Pensioner Mort	ality in the New Y	ork State Public	Retirement System

Summary

New York State has mortality data going back to 1921. When we looked at that data, and graphed the mortality experience, with particular attention paid to the recent data after 1986 we noticed a smooth asymptotic trend in the curve of the mortality rates by age over the years, as well as a smooth asymptotic trend in the curve of the mortality rates by years for each age. This led us to examine a recursive method of forecasting as well as an exponential method. Based on a recursive method, we forecasted future mortality rates and then calculated the effects on the liabilities and the funding of the New York State Retirement System. The results showed, that based on patterns from the past continuing into the future, mortality rates thirty years from now for pensioners over age 80 would be approximately 67% of our current assumptions. This would translate in the life expectancy of a sixty-two year old pensioner changing from approximately 22 years to approximately 26 years, and an increase in the current new entrant rate of approximately 7.9%. These changes, although not insignificant, would be realized gradually over the next thirty years and would not represent an immediate burden. Again, this assumes that medical and social breakthroughs in the future will have no more of an impact on mortality than the changes which we have experienced over the last eighty years.

Table of Contents

I Introduction

II The Last Fifteen Years

- A Graph of male mortality experience by allowance. Age versus rate of mortality for the last fifteen years broken down into three sets of data grouped by five years.
- B Graph of female mortality experience by allowance. Age versus rate of mortality for the last fifteen years broken down into three sets of data grouped by five years.
- C Graph of female mortality experience by allowance compared to male mortality experience by allowance. Age versus rate of mortality for the last fifteen years.

III Possible Trends

- D Graph of total mortality experience by number. Age versus rate of mortality for the last eighty years. Showing five sets of select data grouped by five years.
- E Graph of total mortality experience by number. Years versus rate of mortality for the last eighty years Showing mortality at each centralized age as the years have progressed.
- IV Impact on the Liabilities and the Funding
- V Possible Factors that have had an effect on Mortality
 - F Graphs that compare mortality experience by Allowance for pensions based on the amount of allowance. Age versus rate of mortality for the last fifteen years. This compares the graph of the rate of mortality for allowances that are greater then twice minimum wage to the graph of the rate of mortality for allowances that are less then twice minimum wage.

VI Appendix

G Tables of the supporting data for Graphs A,B and C

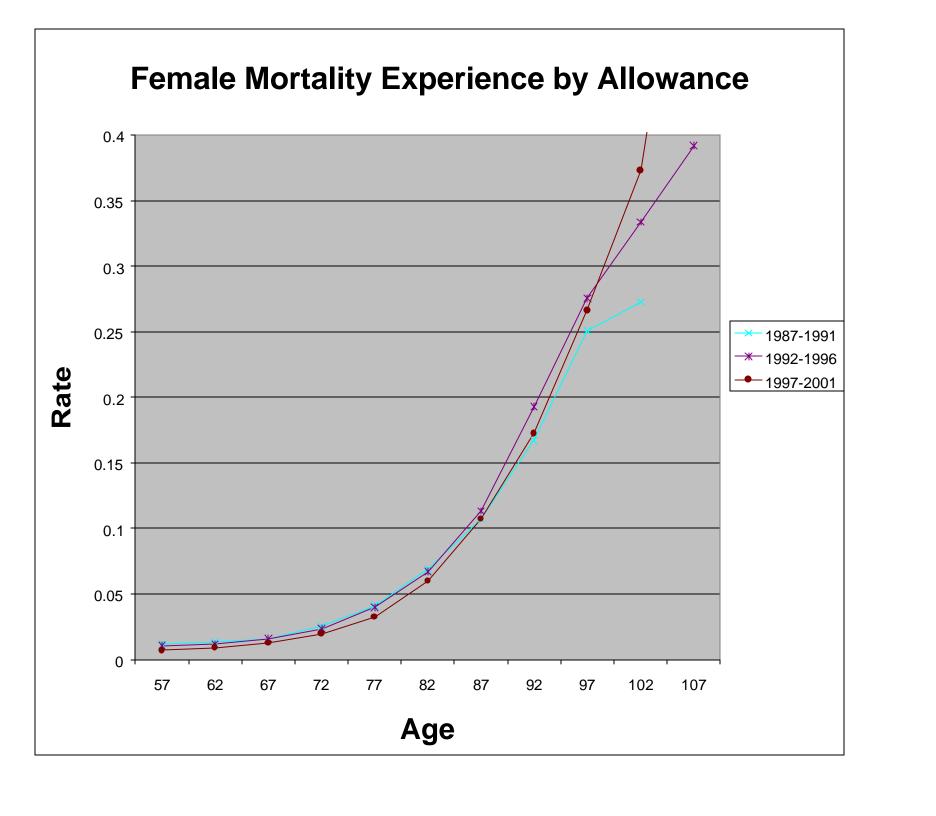
Introduction

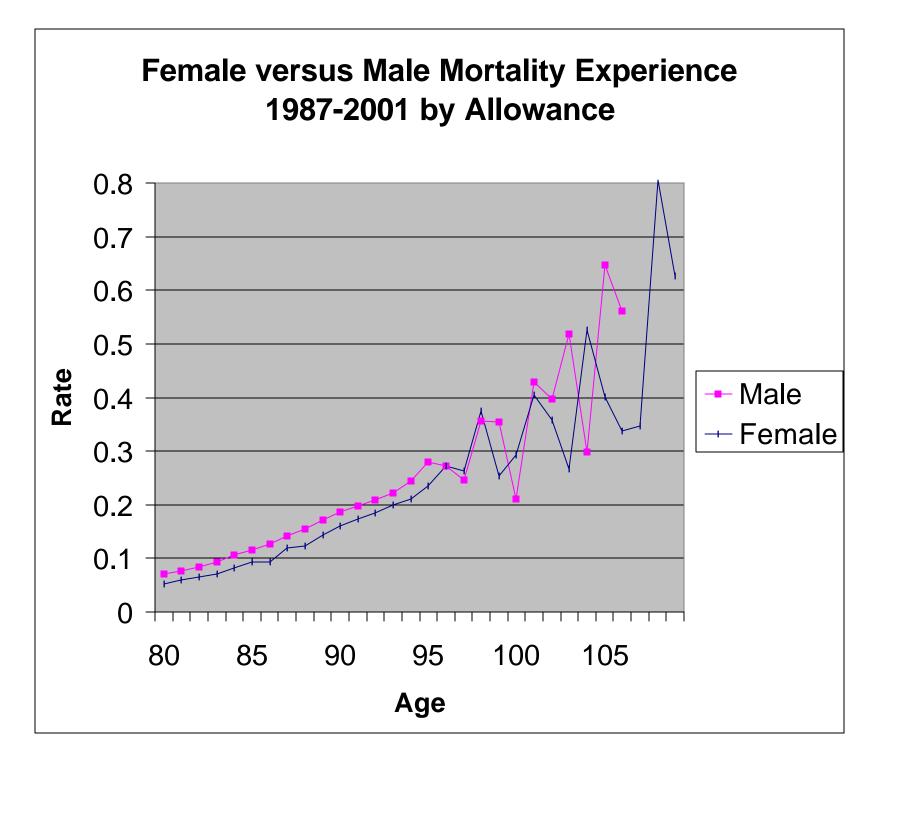
The New York State and Local Employees' Retirement System has been providing retirement benefits to municipal employees since 1921. There have been more than 550,000 pensioners and beneficiaries paid in that time, with the current number of pensioners and beneficiaries in excess of 290,000. This collection of data shows a trend in mortality during a period of many medical breakthroughs and social improvements. The last fifteen years begin to show longevity reaching into ages beyond ninety. The question remains, however, what trends does the future hold, and can any information be gleaned from the past.

The Last Fifteen Years

Attached are tables and graphs of our experience by allowance over the last fifteen years, broken down by gender. For our own purposes, we would also sort this data by job type (i.e. clerical, laborer, police officer, firefighter or beneficiary) and retirement type (i.e. service or disability). For this study, however, since we're interested in mortality at advanced ages where such distinctions lose their significance, we combined retirement types and job types.



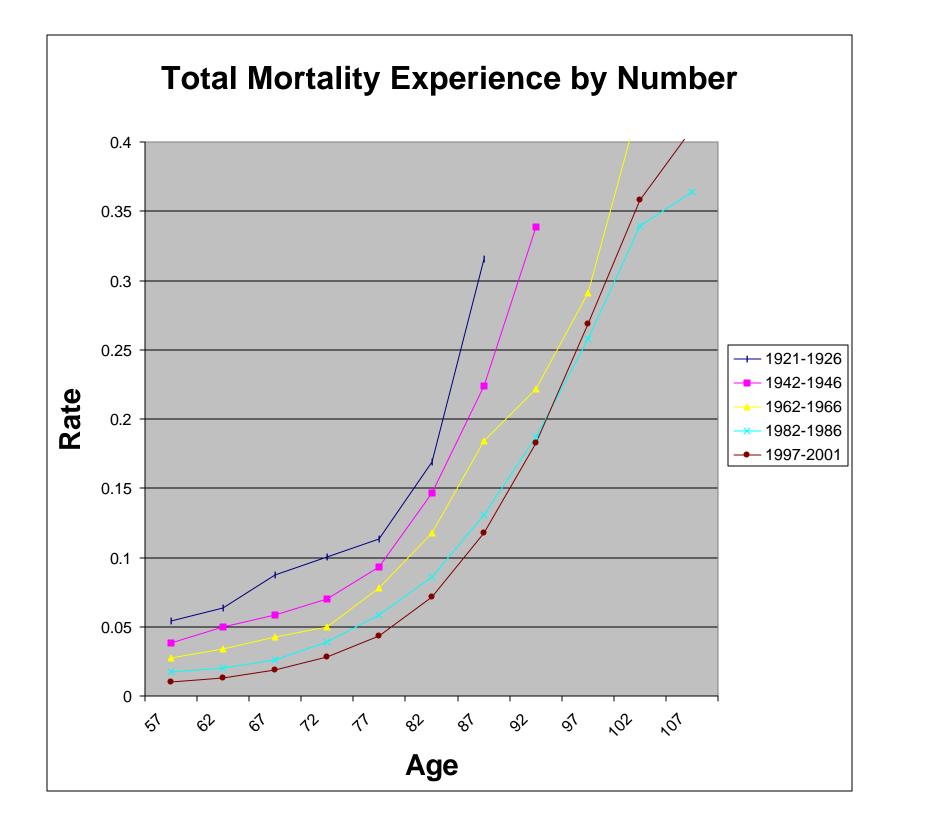


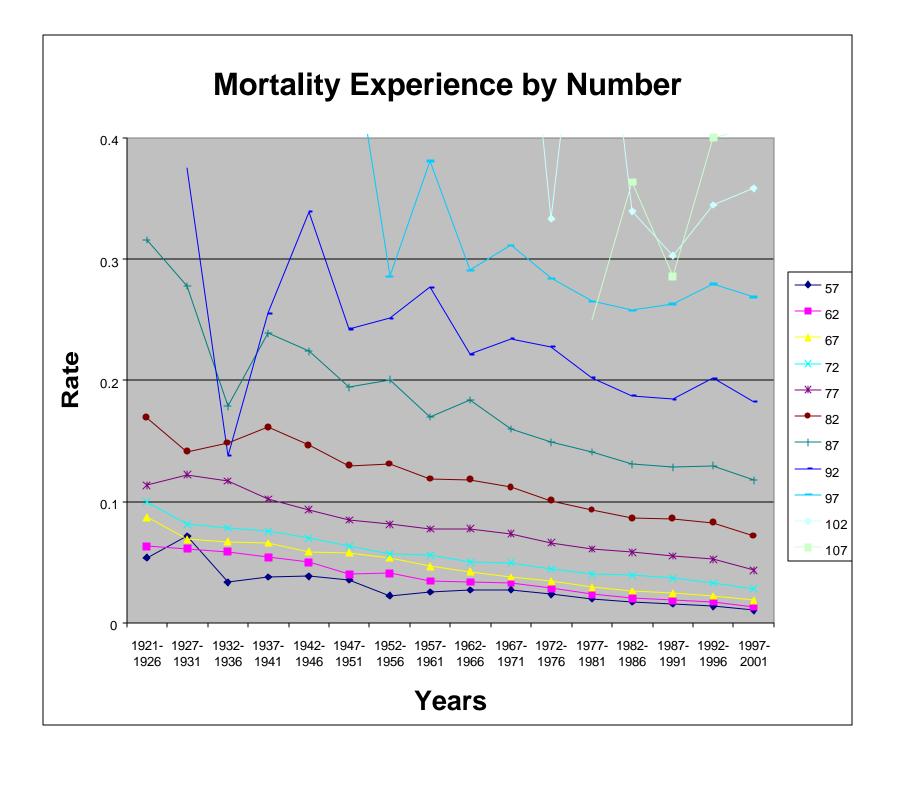


Possible Trends

Attached are two graphs of the data, by number, that has been accumulated over the past eighty years. The first graph shows a laying down trend in the curve of age versus mortality rate as we look at selected five year data since 1921. This is what we would expect as an effect of societal and medical changes. The second graph, of each centralized age of mortality rate versus the years the data was accumulated, seems to show a regressive relationship in the mortality at each age as the years have passed. For instance, the mortality rate for the age 77 group in the period 1937 to 1941 is about the same as the mortality rate for the age group 82 in the period 1972 to 1976. Also shown here is how wild the age 87 and 92 rates were, from 1921 through 1966 and how nicely they settled into a pattern after that. Now you can notice how wild the age 97 and above rates are, but you can also see the beginning of a pattern being set there as well.

The graphs appear to have an exponential quality. We looked at fitting them into the Lee-Carter Method for Forecasting Mortality (North American Actuarial Journal, January 2000), but couldn't get it to forecast trends that were as palatable as the regression method. The thought of an exponential mortality curve is enticing, however, we were not able to isolate all of the variables that were necessary to create viable forecasts.





Impact on the liabilities and the funding for the New York State and Local Employees' Retirement System.

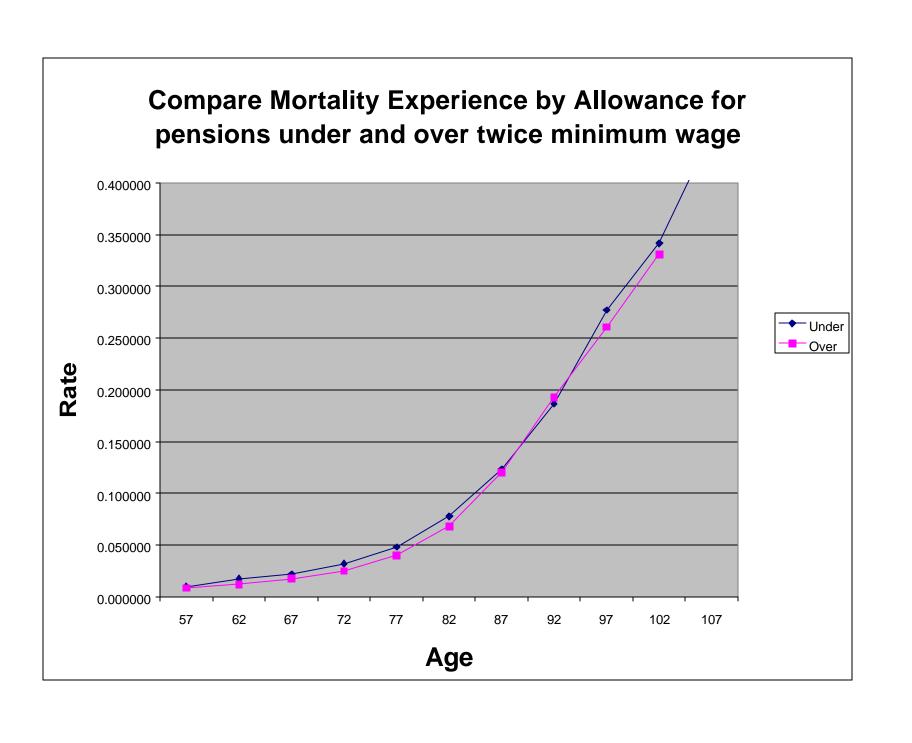
Using the recursive relationship noticed earlier, and shifting our current mortality rates at each five year centralized age to be that of age minus five, we can crudely estimate what the mortality rate at each age will be in about the year 2036. These projected rates end up being approximately 67% of our current expected mortality rates. The life expectancy for a current retiree age 62 on our current assumptions is approximately 22 years, whereas a retiree age 62 on the projected rates would have a life expectancy of approximately 26 years. In calculating liabilities based on these mortality rates, the concern is that our current demographics do not reflect this improved mortality and that actual liabilities in 2036 will be based on far more pensioners and beneficiaries being over age 90 and even over age 100. However, as a starting point, I valued our currently active members on the new projected pensioner mortality rates. As a result, the present value of benefits for current members increased by 4.2 billion. This represents a percent change of approximately 6.1% and a change in future normal rate of approximately 2.5% of salary. In addition, I valued our current pensioners on the new projected pensioner mortality rates. This generated an increase in present value of benefits of approximately 2.7 billion. This represents a percent change of approximately 9.1% and a change in future normal rate of approximately 1.6% of salary. The changes in mortality will be gradual and if we do see these changes, the effects will be phased in gradually in the future. Another way of looking at the effects of these changes is by looking at how the new entrant rate will be affected. By calculating the new entrant rate on the new projected pensioner mortality rates and then comparing that to the current new entrant rate there would be an increase in the new entrant rate of approximately .8% of salary, this corresponds to a 7.9% increase in the current new entrant rate. These increases are not small, but since we would realize them gradually, we should be prepared for them through our current process of creating new mortality tables every five years from our most recent experience and using the 25% loading factor. These assumptions assume that the trends from the past will continue into the future and thereby, that medical and societal changes in the future will be no more significant than the changes over the past eighty years, until proven otherwise.

Possible factors that have had an effect on the mortality experience of the New York State and Local Employees' Retirement System.

New York State has historically been a progressive, industrialized state with good health care and an above average standard of living. So it would not be surprising if Mortality rates in New York State were lower than the national rates and Global rates. However, the New York State Retirement System mortality rates are higher than the national rates in the UP83, GAM83, UP94, and GAM94 tables. Perhaps this may be accounted for by the differences in the way the tables are created and the differences in the characteristics of the individuals. In particular, that we grouped service retirees and disability retirees together even though disability retirees have significantly higher mortality rates at the lower ages.

We also looked at pensioners since 1987 broken down into two groups. The first group consists of pensioners who are receiving annual benefits which are less than twice the minimum wage of the year that they started receiving benefits. The second group consists of pensioners who are receiving annual benefits which are more than twice the minimum wage of the year that they started receiving benefits. The level of twice minimum wage was chosen because about half of the exposures fell into the under and into the over group. The attached graphs of that data shows no significant differences. This is not what one might expect, until you consider that a pension benefit should not be their sole means of support and that the majority of these pensioners have had health insurance. The results do lend some credibility to the consistency of the data over these years as a homogeneous group.

Lastly, New York State may be a reasonable model, because it has been a progressive state for this eighty year period. There has been a smooth transition in mortality rates over these years, not a cliff scenario where they would be catching up with medical and social advances.



Total Exposures by Allowance for Males 1987 1988 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 Age 1989 1990 1991 6,208,965 7,805,715 8,979,489 9,681,860 10,053,836 10,528,668 12,143,497 12,012,653 14,112,159 15,466,150 15,547,288 17,375,965 20,085,032 20,162,117 25,407,8080 5.745.270 5.685.031 7.057.135 8.205.193 9,063,249 9,276,662 9,799,449 11,197,697 10,965,245 13,247,003 14,161,919 14,504,484 16,052,427 18,697,753 18,915,54 81 82 4,304,245 5,246,288 5,130,431 6,325,469 7,433,327 8,313,994 8,490,421 9,014,282 10,395,173 10,132,455 12,260,927 13,089,457 13,547,940 14,840,361 17,316,500 83 3,525,378 3,905,414 4,701,776 4,696,154 5,715,493 6,727,545 7,680,250 7,729,640 8,194,619 9,532,895 9,295,396 11,233,648 11,947,052 12,357,480 13,585,869 4,243,826 5,147,107 6,834,900 84 2,842,212 3,204,129 3,481,553 4,175,072 5,941,942 6,986,435 7,295,440 8,524,165 8,579,365 10,260,710 10,736,080 11,487,919 6,176,218 85 1,837,344 2,549,109 2,803,246 3,088,088 3,671,492 3,687,567 4,547,216 5,292,070 6,060,613 6,367,071 7,580,067 7,743,055 9,149,780 9.510.052 1,432,107 1,533,614 2,230,127 2,511,240 3,250,610 3,192,794 4.065,392 4,673,548 5,344,767 5,501,239 5,523,688 86 2,693,905 6,631,416 6,787,123 7,994,233 4,784,494 87 1,134,132 1,207,109 1,347,393 1,886,394 2,169,171 2,329,879 2,857,149 2,633,714 3,547,750 4,026,550 4,955,914 4,867,182 5,628,514 5,668,468 4,171,240 88 729,063 1,012,324 947,862 1,122,486 1,649,538 1,883,327 1,986,597 2,325,607 2,217,297 2,992,659 3,467,966 4,027,883 4,289,744 4,769,890 1,425,593 865,201 823.904 1,987,976 2,429,481 2,956,444 89 533.155 618.136 919.513 1,578,861 1,607,058 1,824,890 3,287,516 3.647.264 3,407,109 408.314 479.642 676,326 90 426.961 630,259 774,157 1,172,506 1,268,400 1,312,645 1,616,745 1,518,613 1,948,306 2,515,522 2,728,049 2,956,181 91 266,632 316,519 357,179 344,886 591,280 515,152 584,945 968,112 1,026,689 1,070,155 1,274,411 1,200,901 1,377,405 2,134,545 2,148,78 92 158,896 232,003 276,718 222,884 285,081 475,426 409,746 451,742 812,528 835,638 839,772 1,025,480 888,594 1,073,467 1,610,286 305,829 93 145.592 120.879 180.641 197.095 236.932 244,539 351,847 359.014 586.313 684.929 677,992 725.768 681,288 798,342 117.395 90.752 232,771 94 110.023 148,217 128.295 185,457 171,276 261,686 289.839 436,395 518,670 520,357 516,423 538,13 95 61.088 102,150 69.863 76.216 119.674 107,190 138,350 155,258 157,814 166,308 199,275 322,680 427,002 389,175 356,788 25,954 120,230 296,513 96 47,612 59,489 55.517 55,261 104,150 65.128 90,952 131,320 120,170 119,867 211,012 241,980 97 32.552 16.567 30,367 29.863 19,731 38,714 86.420 41,530 61,786 106,086 108.543 94.995 68,654 160,272 236,614 98 16.470 29.624 10.130 17.183 22,731 18.114 27.610 71,061 19.195 53,925 66,938 93.541 60.835 35.226 111,786 99 5.896 13,208 11,506 6.765 13,921 20,653 6,071 15,970 55,497 14,218 36,380 31,880 53,826 30,271 21,22; 2,982 10.366 8,623 34,756 100 2.592 12,129 4,046 13,905 3,243 9,728 33,368 12,433 16,147 15,743 17,82 2,592 1.207 3.353 1,273 101 2.438 10.617 8.162 6.890 10.191 4,012 32,876 12.433 3.310 12,062 29.69° 102 0 1,833 0 974 1,247 1,273 554 10,034 2.917 5.675 10.191 1,420 11.431 2,598 10,00 0 0 103 0 0 974 10,034 1,247 2.474 1.963 4,387 0 401 1,420 735 2,598 104 0 0 0 0 0 783 0 401 73! 0 1,247 1.977 1,963 4.116 1,420 0 0 0 0 0 0 0 783 0 2,002 0 0 1.420 105 1,977 1,963 0 0 0 0 0 0 0 0 0 640 819 0 0 106 0 0 0 0 0 0 0 0 0 0 0 0 0 0 107 640 0 0 0 108 0 0 0 0 0 0 0 0 0 640 0 0 0 0 0 109 0 0 0 0 0 0 0 0 0 640 0 0 0 0 0 0 0 0 0 0 0 0 0 0 640 110 0 0 0 0 0 0 0 0 0 0 0 0 0 0 111 0 0 0 0 0 0 0 0 0 0 0 0 0 112 0 113 0 114 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 115 0 0 0 0 0 0 0 0 0 0 0 0 116 0 0 0 117 0 118 0 0 0 0 0 0 0 0 0 0 0 0 119 0 0 0 0 0 0 0 0 0 0 0 0 120 0 0 0 0 0 0 0 0 0 0

Total Actuals by Allowance for Males

Total Actuals by Allowance for Males															
Age	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
80	533,694	755,613	786,581	678,991	834,681	792,312	956,337	1,088,153	916,457	1,338,933	1,095,255	1,388,311	1,422,861	1,308,587	659,769
81	504,060	611,236	737,923	814,530	782,694	807,703	830,668	837,343	915,860	1,077,275	1,092,467	1,016,239	1,258,531	1,395,956	557,926
82	399,271	546,485	436,033	626,011	771,480	671,010	785,657	866,753	933,129	890,955	1,066,783	1,158,938	1,225,138	1,305,865	677,068
83	325,370	427,153	529,884	454,139	583,267	814,978	856,962	752,511	918,351	1,044,591	725,717	987,186	1,218,403	890,206	638,977
84	293,327	406,278	396,318	505,101	557,498	619,962	653,538	775,087	820,683	939,968	944,920	852,188	1,123,009	1,224,406	479,038
85	310,758	322,214	296,121	396,710	422,180	497,553	503,088	619,305	730,526	675,691	858,327	949,688	960,243	1,159,140	536,678
86	224,998	187,395	347,156	342,069	366,106	400,279	561,392	518,835	646,998	588,434	606,987	657,837	1,037,854	1,121,841	430,804
87	125,153	259,247	226,081	237,271	286,074	344,431	533,367	418,186	555,091	572,908	767,581	680,730	695,942	875,231	350,713
88	110,927	150,023	126,022	204,080	223,945	304,695	380,687	339,406	394,175	587,581	527,837	740,367	654,956	778,830	315,202
89	106,436	138,494	190,495	197,888	146,462	253,087	310,461	298,773	371,901	308,485	481,790	443,185	559,467	691,083	285,192
90	91,795	70,023	135,594	85,046	117,540	189,212	206,457	241,711	243,237	342,775	320,463	571,516	380,977	579,268	240,731
91	43,748	84,516	72,098	69,005	115,854	105,658	133,203	157,646	191,051	230,383	250,978	312,850	303,938	524,259	198,380
92	38,017	42,243	34,908	48,244	32,645	123,579	103,917	96,519	226,215	150,709	162,066	299,712	207,306	275,125	164,328
93	35,569	30,888	32,424	68,800	51,569	73,263	90,161	73,058	69,175	149,918	166,259	157,635	209,345	143,157	49,896
94	15,245	40,160	15,297	28,543	21,105	47,107	16,018	103,872	66,463	90,564	113,715	91,668	131,182	159,638	102,815
95	13,476	42,661	14,346	20,955	15,524	42,062	47,398	35,028	26,494	44,075	79,408	111,668	130,489	147,195	28,684
96	9,387	17,245	29,626	35,786	16,547	17,730	23,598	29,166	14,144	22,777	23,111	51,213	50,740	59,899	72,931
97	2,928	6,437	13,184	7,132	1,617	11,104	15,359	22,335	8,654	39,148	15,002	34,160	33,428	48,486	19,703
98	3,262	18,118	3,365	3,262	2,078	12,043	11,640	9,645	4,977	18,337	35,058	39,715	30,564	14,003	27,238
99	2,914	1,079	1,140	2,719	5,298	6,748	2,828	6,242	16,210	1,785	20,233	16,137	19,070	12,450	4,381
100	0	1,775	1,512	2,204	693	1,733	3,714	1,970	5,716	492	0	12,837	3,681	5,065	283
101	605	2,592	233	583	6,915	436	1,215	0	0	3,458	31,456	1,002	712	2,061	9,203
102	0	1,833	0	0	0	0	443	3,712	5,804	1,273	153	0	10,696	0	0
103	0	0	0	0	974	9,251	0	497	0	271	0	0	0	0	2,598
104	0	0	0	0	0	0	0	1,247	0	0	2,114	0	401	0	0
105	0	0	0	0	0	0	0	783	0	1,337	1,144	2,002	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	819	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Exposures by Allowance for Females

i otai E	xposures by														
Age	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
80	5,232,250	6,016,564	6,694,315	7,130,948	7,585,551								17,104,286		
81	4,151,612	5,057,405	5,722,636	6,327,991	6,726,511		8,672,209	8,048,768					14,103,048		
82	3,444,799	3,986,261	4,718,224	5,417,429	6,032,432	6,326,913		8,112,819	7,642,560				12,025,033		
83	2,798,581	3,272,044	3,775,444	4,449,910	5,101,649	5,589,525	5,998,165	6,416,137	7,637,515	7,168,114	8,315,142	9,290,415	10,699,939	11,126,504	12,374,67
84	2,123,042	2,588,018	3,013,590	3,518,293	4,081,826	4,706,703	5,285,566	5,640,678	5,964,994	7,082,519	6,709,457	7,644,434	8,667,249	9,824,341	10,310,16
85	1,984,651	1,976,035	2,384,071	2,791,225	3,260,103	3,769,170	4,368,568	4,872,808	5,141,707	5,359,036	6,567,944	6,145,304	6,928,583	8,001,088	8,960,807
86	1,444,075	1,868,383	1,846,849	2,160,181	2,562,049	3,009,434	3,511,690	3,925,344	4,534,885	4,559,598	4,893,794	5,874,685	5,519,383	6,205,482	7,096,196
87	1,070,766	1,360,527	1,658,297	1,697,233	2,031,568	2,360,490	2,713,364	3,203,295	3,568,600	4,213,721	4,119,202	4,434,226	5,259,024	4,953,480	5,488,920
88	848,487	930,277	1,238,845	1,468,241	1,572,106	1,757,076	2,098,096	2,395,507	2,803,942	3,131,720	3,797,144	3,629,791	3,845,584	4,576,049	4,201,587
89	691,747	755,716	790,412	1,065,016	1,326,522	1,353,577	1,557,482	1,799,631	2,076,760	2,457,911	2,730,135	3,328,140	3,216,273	3,321,046	3,997,940
90	531,469	594,336	669,121	684,953	936,294	1,107,210	1,154,489	1,324,231	1,555,684	1,795,009	2,030,652	2,317,266	2,777,024	2,790,842	2,715,62
91	397,291	439,619	492,391	573,471	613,394	821,406	962,972	969,889	1,112,712	1,261,363	1,474,057	1,732,173	1,977,712	2,255,635	2,251,050
92	284,118	344,047	379,906	416,476	487,324	531,534	634,233	809,920	794,770	922,260	1,013,409	1,177,218	1,446,637	1,582,780	1,738,786
93	221,999	236,060	292,422	289,213	328,991	378,046	422,427	496,262	645,745	649,837	762,000	804,117	974,294	1,154,966	1,250,590
94	155,216	198,797	213,264	230,222	225,787	291,632	301,843	352,687	362,386	517,470	487,592	565,158	635,426	783,755	895,796
95	105,149	126,251	159,065	191,435	185,577	179,182	229,209	234,684	277,381	268,074	407,448	372,400	427,736	512,201	591,464
96	61,521	87,367	106,568	115,172	133,996	157,847	123,906	169,470	168,866	217,808	236,295	341,061	301,456	278,881	368,15 ⁻
97	43,038	47,845	52,569	78,942	88,056	121,451	126,728	88,760	133,569	126,872	137,978	147,364	231,495	219,378	171,99
98	46,587	30,898	34,849	35,482	61,855	74,335	103,235	82,671	72,308	97,882	88,752	106,305	96,531	158,309	154,55(
99	14,975	29,123	18,925	21,669	26,728	38,338	48,370	27,362	61,326	41,840	72,469	56,032	64,499	53,470	109,77°
100	5,628	9,092	17,859	10,179	12,332	24,792	31,977	40,892	22,701	38,020	32,551	49,275	44,203	51,837	35,010
101	9,985	5,628	5,121	12,979	9,031	10,164	19,425	16,617	22,267	20,647	24,871	27,124	41,548	27,911	36,440
102	2,429	6,686	4,563	2,379	9,817	6,997	4,650	16,240	12,231	5,657	19,156	11,266	10,049	19,010	17,63
103	834	2,429	6,078	4,563	1,836	3,041	5,927	4,650	13,595	9,601	1,625	11,431	1,535	7,122	7,176
104	0	0	2,429	6,078	3,026	648	3,041	2,445	4,650	7,060	3,146	788	11,431	1,535	3,602
105	0	0	0	2,429	3,007	852	648	3,041	592	3,798	824	0	0	3,868	98!
106	425	0	0	0	2,429	2,303	0	0	1,356	592	3,798	824	0	0	(
107	695	0	0	0	0	1,829	2,303	0	0	1,356	592	1,698	0	0	(
108	162	695	0	0	0	0	252	2,303	0	0	0	592	1,698	0	(
109	0	162	695	0	0	0	0	252	0	0	0	0	0	0	(
110	0	0	162	0	0	0	0	0	252	0	0	0	0	0	(
111	0	0	0	162	0	0	0	0	0	252	0	0	0	0	(
112	0	0	0	0	162	0	0	0	0	0	252	0	0	0	(
113	0	0	0	0	0	162	0	0	0	0	0	252	0	0	(
114	0	0	0	0	0	0	162	0	0	0	0	0	252	0	(
115	0	0	0	0	0	0	0	162	0	0	0	0	0	0	(
116	0	0	0	0	0	0	0	0	162	0	0	0	0	0	(
117	0	0	0	0	0	0	0	0	0	162	0	0	0	0	(
118	0	0	0	0	0	0	0	0	0	0	162	0	0	0	(
119	0	0	0	0	0	0	0	0	0	0	0	162	0	0	(
120	0	0	0	0	0	0	0	0	0	0		0		0	(

Total Actuals by Allowance for Females Age 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 255,259 331,959 419,139 451,827 385,072 374,979 501,336 613,274 552,425 726,269 687,045 907,450 940,947 1,124,679 403,608 80 81 217,096 359,955 374,611 355,861 443,810 488,411 611,358 455,362 655,543 631,094 891,139 758.394 791,627 1,011,895 381,556 82 207,856 263,801 299,803 398,806 499,530 378,579 510,364 527,642 518,109 565,303 764,519 906,151 945,998 1,004,548 354,166 83 239,918 282,869 288,758 391,547 424,469 352,161 398,753 498,583 607,791 514,034 702,887 625,789 920,318 841,475 330,842 84 178,767 237,783 243,043 299,630 339,916 365,466 466,288 523,121 662,970 562,546 638,256 731,107 686,355 880,596 315,580 85 152,264 146,316 248,088 255,798 283,303 293,459 466,520 386,251 612,379 507,296 702,117 670,146 735,508 911,789 422,385 86 116,575 214,955 166,349 167,991 216,575 302,700 344,599 380,836 371,657 469,989 503,918 647,990 586,474 717,062 312,870 87 153,929 142,535 198,078 153,624 287,543 268,108 330,292 413,532 453,435 470,886 523,475 629,572 686,410 752,880 257,585 88 98,859 141,935 186,469 146,891 237,020 204,557 308,287 325,218 367,506 417,136 492,925 425,102 529,159 578,106 240,839 608,233 257,147 89 98,569 95,334 106,427 135,181 220,159 200,033 242,361 248,888 292,459 445,442 435,306 557.849 453,800 90 103,477 103,887 75,859 117,063 145,065 185,545 221,882 296,164 333,601 300,235 355,312 526,788 546,829 269,794 94,469 91 60,575 76,739 89,021 86,188 191,018 157,818 179,394 193,081 250,305 302,158 286,426 396,073 516,849 163,310 56,428 92 49,441 52,982 93,880 87,918 109,677 109,982 137,971 176,144 145,250 164,496 209,672 205,903 295,358 333,327 153,447 93 23,202 48,305 62,200 69,057 39,951 76,203 76,323 133,876 134,172 162,561 199,710 168,691 190,539 259,170 135,218 94 31,304 39,732 45.954 44,645 49,048 67,054 68,191 82,374 95,215 110,912 115,192 145,609 123,225 192,291 93,555 95 17,782 19,683 43,893 57,439 27,730 55,276 61,778 67,896 60,058 47,864 67,276 70,944 148,855 144,050 108,940 96 14,975 34,798 28,144 27,116 12,545 31,119 35,146 35,901 41,994 82,260 88,931 109,849 82,078 106,886 51,223 97 12,140 13,865 17,087 18,034 13,721 18,216 44,057 16,452 35,687 38,120 31,673 50,833 64,828 29,056 73,186 98 11,973 11,438 23,946 25,965 75,873 21,345 25,413 32,720 41.806 43,061 48,538 43,015 17,464 14.049 30,468 99 5,883 11,264 8,746 9,337 4,619 6,361 7,478 4,661 23,306 9,289 23,194 11,829 12,662 18,460 17,147 100 0 3,971 4,880 2,168 5,367 15,360 18,625 2,054 13,149 5,427 7,727 16,292 15,391 13,195 1,148 101 3,299 1,065 2.742 2,034 5,514 3,185 4,386 1,491 17,075 22,538 10,189 3,162 16,610 13,605 10,278 102 0 608 0 543 6,776 0 2,645 4,032 7,725 9,731 2,927 2,666 1,070 2,630 11,834 103 834 0 0 1,537 1,188 0 3,482 0 3,852 6,455 837 0 0 3,520 0 104 0 0 0 3,071 2,174 0 0 1,853 852 3,552 3,146 788 7,563 546 2,701 105 0 0 0 0 704 852 648 1,685 0 0 0 0 0 3,868 299 106 425 0 0 0 600 0 0 0 0 0 2,100 824 0 0 0 107 0 0 0 0 0 1,577 0 0 0 1,356 0 0 0 0 0 108 0 0 0 0 0 0 0 2,303 0 0 0 592 1,698 0 0 109 0 0 695 0 110 0 0 0 111 0 0 0 0 0 0 0 0 0 0 0 0 112 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 113 0 114 0 0 0 0 0 0 0 252 0 115 0 0 0 0 0 0 0 0 0 0 0 0 0 0 116 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 117 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 118 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 119 0 0 0 0 0 0 0 0 0 0 0 0 0 0 120 0 0 0 0 0 0 0 0 0 0 0