American workers. Table 5 contains data from 1981 to the present for the total compensation series of the employer cost index, allowing comparisons to be made between that series and various discount rates for the past 23 years.

With respect to Tables 5-8, the 2003 revision of these tables included revisions made by the Bureau of Labor Statistics to its “Average Weekly Earnings of All American Workers” series as of the *Economic Report of the President* (ERP) as of 2004. Those revisions went back to the

beginning in 1965 for the data for that series provided in Tables 5-8 in the ERP for 2004. The 2005 ERP parallels the 2004 ERP in not including data for the “Average Weekly Earnings” series prior to 1965. Tables 5-8 therefore start with 1965 instead of 1959, as in the first two versions of these tables. Use of a 1965 starting point has allowed calculations for Tables 5 to 8 of up to 40 years for periods ending in 2004. The 2005 ERP contained only data for the Total Compensation series of the Employer Cost Index (ECI) from 1984 through 2004. Figures for 1981-1983 for the Total Compensation series of the Employer Cost Index were retained from the *Economic Report of the President: 2003*. A reader would need to consult the 2003 ERP to find figures for 1981-83. In other respects, the methods used in compiling these tables in the three previous publications cited above have been maintained.

### **Explanation of the Tables**

The original purpose of these tables was to provide forensic economists with values for net discount rates and the real interest rate that were varied and flexible. The original version had data for the 30 year U.S. Treasury Bond rate. That was discontinued because the U.S. Treasury stopped issuing those bonds several years ago. The U.S. Treasury has recently begun to reissue 30 year bonds and the 30 year interest rate may be included in future versions of these tables. The tables still provide data for the 91 Day Treasury Bill, the Three Year Treasury Note, the Ten Year Treasury Bond, the Corporate Aaa rate and the High Grade Municipal bond rate. Those rates are compared year by year with the CPI and the MCPI in Tables 1-4 and with the Average Weekly Earnings series of earnings increases and the annual rates of change in the total compensation measure in the Employer Cost Index in Tables 5-8. In that sense, the eight tables provided should be understood as two sets of four tables each. Tables 1 and 5 provide basic data as it is presented

in the ERP. The data has not been modified in any way in Tables 1 and 5, but simply replicates what is provided in the ERP.

Table 1 includes data for the interest rates indicated above and for the CPI and MCPI by year from 1955 through 2004. Table 5 replicates data for the same interest rates as Table 1, but replaces data for the CPI and MCPI with data for Average Weekly Earnings of all American workers and the Total Compensation series for the Employer Cost Index. Tables 5-8 are shorter than Tables 1-4 because the longest wage increase series, Average Weekly Earnings of all American workers, only goes back to 1965. The Total Compensation series for the Employer Cost Index (ECI) only goes back to 1982, so it is shorter still.

Tables 2 and 6 provide a series of multi-year average growth rates for each variable for periods in 2004. This results in up to 50 year averages for the CPI and MCPI and up to 40 year averages for the earnings growth rates to interest rate comparisons. Table 2, for example, shows that the arithmetic average rate of effective yields on 91 Day Treasury Bills from 1955 through 2004 was 5.65 percent and that the average rate of increase in the CPI over that same 50 year period was 4.03 percent.<sup>1</sup> Table 3 provides calculations of the real interest rate based on comparing each of the interest rates with the growth rate in the CPI for each of fifty possible time periods ending in 2004. Table 4 provides the same comparisons with the growth rate in the MCPI for up to 50 year periods. Table 7 provides calculations of the net discount rate based on comparing each of the interest rates with the growth rate in the Average Weekly Earnings series from for the 40 possible periods from 1965 through 2004. Table 8 provides calculations of the net discount rate based on comparing each of the interest rates with the annual growth rate in total compensation in the total compensation measure in the Employer Cost Index for the 24

possible periods from 1982 through 2004.

### **Avoiding Chronological Confusion**

The structure of the tables can be chronologically confusing. Data in Tables 1 and 5 is presented in chronological order. As a result, 1955 appears at the top of the table and 2004 appears at the bottom of the table. In the other six tables, that chronological order is effectively reversed. In Tables 2 and 6, the first period that appears is the “1 Yr Ave.” or “one year average.” The “one year average” for a period ending in 2004 is the value for the year 2004 divided by 1, or the same figure that appears for the rate at the bottom of Tables 1 and 5 for the year 2004. “2 Yr Ave” refers to the average of the rates at the bottom of Tables 1 and 5 for the years 2003 and 2004. “3 Yr Ave” refers to the average of the rates at the bottom of Tables 1 and 5 for the years 2002, 2003 and 2004, and so forth. Thus only Tables 1 and 5 start with the past and move forward to the present, while the other six tables start from the present and move further and further into the past as more and more years are included in the calculated averages being developed and in net rates based on those averages.

### **Uses of the Tables**

These tables were compiled to make it easier for a qualified forensic economist to counter claims made by unqualified forensic economic “experts” that various net discount rates are justified by historical experience. For example, claims are made in the reports of various would-be experts that purport to justify total offset or more than offset net discount rates. These claims may identify periods or interest rates that a qualified economist does not regularly use. As such, the qualified economist may have difficulty proving that the claims of the opposing economist are inconsistent with actual history. Having tables that employ multiple discount rates, multiple

projections of growth rates and multiple periods over which projections are made provides a useful tool to counter such claims.

These tables continue to provide little comfort for persons advocating total offset for anything but net rates based on the MCPI. For the past eight years, one can find values close to total offset based on the 91 Day Treasury Bill for net discount rates based on Average Weekly Earnings or the Total Compensation Series for the Employer Cost Index. For the ECI only, the same is true for the Three Year Treasury Bill rate. For all other discount rates, there is no justification for total offset with either wage series.<sup>2</sup>

### Endnotes

1. Theoretically, it would have been better to have used geometrically average growth rates rather than arithmetic averages for interest rates and growth rates. However, after making a comparison over 20 years, this author determined that there is very little loss of accuracy with use of arithmetic averages. To have obtained geometric averages from interest rates over a 50 year period would have involves substantially more time spent in calculation for only a very small increase in accuracy. It would have been much easier to do so for growth rates, but consistency still dictated use of arithmetic rather than geometric averages.

2. The MCPI should not generally be used in calculating the costs of life care plans since many elements in those plans do not increase in tandem with hospitalizations, pharmaceuticals and skilled medical care.

### References

*Economic Report of the President*. 2003 and 2005 editions.

Ireland, Thomas R. Spring/Summer 2000. "Historical Comparisons Between Various Interest Rates and Growth Rates in the CPI, MCPI, Average Weekly Earnings and Total Compensation in the Employer Cost Index." *Journal of Legal Economics*, 10(2):25-46.

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Table 1--Annual Values for Various Interest Rates and Growth Rates in the CPI and the MCPI from 1955-2004

Year	3-month	3-year	10-year	Corp Aaa	Muni	CPI Incr.	Med CPI
1955	1.797	2.47	2.82	3.06	2.53	0.4	2.2
1956	2.741	3.19	3.18	3.36	2.93	3.0	3.8
1957	3.382	3.98	3.65	3.89	3.60	2.9	4.2
1958	1.886	2.84	3.32	3.79	3.56	1.8	4.6
1959	3.528	4.46	4.33	4.38	3.95	0.7	4.4
1960	3.025	3.98	4.12	4.41	3.73	1.7	4.3
1961	2.448	3.54	3.88	4.35	3.73	1.0	3.6
1962	2.867	3.47	3.88	4.33	3.18	1.0	3.5
1963	3.266	3.67	4.00	4.26	3.23	1.3	2.9
1964	3.681	4.03	4.19	4.40	3.22	1.3	2.3
1965	4.111	4.22	4.28	4.49	3.27	1.6	3.2
1966	5.106	5.23	4.92	5.13	3.82	2.9	5.3
1967	4.504	5.03	5.07	5.51	3.98	3.1	8.8
1968	5.601	5.68	5.65	6.18	6.94	4.2	7.3
1969	7.066	7.02	6.67	7.03	5.81	5.5	8.2
1970	6.825	7.29	7.35	8.04	6.51	5.7	7.0
1971	4.533	5.65	6.16	7.39	5.70	4.4	7.4
1972	4.236	5.72	6.21	7.21	5.27	3.2	3.5
1973	7.469	6.95	6.84	7.44	5.18	6.2	4.5
1974	8.411	7.82	7.56	8.57	6.09	11.0	10.4
1975	6.145	7.49	7.99	8.83	6.89	9.1	12.6
1976	5.222	6.77	7.61	8.43	6.49	5.8	10.1
1977	5.521	6.69	7.42	8.02	5.56	6.5	9.6
1978	7.669	8.29	8.41	8.73	5.90	7.6	8.4
1979	10.862	9.71	9.44	9.63	6.39	11.3	9.2
1980	12.568	11.55	11.46	11.94	8.51	13.5	11.0
1981	15.583	14.44	13.91	14.17	11.23	10.3	10.7
1982	11.609	12.92	13.00	13.79	11.57	6.2	11.6
1983	9.250	10.45	11.10	12.04	9.47	3.2	8.8
1984	10.332	11.89	12.44	12.71	10.15	4.3	6.2
1985	7.957	9.64	10.62	11.37	9.18	3.6	6.3
1986	6.300	7.06	7.68	9.02	7.38	1.9	7.5
1987	6.125	7.68	7.68	9.38	7.73	3.6	6.6
1988	7.080	8.26	8.85	9.71	7.76	4.1	6.5
1989	8.674	8.55	8.49	9.26	7.24	4.8	7.7
1990	7.991	8.26	8.55	9.32	7.25	5.4	9.0
1991	5.689	6.82	7.85	8.77	6.89	4.2	8.7
1992	3.576	5.30	7.01	8.14	6.41	3.0	7.4
1993	3.121	4.44	5.87	7.22	5.63	3.0	5.9
1994	4.470	6.27	7.09	7.96	6.19	2.6	4.8
1995	5.787	6.25	6.57	7.59	5.95	2.8	4.5
1996	5.256	5.99	6.44	7.37	5.75	3.0	3.5
1997	5.310	6.10	6.35	7.87	5.55	2.3	2.8
1998	5.029	5.14	5.26	6.53	5.12	1.6	3.2
1999	4.868	5.49	5.65	7.04	5.43	2.2	3.5
2000	6.158	6.22	6.03	7.62	5.77	3.4	4.1
2001	3.576	4.09	5.02	7.08	5.19	2.8	4.6
2002	1.659	3.10	4.61	6.49	5.05	1.6	4.7
2003	1.041	2.10	4.01	5.67	4.73	2.3	4.0
2004	1.411	2.78	4.27	5.63	4.63	2.7	4.4

Interest rates are taken from Table B-73 of the Economic Report of the President: 2004. Percentage increases in the CPI and the MCPI are taken from Table B-64 in the ERP 2003 and 2004. The Treasury Bill Rate is converted from "bank discount" to "effective yield." See the notes for Table 2 for other abbreviations.

Table 2--Average Values for Various Interest Rates and Growth Rates in the CPI and the MCPI for the Number of Years Shown as Ending in 2004

# of Years	3-month	3-year	10-year	Corp Aaa	Muni	CPI Incr.	Med CPI
1 Yr Ave	1.41	2.78	4.27	5.63	4.63	2.70	4.40
2 Yr Ave	1.23	2.44	4.14	5.65	4.68	2.50	4.20
3 Yr Ave	1.37	2.66	4.30	5.93	4.80	2.20	4.37
4 Yr Ave	1.92	3.02	4.48	6.22	4.90	2.35	4.43
5 Yr Ave	2.77	3.66	4.79	6.50	5.07	2.56	4.36
6 Yr Ave	3.12	3.96	4.93	6.59	5.13	2.50	4.22
7 Yr Ave	3.39	4.13	4.98	6.58	5.13	2.37	4.07
8 Yr Ave	3.63	4.38	5.15	6.74	5.18	2.36	3.91
9 Yr Ave	3.81	4.56	5.29	6.81	5.25	2.43	3.87
10 Yr Ave	4.01	4.73	5.42	6.89	5.32	2.47	3.93
11 Yr Ave	4.05	4.87	5.57	6.99	5.40	2.48	4.01
12 Yr Ave	3.97	4.83	5.60	7.01	5.42	2.53	4.17
13 Yr Ave	3.94	4.87	5.71	7.09	5.49	2.56	4.42
14 Yr Ave	4.07	5.01	5.86	7.21	5.59	2.68	4.72
15 Yr Ave	4.33	5.22	6.04	7.35	5.70	2.86	5.01
16 Yr Ave	4.60	5.43	6.19	7.47	5.80	2.98	5.18
17 Yr Ave	4.75	5.60	6.35	7.60	5.91	3.05	5.25
18 Yr Ave	4.82	5.71	6.42	7.70	6.02	3.08	5.33
19 Yr Ave	4.90	5.78	6.49	7.77	6.09	3.02	5.44
20 Yr Ave	5.05	5.98	6.70	7.95	6.24	3.05	5.49
21 Yr Ave	5.31	6.26	6.97	8.18	6.43	3.10	5.52
22 Yr Ave	5.48	6.45	7.16	8.35	6.57	3.11	5.67
23 Yr Ave	5.75	6.73	7.41	8.59	6.78	3.24	5.93
24 Yr Ave	6.16	7.05	7.68	8.82	6.97	3.54	6.13
25 Yr Ave	6.42	7.23	7.83	8.95	7.03	3.94	6.32
26 Yr Ave	6.59	7.33	7.89	8.97	7.01	4.22	6.43
27 Yr Ave	6.63	7.36	7.91	8.96	6.96	4.34	6.50
28 Yr Ave	6.59	7.34	7.90	8.93	6.91	4.42	6.61
29 Yr Ave	6.54	7.32	7.89	8.91	6.90	4.47	6.73
30 Yr Ave	6.53	7.32	7.89	8.91	6.90	4.62	6.93
31 Yr Ave	6.59	7.34	7.88	8.90	6.87	4.83	7.04
32 Yr Ave	6.62	7.33	7.85	8.85	6.82	4.87	6.96
33 Yr Ave	6.54	7.28	7.80	8.80	6.77	4.82	6.86
34 Yr Ave	6.48	7.23	7.75	8.76	6.74	4.81	6.87
35 Yr Ave	6.49	7.23	7.74	8.74	6.74	4.83	6.88
36 Yr Ave	6.51	7.23	7.71	8.69	6.71	4.85	6.91
37 Yr Ave	6.49	7.19	7.65	8.63	6.72	4.84	6.92
38 Yr Ave	6.43	7.13	7.58	8.54	6.64	4.79	6.97
39 Yr Ave	6.40	7.08	7.52	8.46	6.57	4.74	6.93
40 Yr Ave	6.34	7.01	7.43	8.36	6.49	4.66	6.84
41 Yr Ave	6.28	6.94	7.36	8.26	6.41	4.58	6.73
42 Yr Ave	6.21	6.86	7.28	8.17	6.33	4.50	6.64
43 Yr Ave	6.13	6.78	7.20	8.08	6.26	4.42	6.56
44 Yr Ave	6.04	6.71	7.12	7.99	6.20	4.34	6.50
45 Yr Ave	5.98	6.65	7.05	7.91	6.15	4.28	6.45
46 Yr Ave	5.92	6.60	7.00	7.84	6.10	4.21	6.40
47 Yr Ave	5.84	6.52	6.92	7.75	6.05	4.16	6.36
48 Yr Ave	5.79	6.47	6.85	7.67	5.99	4.13	6.32
49 Yr Ave	5.72	6.40	6.77	7.58	5.93	4.11	6.27
50 Yr Ave	5.65	6.32	6.70	7.49	5.86	4.03	6.19

"3-Month" refers to the 90 Day U.S. Treasury Bill, "3-Year" refers to a constant maturity U.S. Treasury three year note, "10 Year" refers to a 10 Year U.S. Treasury Bond, "Corp. Aaa" refers to the Corporate Aaa rate, Muni refers to the High Grade Municipal rate, "CPI" refers to the Consumer Price Index, and "MCPI" refers to the medical component of the CPI.

Table 3--Real Interest Rates Based on Various Interest Rates and the Growth Rate in the CPI for Numbers of Years Ending in 2004

# of Years	3-month	3-year	10-year	Corp Aaa	Muni	CPI Incr.	Med CPI
1 Yr RDR	-1.26	0.08	1.53	2.85	1.88	0.00	1.66
2 Yr RDR	-1.24	-0.06	1.60	3.07	2.13	0.00	1.66
3 Yr RDR	-0.81	0.45	2.05	3.65	2.55	0.00	2.12
4 Yr RDR	-0.42	0.65	2.08	3.78	2.49	0.00	2.03
5 Yr RDR	0.20	1.07	2.17	3.84	2.45	0.00	1.76
6 Yr RDR	0.60	1.43	2.37	3.99	2.57	0.00	1.67
7 Yr RDR	1.00	1.72	2.55	4.11	2.70	0.00	1.66
8 Yr RDR	1.24	1.97	2.72	4.28	2.76	0.00	1.51
9 Yr RDR	1.35	2.07	2.79	4.27	2.75	0.00	1.40
10 YrRDR	1.50	2.20	2.88	4.31	2.78	0.00	1.42
11 YrRDR	1.53	2.33	3.02	4.40	2.84	0.00	1.49
12 YrRDR	1.41	2.25	3.00	4.37	2.82	0.00	1.60
13 YrRDR	1.35	2.25	3.07	4.42	2.86	0.00	1.81
14 YrRDR	1.35	2.27	3.10	4.42	2.84	0.00	1.99
15 YrRDR	1.43	2.30	3.09	4.37	2.76	0.00	2.09
16 YrRDR	1.57	2.38	3.12	4.36	2.74	0.00	2.13
17 YrRDR	1.65	2.48	3.20	4.42	2.78	0.00	2.14
18 YrRDR	1.69	2.56	3.24	4.49	2.85	0.00	2.18
19 YrRDR	1.83	2.69	3.37	4.62	2.98	0.00	2.36
20 YrRDR	1.95	2.85	3.54	4.76	3.10	0.00	2.37
21 YrRDR	2.13	3.06	3.75	4.92	3.22	0.00	2.34
22 YrRDR	2.30	3.24	3.93	5.09	3.35	0.00	2.48
23 YrRDR	2.43	3.38	4.04	5.18	3.43	0.00	2.60
24 YrRDR	2.53	3.39	4.00	5.10	3.31	0.00	2.50
25 YrRDR	2.39	3.17	3.75	4.82	2.98	0.00	2.29
26 YrRDR	2.27	2.98	3.53	4.56	2.67	0.00	2.12
27 YrRDR	2.19	2.89	3.42	4.43	2.51	0.00	2.07
28 YrRDR	2.08	2.79	3.33	4.32	2.39	0.00	2.10
29 YrRDR	1.98	2.73	3.27	4.25	2.33	0.00	2.17
30 YrRDR	1.82	2.58	3.12	4.10	2.18	0.00	2.20
31 YrRDR	1.68	2.40	2.91	3.88	1.95	0.00	2.11
32 YrRDR	1.66	2.34	2.84	3.80	1.86	0.00	1.99
33 YrRDR	1.64	2.35	2.84	3.80	1.86	0.00	1.94
34 YrRDR	1.60	2.31	2.80	3.77	1.84	0.00	1.97
35 YrRDR	1.58	2.29	2.77	3.73	1.81	0.00	1.95
36 YrRDR	1.58	2.26	2.72	3.66	1.77	0.00	1.97
37 YrRDR	1.57	2.24	2.69	3.62	1.79	0.00	1.99
38 YrRDR	1.57	2.23	2.67	3.58	1.77	0.00	2.08
39 YrRDR	1.58	2.23	2.65	3.55	1.75	0.00	2.09
40 YrRDR	1.61	2.24	2.65	3.53	1.75	0.00	2.08
41 YrRDR	1.62	2.25	2.65	3.52	1.75	0.00	2.05
42 YrRDR	1.63	2.25	2.65	3.51	1.75	0.00	2.04
43 YrRDR	1.64	2.26	2.66	3.50	1.76	0.00	2.05
44 YrRDR	1.63	2.26	2.66	3.50	1.78	0.00	2.06
45 YrRDR	1.62	2.26	2.66	3.48	1.79	0.00	2.07
46 YrRDR	1.65	2.29	2.68	3.48	1.82	0.00	2.11
47 YrRDR	1.62	2.27	2.65	3.45	1.82	0.00	2.12
48 YrRDR	1.59	2.24	2.61	3.40	1.79	0.00	2.10
49 YrRDR	1.56	2.20	2.56	3.34	1.75	0.00	2.08
50 YrRDR	1.55	2.20	2.56	3.32	1.76	0.00	2.07

RDR stands for "real discount rate." All other abbreviations are the same as for Table 2.

Table 4--Net Medical Discount Rates based on Various Interest Rates and the Growth Rate in the MCPI for Numbers of Years Ending in 2004

# of Years	3-month	3-year	10-year	Corp Aaa	Muni	CPI Incr.	Med CPI
1 Yr MDR	-2.86	-1.55	-0.12	1.18	0.22	-1.63	0.00
2 Yr MDR	-2.85	-1.69	-0.06	1.39	0.46	-1.63	0.00
3 Yr MDR	-2.87	-1.64	-0.07	1.50	0.42	-2.08	0.00
4 Yr MDR	-2.40	-1.35	0.05	1.72	0.45	-1.99	0.00
5 Yr MDR	-1.52	-0.67	0.41	2.05	0.68	-1.72	0.00
6 Yr MDR	-1.05	-0.24	0.69	2.28	0.88	-1.65	0.00
7 Yr MDR	-0.65	0.06	0.87	2.41	1.02	-1.63	0.00
8 Yr MDR	-0.27	0.45	1.19	2.72	1.22	-1.49	0.00
9 Yr MDR	-0.05	0.66	1.37	2.83	1.33	-1.38	0.00
10 YrMDR	0.08	0.77	1.43	2.85	1.33	-1.40	0.00
11 YrMDR	0.04	0.82	1.50	2.86	1.33	-1.47	0.00
12 YrMDR	-0.19	0.64	1.37	2.73	1.20	-1.58	0.00
13 YrMDR	-0.45	0.43	1.24	2.56	1.03	-1.78	0.00
14 YrMDR	-0.62	0.27	1.09	2.38	0.83	-1.95	0.00
15 YrMDR	-0.64	0.21	0.98	2.23	0.66	-2.04	0.00
16 YrMDR	-0.55	0.24	0.97	2.18	0.59	-2.09	0.00
17 YrMDR	-0.48	0.33	1.04	2.23	0.63	-2.10	0.00
18 YrMDR	-0.48	0.37	1.04	2.25	0.65	-2.14	0.00
19 YrMDR	-0.51	0.32	0.99	2.21	0.61	-2.30	0.00
20 YrMDR	-0.41	0.47	1.15	2.34	0.72	-2.31	0.00
21 YrMDR	-0.20	0.70	1.37	2.52	0.86	-2.29	0.00
22 YrMDR	-0.17	0.74	1.41	2.54	0.85	-2.42	0.00
23 YrMDR	-0.17	0.76	1.40	2.52	0.81	-2.53	0.00
24 YrMDR	0.03	0.87	1.47	2.54	0.80	-2.44	0.00
25 YrMDR	0.09	0.86	1.42	2.47	0.67	-2.24	0.00
26 YrMDR	0.15	0.84	1.38	2.39	0.54	-2.08	0.00
27 YrMDR	0.12	0.81	1.32	2.31	0.43	-2.03	0.00
28 YrMDR	-0.02	0.68	1.20	2.17	0.28	-2.06	0.00
29 YrMDR	-0.18	0.55	1.08	2.04	0.16	-2.12	0.00
30 YrMDR	-0.38	0.37	0.90	1.85	-0.03	-2.16	0.00
31 YrMDR	-0.42	0.28	0.78	1.74	-0.16	-2.07	0.00
32 YrMDR	-0.32	0.34	0.83	1.77	-0.13	-1.95	0.00
33 YrMDR	-0.29	0.40	0.88	1.82	-0.08	-1.91	0.00
34 YrMDR	-0.36	0.34	0.82	1.77	-0.12	-1.93	0.00
35 YrMDR	-0.36	0.33	0.80	1.75	-0.13	-1.91	0.00
36 YrMDR	-0.38	0.29	0.74	1.67	-0.19	-1.93	0.00
37 YrMDR	-0.41	0.24	0.68	1.59	-0.19	-1.95	0.00
38 YrMDR	-0.50	0.15	0.57	1.47	-0.31	-2.04	0.00
39 YrMDR	-0.50	0.14	0.55	1.43	-0.34	-2.05	0.00
40 YrMDR	-0.46	0.16	0.56	1.42	-0.33	-2.04	0.00
41 YrMDR	-0.42	0.20	0.59	1.44	-0.30	-2.01	0.00
42 YrMDR	-0.40	0.21	0.60	1.44	-0.28	-2.00	0.00
43 YrMDR	-0.41	0.20	0.59	1.42	-0.28	-2.01	0.00
44 YrMDR	-0.42	0.20	0.59	1.41	-0.27	-2.02	0.00
45 YrMDR	-0.44	0.19	0.57	1.38	-0.28	-2.03	0.00
46 YrMDR	-0.45	0.18	0.56	1.35	-0.28	-2.06	0.00
47 YrMDR	-0.49	0.14	0.52	1.30	-0.30	-2.08	0.00
48 YrMDR	-0.50	0.14	0.50	1.27	-0.30	-2.06	0.00
49 YrMDR	-0.51	0.12	0.48	1.24	-0.32	-2.03	0.00
50 YrMDR	-0.51	0.13	0.48	1.23	-0.30	-2.03	0.00

MDR stands for "Medical Discount Rate," or the real discount rate based on the MCPI instead of the CPI. Other abbreviations are provided in the notes for Table 2.

Table 5--Annual Values for Various Interest Rates and Growth Rates in the Average Weekly Earnings and the Total Compensation Series of the Employer Cost Index from 1959-2004

Year	3-month	3-year	10-year	Corp Aaa	Muni	Av. Wk.%	E Cost %
1965	4.111	4.22	4.28	4.49	3.27	4.2	n.a
1966	5.106	5.23	4.92	5.13	3.82	3.5	n.a
1967	4.504	5.03	5.07	5.51	3.98	2.8	n.a
1968	5.601	5.68	5.65	6.18	6.94	5.4	n.a
1969	7.066	7.02	6.67	7.03	5.81	6.1	n.a
1970	6.825	7.29	7.35	8.04	6.51	4.2	n.a
1971	4.533	5.65	6.16	7.39	5.70	6.2	n.a
1972	4.236	5.72	6.21	7.21	5.27	7.7	n.a
1973	7.469	6.95	6.84	7.44	5.18	6.2	n.a
1974	8.411	7.82	7.56	8.57	6.09	5.6	n.a
1975	6.145	7.49	7.99	8.83	6.89	5.6	n.a
1976	5.222	6.77	7.61	8.43	6.49	7.3	n.a
1977	5.521	6.69	7.42	8.02	5.56	6.9	n.a
1978	7.669	8.29	8.41	8.73	5.90	7.6	n.a
1979	10.862	9.71	9.44	9.63	6.39	7.2	n.a
1980	12.568	11.55	11.46	11.94	8.51	6.8	n.a
1981	15.583	14.44	13.91	14.17	11.23	8.6	9.9
1982	11.609	12.92	13.00	13.79	11.57	4.3	6.5
1983	9.250	10.45	11.10	12.04	9.47	4.8	5.7
1984	10.332	11.89	12.44	12.71	10.15	4.1	4.9
1985	7.957	9.64	10.62	11.37	9.18	2.4	3.9
1986	6.300	7.06	7.68	9.02	7.38	1.6	3.2
1987	6.125	7.68	7.68	9.38	7.73	2.4	3.3
1988	7.080	8.26	8.85	9.71	7.76	3.0	4.8
1989	8.674	8.55	8.49	9.26	7.24	3.6	4.8
1990	7.991	8.26	8.55	9.32	7.25	3.3	4.6
1991	5.689	6.82	7.85	8.77	6.89	2.5	4.4
1992	3.576	5.30	7.01	8.14	6.41	2.7	3.5
1993	3.121	4.44	5.87	7.22	5.63	2.9	3.6
1994	4.470	6.27	7.09	7.96	6.19	3.3	3.1
1995	5.787	6.25	6.57	7.59	5.95	2.3	2.6
1996	5.256	5.99	6.44	7.37	5.75	3.3	3.1
1997	5.310	6.10	6.35	7.87	5.55	4.5	3.4
1998	5.029	5.14	5.26	6.53	5.12	3.9	3.8
1999	4.868	5.49	5.65	7.04	5.43	3.2	3.3
2000	6.158	6.22	6.03	7.62	5.77	3.9	4.4
2001	3.576	4.09	5.02	7.08	5.19	2.7	4.0
2002	1.659	3.10	4.61	6.49	5.05	2.6	3.2
2003	1.041	2.10	4.01	5.67	4.73	2.2	3.8
2004	1.411	2.78	4.27	5.63	4.63	2.2	3.9

Interest rates are taken from Table B-73 of the Economic Report of the President: 2005. Percentage increases in Average Weekly Earnings are taken from Table B-47 and percentage increases in the Total Compensation series of the Employer Cost Index are taken from Table B-48. The ECI figure for 2004 is estimated at 4.0 percent based on results in the first three quarters. "3-Month" refers to the 90 Day U.S. Treasury Bill, "3-Year" refers to a constant maturity U.S. Treasury three year note, "10 Year" refers to a 10 Year U.S. Treasury Bond, "Corp. Aaa" refers to the Corporate Aaa rate, Muni refers to the High Grade Municipal rate, "CPI" refers to the Consumer Price Index, and "MCPI" refers to the medical component of the CPI. The 91 Day Treasury Bill rate is converted from "bank discount" to "effective yield."

Table 6--Average Rates for Various Interest Rates and Growth Rates in the Average Weekly Earnings and Total Compensation Series in the Employer Cost Index for the Number of Years Shown as Ending in 2004

# of Years	3-month	3-year	10-year	Corp Aaa	Muni	Av. Wk.%	E Cost %
1 Yr Ave	1.41	2.78	4.27	5.63	4.63	2.20	3.90
2 Yr Ave	1.23	2.44	4.14	5.65	4.68	2.20	3.85
3 Yr Ave	1.37	2.66	4.30	5.93	4.80	2.33	3.63
4 Yr Ave	1.92	3.02	4.48	6.22	4.90	2.43	3.73
5 Yr Ave	2.77	3.66	4.79	6.50	5.07	2.72	3.86
6 Yr Ave	3.12	3.96	4.93	6.59	5.13	2.80	3.77
7 Yr Ave	3.39	4.13	4.98	6.58	5.13	2.96	3.77
8 Yr Ave	3.63	4.38	5.15	6.74	5.18	3.15	3.73
9 Yr Ave	3.81	4.56	5.29	6.81	5.25	3.17	3.66
10 Yr Ave	4.01	4.73	5.42	6.89	5.32	3.08	3.55
11 Yr Ave	4.05	4.87	5.57	6.99	5.40	3.10	3.51
12 Yr Ave	3.97	4.83	5.60	7.01	5.42	3.08	3.52
13 Yr Ave	3.94	4.87	5.71	7.09	5.49	3.05	3.52
14 Yr Ave	4.07	5.01	5.86	7.21	5.59	3.01	3.58
15 Yr Ave	4.33	5.22	6.04	7.35	5.70	3.03	3.65
16 Yr Ave	4.60	5.43	6.19	7.47	5.80	3.07	3.72
17 Yr Ave	4.75	5.60	6.35	7.60	5.91	3.06	3.78
18 Yr Ave	4.82	5.71	6.42	7.70	6.02	3.03	3.76
19 Yr Ave	4.90	5.78	6.49	7.77	6.09	2.95	3.73
20 Yr Ave	5.05	5.98	6.70	7.95	6.24	2.93	3.74
21 Yr Ave	5.31	6.26	6.97	8.18	6.43	2.98	3.79
22 Yr Ave	5.48	6.45	7.16	8.35	6.57	3.06	3.88
23 Yr Ave	5.75	6.73	7.41	8.59	6.78	3.12	3.99
24 Yr Ave	6.16	7.05	7.68	8.82	6.97	3.35	4.24
25 Yr Ave	6.42	7.23	7.83	8.95	7.03	3.48	n.a.
26 Yr Ave	6.59	7.33	7.89	8.97	7.01	3.63	n.a.
27 Yr Ave	6.63	7.36	7.91	8.96	6.96	3.77	n.a.
28 Yr Ave	6.59	7.34	7.90	8.93	6.91	3.89	n.a.
29 Yr Ave	6.54	7.32	7.89	8.91	6.90	4.00	n.a.
30 Yr Ave	6.53	7.32	7.89	8.91	6.90	4.06	n.a.
31 Yr Ave	6.59	7.34	7.88	8.90	6.87	4.11	n.a.
32 Yr Ave	6.62	7.33	7.85	8.85	6.82	4.17	n.a.
33 Yr Ave	6.54	7.28	7.80	8.80	6.77	4.28	n.a.
34 Yr Ave	6.48	7.23	7.75	8.76	6.74	4.34	n.a.
35 Yr Ave	6.49	7.23	7.74	8.74	6.74	4.33	n.a.
36 Yr Ave	6.51	7.23	7.71	8.69	6.71	4.38	n.a.
37 Yr Ave	6.49	7.19	7.65	8.63	6.72	4.41	n.a.
38 Yr Ave	6.43	7.13	7.58	8.54	6.64	4.37	n.a.
39 Yr Ave	6.40	7.08	7.52	8.46	6.57	4.34	n.a.
40 Yr Ave	6.34	7.01	7.43	8.36	6.49	4.34	n.a.

The Employer Cost Index is Available in the *Economic Report of the President:2005* only after 1984, but 1981-1983 were provided in the *Economic Report of the President:2003* and were retained in this table, allowing 24 years of comparisons. Abbreviations are provided in the notes for Table 5.

Table 7--Net Discount Rates Based on Average Weekly Earnings of American Workers Compared with Various Interest Rates for the Number of Years Ending in 2004

# of Years	3-month	3-year	10-year	Corp Aaa	Muni	Av. Wk.%	E Cost %
1 Yr NDR	-0.77	0.57	2.03	3.36	2.38	0.00	1.61
2 Yr NDR	-0.95	0.23	1.90	3.38	2.43	0.00	1.61
3 Yr NDR	-0.94	0.32	1.92	3.51	2.41	0.00	1.27
4 Yr NDR	-0.49	0.58	2.00	3.70	2.42	0.00	1.27
5 Yr NDR	0.05	0.91	2.01	3.68	2.29	0.00	1.11
6 Yr NDR	0.31	1.13	2.07	3.69	2.27	0.00	0.94
7 Yr NDR	0.42	1.14	1.96	3.52	2.11	0.00	0.79
8 Yr NDR	0.47	1.19	1.94	3.48	1.97	0.00	0.56
9 Yr NDR	0.63	1.35	2.06	3.53	2.02	0.00	0.47
10 YrNDR	0.90	1.60	2.27	3.70	2.17	0.00	0.46
11 YrNDR	0.92	1.71	2.40	3.77	2.23	0.00	0.40
12 YrNDR	0.86	1.70	2.44	3.81	2.26	0.00	0.42
13 YrNDR	0.86	1.76	2.57	3.92	2.37	0.00	0.45
14 YrNDR	1.02	1.93	2.76	4.08	2.50	0.00	0.55
15 YrNDR	1.26	2.13	2.92	4.19	2.59	0.00	0.60
16 YrNDR	1.49	2.29	3.03	4.27	2.65	0.00	0.63
17 YrNDR	1.63	2.46	3.19	4.40	2.76	0.00	0.70
18 YrNDR	1.74	2.61	3.29	4.54	2.90	0.00	0.71
19 YrNDR	1.89	2.75	3.43	4.68	3.04	0.00	0.75
20 YrNDR	2.07	2.97	3.66	4.88	3.22	0.00	0.79
21 YrNDR	2.26	3.18	3.87	5.05	3.35	0.00	0.79
22 YrNDR	2.35	3.28	3.97	5.13	3.40	0.00	0.79
23 YrNDR	2.55	3.50	4.16	5.31	3.56	0.00	0.85
24 YrNDR	2.72	3.59	4.20	5.30	3.51	0.00	n.a.
25 YrNDR	2.83	3.62	4.20	5.28	3.43	0.00	n.a.
26 YrNDR	2.86	3.57	4.12	5.16	3.26	0.00	n.a.
27 YrNDR	2.75	3.46	3.99	5.00	3.07	0.00	n.a.
28 YrNDR	2.60	3.32	3.86	4.86	2.92	0.00	n.a.
29 YrNDR	2.44	3.19	3.73	4.72	2.79	0.00	n.a.
30 YrNDR	2.38	3.14	3.68	4.67	2.73	0.00	n.a.
31 YrNDR	2.38	3.11	3.62	4.60	2.66	0.00	n.a.
32 YrNDR	2.35	3.03	3.53	4.49	2.54	0.00	n.a.
33 YrNDR	2.17	2.88	3.37	4.34	2.39	0.00	n.a.
34 YrNDR	2.06	2.78	3.27	4.24	2.31	0.00	n.a.
35 YrNDR	2.07	2.78	3.26	4.23	2.30	0.00	n.a.
36 YrNDR	2.04	2.73	3.19	4.13	2.23	0.00	n.a.
37 YrNDR	1.99	2.66	3.11	4.04	2.21	0.00	n.a.
38 YrNDR	1.98	2.65	3.08	4.00	2.18	0.00	n.a.
39 YrNDR	1.97	2.62	3.04	3.94	2.14	0.00	n.a.
40 YrNDR	1.92	2.56	2.97	3.85	2.06	0.00	n.a.

"NDR" refers to the Net Discount Rate calculated as  $[(1 + i)/(1+g) - 1]$ , where  $i$  is the interest rate being used and  $g$  is the rate of increase in Average Weekly Earnings for all American Workers.

Table 8--Net Discount Rates Based on the Total Compensation Series of the Employer Cost Index Compared with Various Interest rates for the Number of Years Ending in 2004

# of Years	3-month	3-year	10-year	Corp Aaa	Muni	Av. Wk.%	E Cost %
1 Yr EDR	-2.40	-1.08	0.36	1.67	0.70	-1.64	0.00
2 Yr EDR	-2.53	-1.36	0.28	1.73	0.80	-1.59	0.00
3 Yr EDR	-2.18	-0.94	0.64	2.22	1.13	-1.25	0.00
4 Yr EDR	-1.74	-0.68	0.73	2.40	1.13	-1.25	0.00
5 Yr EDR	-1.05	-0.19	0.89	2.54	1.17	-1.10	0.00
6 Yr EDR	-0.62	0.19	1.12	2.72	1.32	-0.93	0.00
7 Yr EDR	-0.37	0.35	1.16	2.71	1.31	-0.78	0.00
8 Yr EDR	-0.09	0.63	1.37	2.91	1.41	-0.55	0.00
9 Yr EDR	0.15	0.87	1.58	3.04	1.53	-0.47	0.00
10 YrEDR	0.44	1.14	1.81	3.22	1.71	-0.45	0.00
11 YrEDR	0.52	1.31	1.99	3.36	1.82	-0.40	0.00
12 YrEDR	0.44	1.27	2.01	3.37	1.83	-0.42	0.00
13 YrEDR	0.41	1.31	2.12	3.46	1.91	-0.45	0.00
14 YrEDR	0.47	1.38	2.20	3.51	1.94	-0.54	0.00
15 YrEDR	0.66	1.52	2.31	3.58	1.98	-0.59	0.00
16 YrEDR	0.85	1.65	2.38	3.62	2.01	-0.63	0.00
17 YrEDR	0.93	1.75	2.47	3.68	2.05	-0.69	0.00
18 YrEDR	1.03	1.89	2.57	3.80	2.18	-0.70	0.00
19 YrEDR	1.13	1.98	2.66	3.90	2.28	-0.75	0.00
20 YrEDR	1.27	2.16	2.85	4.07	2.42	-0.78	0.00
21 YrEDR	1.46	2.38	3.06	4.23	2.54	-0.78	0.00
22 YrEDR	1.55	2.48	3.16	4.31	2.59	-0.78	0.00
23 YrEDR	1.69	2.63	3.29	4.42	2.69	-0.84	0.00
24 YrEDR	1.84	2.70	3.30	4.40	2.62	-0.86	0.00

"EDR" refers to the Net Discount Rate calculated as  $[(1 + i)/(1+g) - 1]$ , where i is the interest rate being used and g is the rate of increase in the total compensation series of the Employer Cost Index.