

APPENDIX 8D. HOUSEHOLD DISCOUNT RATE DISTRIBUTIONS

TABLE OF CONTENTS

8D.1	INTRODUCTION	8D-1
8D.2	DISTRIBUTION OF REAL INTEREST RATES FOR CONSUMER DEBT CLASSES INCLUDING MORTGAGES	8D-1
8D.3	DISTRIBUTION OF REAL INTEREST RATES FOR FINANCIAL ASSETS...	8D-2

LIST OF TABLES

Table 8D.2.1	First Mortgages and Household Debt: Real Interest Rate Distributions....	8D-2
Table 8D.3.1	Household Assets: Time-Series of Real Interest Rates.....	8D-4

APPENDIX 8D. HOUSEHOLD DISCOUNT RATE DISTRIBUTIONS

8D.1 INTRODUCTION

As discussed in section 8.2.4 of Chapter 8, DOE characterized real interest rates associated with household mortgages, debt, and assets with probability distributions. The sections below provide the probability distributions.

8D.2 DISTRIBUTION OF REAL INTEREST RATES FOR CONSUMER DEBT CLASSES INCLUDING MORTGAGES

Table 8D.2.1 presents weighted distributions of the real effective interest rates for first mortgages and various household debt classes. As reported in sections 8.2.4.1 and 8.2.4.2 of Chapter 8, DOE used data from the Federal Reserve Board's *Survey of Consumer Finances (SCF)* in 1989, 1992, 1995, 1998, 2001, and 2004 to generate the probability distributions for first mortgages and household debt. The weights associated with each binned rate correspond to the share of each value among the surveyed households. DOE calculated the rates shown in Table 8D.2.1 by developing a similar table from each of the six *SCF* surveys. DOE used the average value in each binned rate and then averaged across the six *SCF* surveys to derive the values shown in Table 8D.2.1.

Table 8D.2.1 First Mortgages and Household Debt: Real Interest Rate Distributions

1st Mortgage		Home Equity		Credit Card		Installment Loans		Other Residence		Other Line of Credit	
Rate (%)	Weight (%)	Rate (%)	Weight (%)	Rate (%)	Weight (%)	Rate (%)	Weight (%)	Rate (%)	Weight (%)	Rate (%)	Weight (%)
0.4	5.4	0.4	10.0	0.0	4.4	0.0	34.1	0.2	12.8	0.1	4.2
1.6	13.0	1.5	7.1	1.4	1.2	1.4	2.1	1.5	6.3	1.5	2.3
2.5	28.1	2.5	12.7	2.6	1.7	2.4	4.2	2.5	6.9	2.5	1.6
3.5	26.5	3.5	23.4	3.5	3.4	3.4	5.4	3.5	12.1	3.5	4.9
4.4	17.8	4.5	19.2	4.5	4.5	4.5	5.4	4.5	15.3	4.6	5.6
5.4	5.0	5.4	13.6	5.5	5.2	5.6	6.7	5.5	19.2	5.6	12.5
6.4	2.3	6.4	5.2	6.6	6.8	6.6	7.1	6.5	14.3	6.7	10.4
7.4	0.9	7.5	4.2	7.4	4.3	7.5	3.5	7.5	6.5	7.6	5.5
8.5	0.4	8.5	2.0	8.6	5.5	8.6	4.1	8.6	2.9	8.6	8.3
9.4	0.2	9.5	1.1	9.6	5.7	9.5	3.7	9.4	1.6	9.5	9.3
10.5	0.1	10.5	0.6	10.6	5.5	10.6	3.2	10.6	0.4	10.5	7.9
11.7	0.1	11.8	0.2	11.5	6.2	11.5	1.9	11.6	0.5	11.6	6.6
12.4	0.1	12.7	0.3	12.5	5.2	12.5	2.7	12.6	0.5	12.5	6.7
13.3	0.0	13.4	0.1	13.6	4.8	13.5	1.8	14.8	0.4	13.5	1.9
14.4	0.0	14.7	0.2	14.7	9.2	14.7	3.8	15.7	0.1	14.7	3.5
16.9	0.0	15.0	0.0	15.6	7.8	15.6	1.8	16.6	0.3	15.6	2.2
23.2	0.0	17.0	0.0	16.4	6.1	16.4	2.1	17.9	0.1	16.4	2.5
		17.5	0.0	17.6	5.7	17.6	1.9			17.4	1.0
		42.7	0.1	18.4	1.9	18.5	1.3			18.5	0.3
				19.3	2.3	19.4	0.7			19.1	1.4
				20.4	1.1	20.5	0.7			20.2	1.0
				21.4	0.4	21.4	0.3			21.1	0.0
				22.5	0.3	22.2	0.2			22.1	0.2
				23.6	0.1	23.4	0.3			23.5	0.3
				24.6	0.2	24.6	0.4				
				25.5	0.2	25.2	0.2				
				26.3	0.1	26.6	0.0				
				36.9	0.0	27.8	0.0				
						28.4	0.0				
						29.3	0.1				
						43.6	0.0				
						44.3	0.0				
						47.2	0.0				

8D.3 DISTRIBUTION OF REAL INTEREST RATES FOR FINANCIAL ASSETS

Table 8D.3.1 presents the time series of real effective interest rates associated with various household asset types. As reported in section 8.2.4.2 of Chapter 8, DOE used data from

the various sources to generate the probability distributions for each of the asset types identified in Table 8D.3.1. For each asset, the average, minimum, maximum, and standard deviation are provided. DOE developed probability distributions based on the average value and standard deviation. Because the use of the standard deviations yield distributions with negative values, DOE truncated the lower end of the normal distribution at a discount rate of zero. DOE also truncated the higher end of the normal distribution in equal proportion to the truncation at the lower end to maintain the average values above in Table 8D.3.1.

Table 8D.3.1 Household Assets: Time-Series of Real Interest Rates

Year	Savings Accounts (%)	CDs 6 Months (%)	Treasury Savings Bonds (%)	Corp AAA Bonds (%)	Stocks S&P 500 (%)	Mutual Funds (%)
1977	-	-0.6	1.2	1.4	-12.7	-8.0
1978	-	0.9	0.8	1.1	-1.0	-0.4
1979	-	0.1	-1.9	-1.5	6.4	3.7
1980	-	-0.5	-2.0	-1.4	16.1	10.1
1981	-	5.0	2.8	3.5	-13.6	-8.1
1982	-	6.0	6.2	7.2	13.4	11.0
1983	-	5.9	7.7	8.6	18.5	14.9
1984	5.5	6.1	7.8	8.0	1.8	3.8
1985	5.4	4.5	7.0	7.5	26.7	20.1
1986	6.0	4.6	5.8	7.0	16.3	12.8
1987	3.3	3.2	4.8	5.5	2.1	3.0
1988	3.1	3.6	4.6	5.4	11.9	9.5
1989	3.0	4.1	3.5	4.2	25.4	18.1
1990	2.4	2.6	3.0	3.7	-8.0	-4.3
1991	2.7	1.6	3.8	4.4	25.0	17.9
1992	2.1	0.7	4.5	5.0	4.4	4.4
1993	1.1	0.3	3.5	4.1	6.8	5.7
1994	1.3	2.3	4.7	5.3	-1.2	0.8
1995	2.2	3.1	3.9	4.6	33.4	23.6
1996	2.0	2.4	3.6	4.3	20.3	14.7
1997	2.7	3.4	4.2	4.9	28.9	20.7
1998	3.4	3.8	4.0	4.9	26.4	18.9
1999	2.3	3.2	3.6	4.7	18.3	13.4
2000	1.7	3.1	2.5	4.1	-12.0	-7.2
2001	1.8	0.8	2.6	4.1	-14.3	-8.7
2002	1.3	0.2	3.8	4.8	-23.2	-14.2
2003	-0.2	-1.1	2.6	3.3	25.6	17.9
2004	-0.7	-0.9	2.3	2.9	7.8	6.0
2005	-0.6	0.3	1.2	1.8	1.4	1.3
2006	0.8	2.0	1.6	2.3	12.0	8.6
2007	1.9	2.3	1.9	2.6	2.6	2.4
Average	2.3%	2.4%	3.4%	4.1%	8.6%	6.8%
Minimum	-0.7%	-1.1%	-2.0%	-1.5%	-23.2%	-14.2%
Maximum	6.0%	6.1%	7.8%	8.6%	33.4%	23.6%
Std. Dev.	1.7%	2.1%	2.3%	2.3%	14.8%	10.1%